Appendices

APPENDIX A

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

Ernie Fletcher
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
FAX (502)564-4245
www.dep.ky.gov

Teresa J. Hill
Secretary

Cheryl Taylor
Commissioner

July 26, 2007

U.S. Army Corps of Engineers
Louisville District
Attn: Mr. George DeLAncey, CELRL-OP-FW
P.O. Box 489
Newburgh, Indiana 47629

RE: Coordinated State Response
Public Notice No. LRL-2007-0811-GJD
Applicant: City of Paducah
Proposed Activity: To construct a boat launch and attendant features to provide public access to the Ohio River for water related recreational activities located in McCracken County, Kentucky.

Dear Mr. DeLancey:

The Environmental and Public Protection Cabinet's Department for Environmental Protection has coordinated the above referenced public notice with concerned state agencies in order to prepare a statement of the Commonwealth's concerns on the proposed activity. We have the following comments concerning this project.

1. The Kentucky Division for Air Quality provided the following comments concerning Kentucky Administrative Regulations that may apply to this project. Questions should be directed to Leslie Eggen, at (502) 573-3382. The Division also suggests an investigation into compliance with applicable local government regulations.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm.

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the purposes listed on the Open Burning Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm. The Division also suggests an investigation into compliance with applicable local government regulations.

2. The Division of Water offered the following comments.

An individual CWA Section 401 Water Quality Certification from the Division of Water is required for this project. Questions should be directed to Joyce Fry at (502) 564-3410.

There are no Outstanding State Resource Waters, Wild Rivers, or known Exceptional Waters within the project area. Care should be taken to minimize in-stream disturbances. Questions should be directed to John Brumley at (502) 564-3410.

A Kentucky Pollutant Discharge Elimination System (KPDES) Permit is not required for this project. Questions should be directed to Larry Sowder at (502) 564-3410.

A Stream Construction Permit is required per KRS 151.250. Questions should be directed to Ron Dutta, Floodplain Management Section, Water Resources Branch, Division of Water at (502) 564-3410.

3. The Kentucky Heritage Council offered the following comments.

No known historical, cultural, or archaeological sites are located in the project area. However, our review indicated that the proposed project has the potential to impact sites eligible for listing in the National Register of Historic Places. Therefore, I recommend that the entire project area be surveyed by a professional archaeologist. A report documenting the results of this investigation must be submitted for review, comment and approval. Where a given project area or portions thereof have been disturbed by prior construction, the applicant may file documentation of that disturbance with the State Historic Preservation Officer and may request an opinion concerning the need of an archaeological survey. Questions should be directed to Lori Stahlgren at (502) 564-7005.

4. The Kentucky Housing Buildings and Construction Office offered the following comments.

The City of Paducah should consult with their building department to see if a building permit is required for structure to be moored to land. Questions should be directed to Terry Slade at (502) 573-0373.

If you have any additional questions, please contact me at (502) 564-2150.

Sincerely,

Valerie A. Hudson

Valerie A. Hudson
Deputy Commissioner

cc: Joyce Fry, Division of Water
City of Paducah

Department of the Army
U. S. Army Engineer District, Louisville
Corps of Engineers
P. O. Box 59
Louisville, Kentucky 40201-0059

FIRST-CLASS MAIL
U. S. POSTAGE
PAID
Louisville, KY
Permit No. 43

CITY OF PADUCAH
300 S 5TH ST
PADUCAH, KY 42002

Public Notice

Public Notice No.	Date:	Closing Date:
LRL-2007-0811-GJD	19 Jul 07	7 Aug 07

US Army Corps of Engineers
Louisville District

Please address all comments and inquiries to:
U.S. Army Corps of Engineers, Louisville District
ATTN: Mr. George Delancey, CELRL-OP-FW
P.O. Box 489
Newburgh, Indiana 47629
Phone: (812) 842-2807

This notice announces an application submitted for a Department of the Army (DA) Permit, subject to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA)

APPLICANT: City of Paducah
300 South 5th Street
Paducah, Kentucky 42002

LOCATION: On the left bank of the Ohio River, Mile 935.8, Paducah, McCracken County, Kentucky.
Latitude: 37-05-59
Longitude: 88-36-39
7.5 Minute Quad: Paducah East, KY

PURPOSE: To construct a boat launch and attendant features to provide public access to the Ohio River for water related recreational activities.

DESCRIPTION OF WORK: The applicant is proposing to construct a public boat launch facility. The project would result in the construction of a boat ramp, approximately 260′ x 100′, a paved parking/trailering area, and an access road extension from Burnett Street. There would also be a gang way and courtesy dock constructed at the ramp. The gangway/ramp structure would be approximately 200′ x8′. The boat ramp would be constructed of a compacted sub grade, 12″ minimum of compacted aggregate, and a 6″ minimum concrete grooved cap. The boat ramp would extend approximately 105′ riverward at normal pool. The gangway/courtesy dock would extend 35′ riverward at normal pool. The Ordinary Highwater Mark is 310.3′ Ohio River Datum (ORD) and the Normal Pool elevation is 302′ ORD.

The project would result in the permanent loss of 5 acres Farmed Wetlands (FW), 1.7 of Palustrine Forested Wetlands (PFO), and 0.3 acres of Palustrine Emergent Wetlands (PEM).

Mitigation: The applicant proposed on site mitigation. The mitigation would include the preservation of 34.4 acres of PFO, the preservation of 3.4 acres of upland buffer, and the restoration of 10.9 acres of FW to PFO. The restoration would be primarily managed for hard mast species.

Operations Division
Regulatory Branch (West)
ID No. LRL-2007-811

REVIEW PROCEDURES: A DA Permit cannot be issued if any legally required Federal, State, or local authorization or certification is denied. A DA permit, if otherwise warranted, will not be issued until a State of Kentucky Water Quality Certification or waiver is on file at this office. In order to comply with Section 401 of the Clean Water Act, the applicant, by this notice, hereby applies for State certification from the Kentucky Natural Resources and Environmental Protection Cabinet Division of Water (KDOW).

Copies of this notice are sent to the appropriate Federal and State Fish and Wildlife Agencies. Their views and comments are solicited in accordance with the Fish and Wildlife Coordination Act of 1956. Based on available information, the proposed activity will not destroy or endanger any Federally-listed threatened or endangered species or their critical habitats, as identified under the Endangered Species Act, and therefore, initiation of formal consultation procedures with the U.S. Fish and Wildlife Service is not planned at this time.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. A request for a public hearing must state the specific interest which might be damaged by issuance of the DA Permit.

The National Register of Historic Places has been examined, and it has been determined that there are no properties currently listed on the Register which would be directly affected by the proposed work. The site has been surveyed for cultural resources and coordination with the Kentucky State Historic Preservation Office is on-going. If we are made aware, as a result of comments received in response to this notice, or by other means, of specific archaeological, scientific, pre historical, or historical sites or structures which might be affected by the proposed work, the District Engineer will immediately take the appropriate action necessary pursuant to the National Historic Preservation Act of 1966 - Public Law 89-665 as amended (including Public Law 96-515).

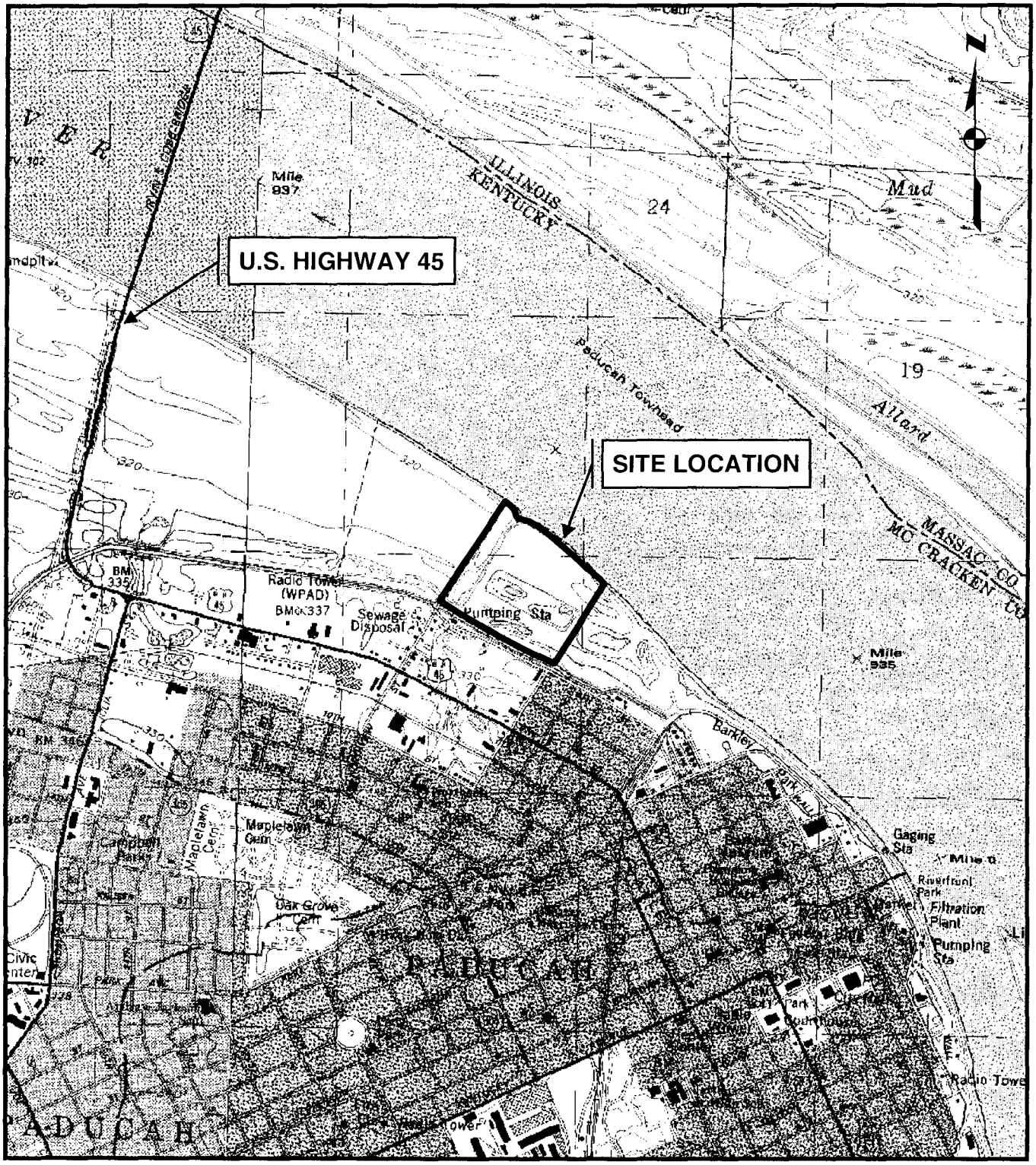
The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetic values, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production, and in general, the needs and welfare of the public. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines (40 CFR Part 230) promulgated by the Administrator, United States Environmental Protection Agency, under authority of Section 404(b) of the CWA.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Written statements received in this office on or before the closing date will become a part of the official record and will be considered in the determination on this permit request. Any objections which are received during this period will be forwarded to the applicant for possible resolution before the determination is made whether to issue or deny the requested DA Permit. A permit will be granted unless its issuance is found to be contrary to the public interest.

Information pertaining to this application is available for public examination during normal business hours upon prior request. Drawings are available on Louisville District's Internet site at http://www.lrl.usace.army.mil/ under "Obtain a Permit". All comments regarding this proposal should be addressed to George DeLancey; CELRL-OP-FW at the address noted above and should refer to the Public Notice Number LRL-2007-0811-GJD.

Source: USGS 7.5-minute Topographic Quadrangle; McCracken County, Kentucky



PADUCAH RIVERFRONT BOAT LAUNCH
McCRACKEN COUNTY, KENTUCKY

FILE: Redwing/06-090/Figures/Assessment/Site

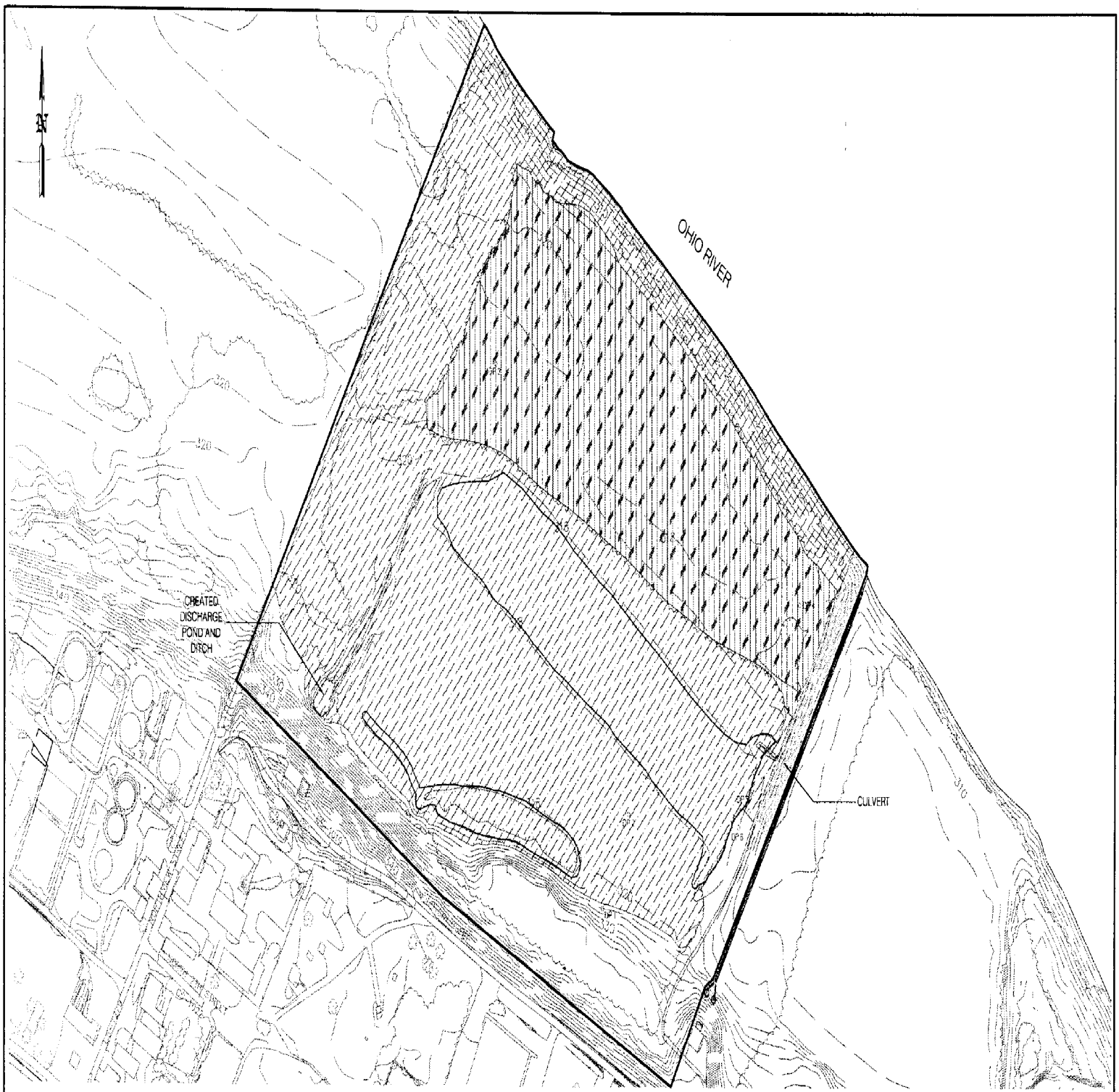
REDWING PROJECT 06-090

PRINT DATE 5/30/07 | DRAWN BY BMA

REDWING
ECOLOGICAL SERVICES, INC.

SITE LOCATION MAP

FIGURE 1


N
OHIO RIVER
CREATED DISCHARGE POND AND DITCH
CULVERT
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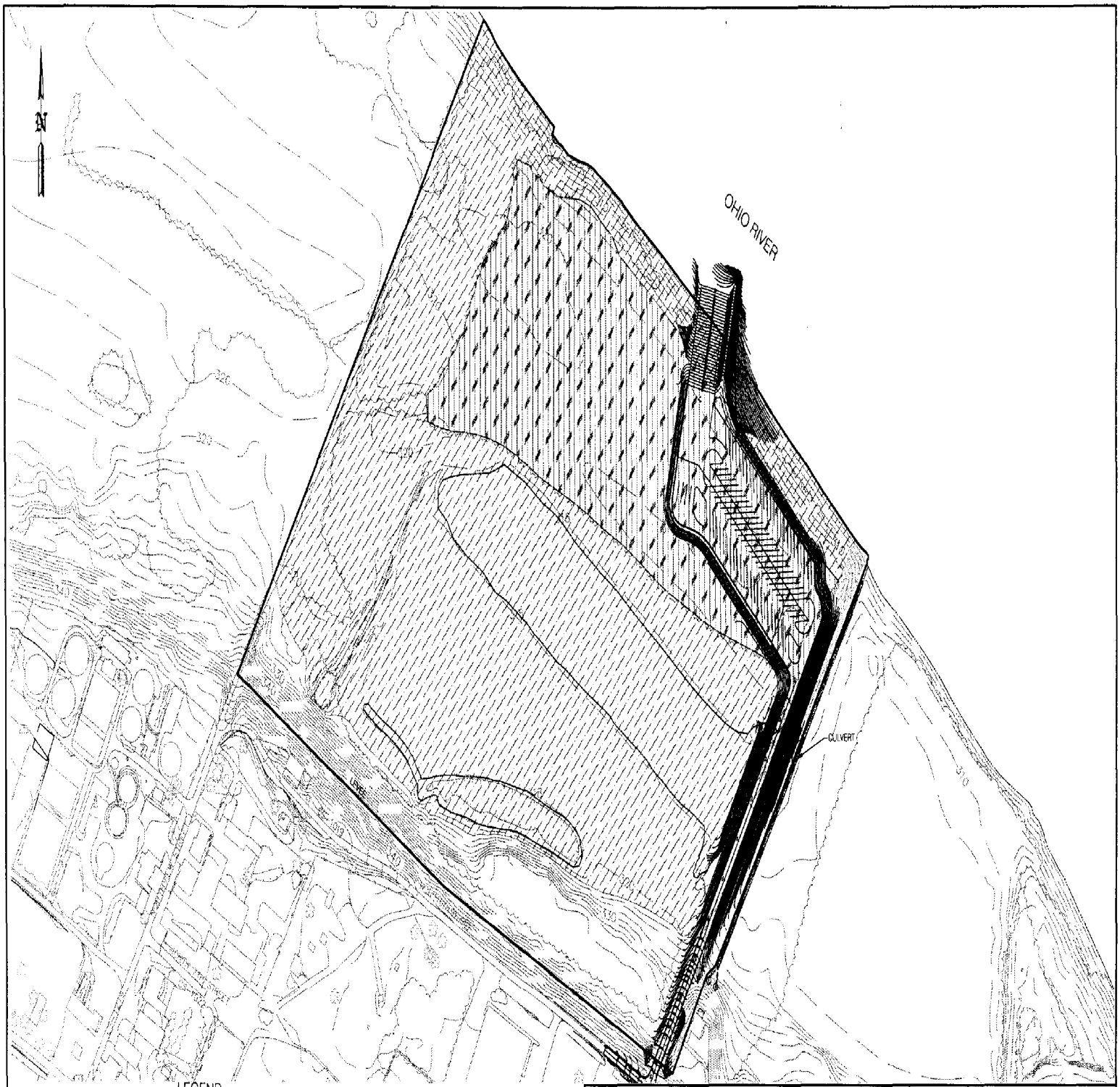


LEGEND

- PROJECT BOUNDARY
- WOODED WETLANDS
- FARMED WETLANDS
- OPEN FIELD WETLANDS
- STANDING WATER

NOTE: JURISDICTIONAL WATER/WETLAND BOUNDARIES WERE DELINEATED BY REDWING WETLAND SCIENTISTS ON APRIL 2, 2007. THESE BOUNDARIES HAVE NOT BEEN VERIFIED BY THE U.S. ARMY CORPS OF ENGINEERS. USE OF THIS MAP IS FOR PRELIMINARY PLANNING PURPOSES ONLY.

SOURCE: BASE MAP PROVIDED BY FLORENCE & HUTCHESON, INC.

250 125 0 250

SCALE IN FEET

PADUCAH RIVERFRONT BOAT LAUNCH
McCRACKEN COUNTY, KENTUCKY

FILENAME: Redwing\Figures\Dwg\dP\Permit Figure REVISED

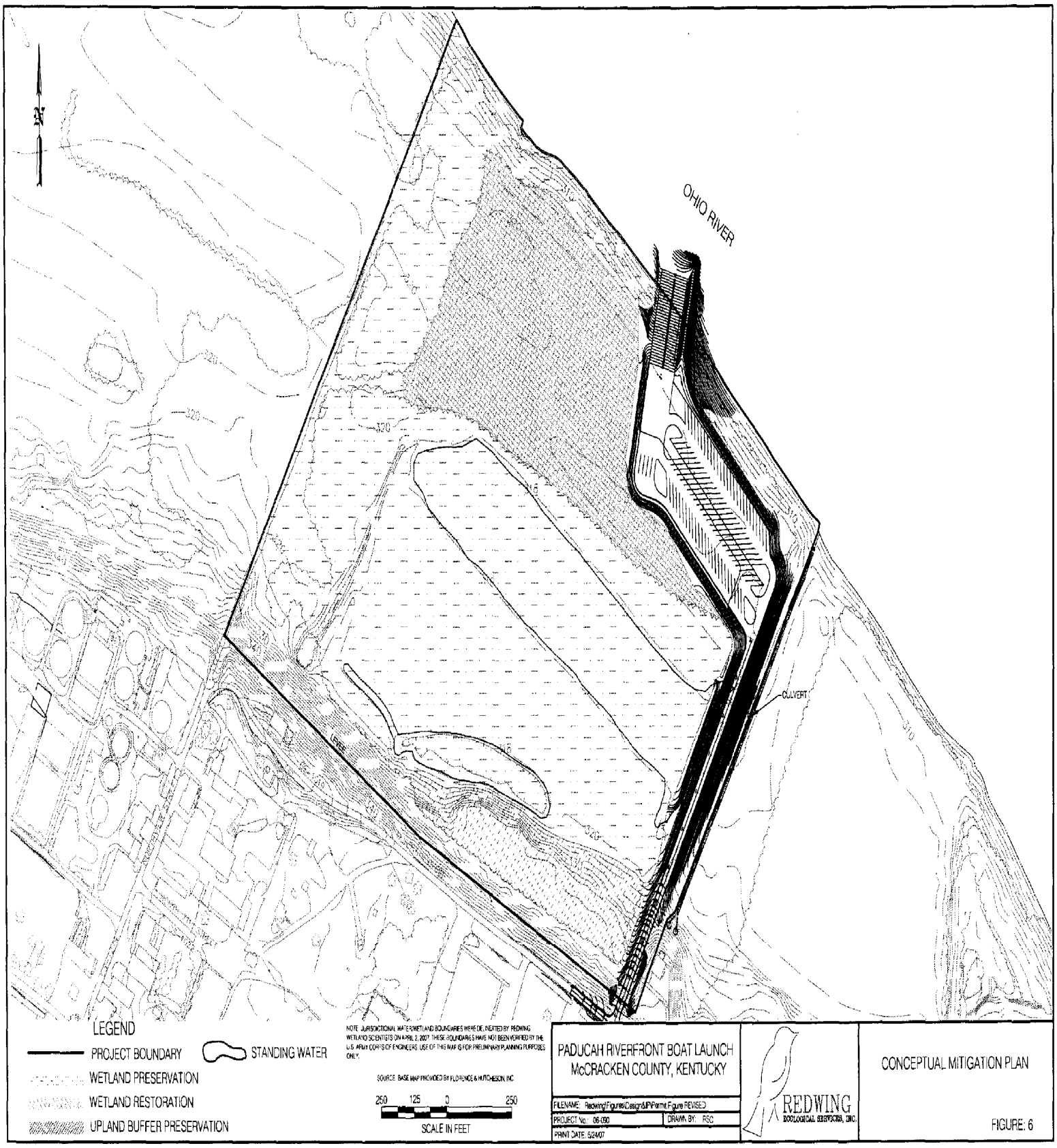
PROJECT No.: 06-080 | DRAWN BY: RSC

PRINT DATE: 5/24/07

REDWING
ECOLOGICAL SERVICES, INC.

SITE DEVELOPMENT PLAN

FIGURE: 4



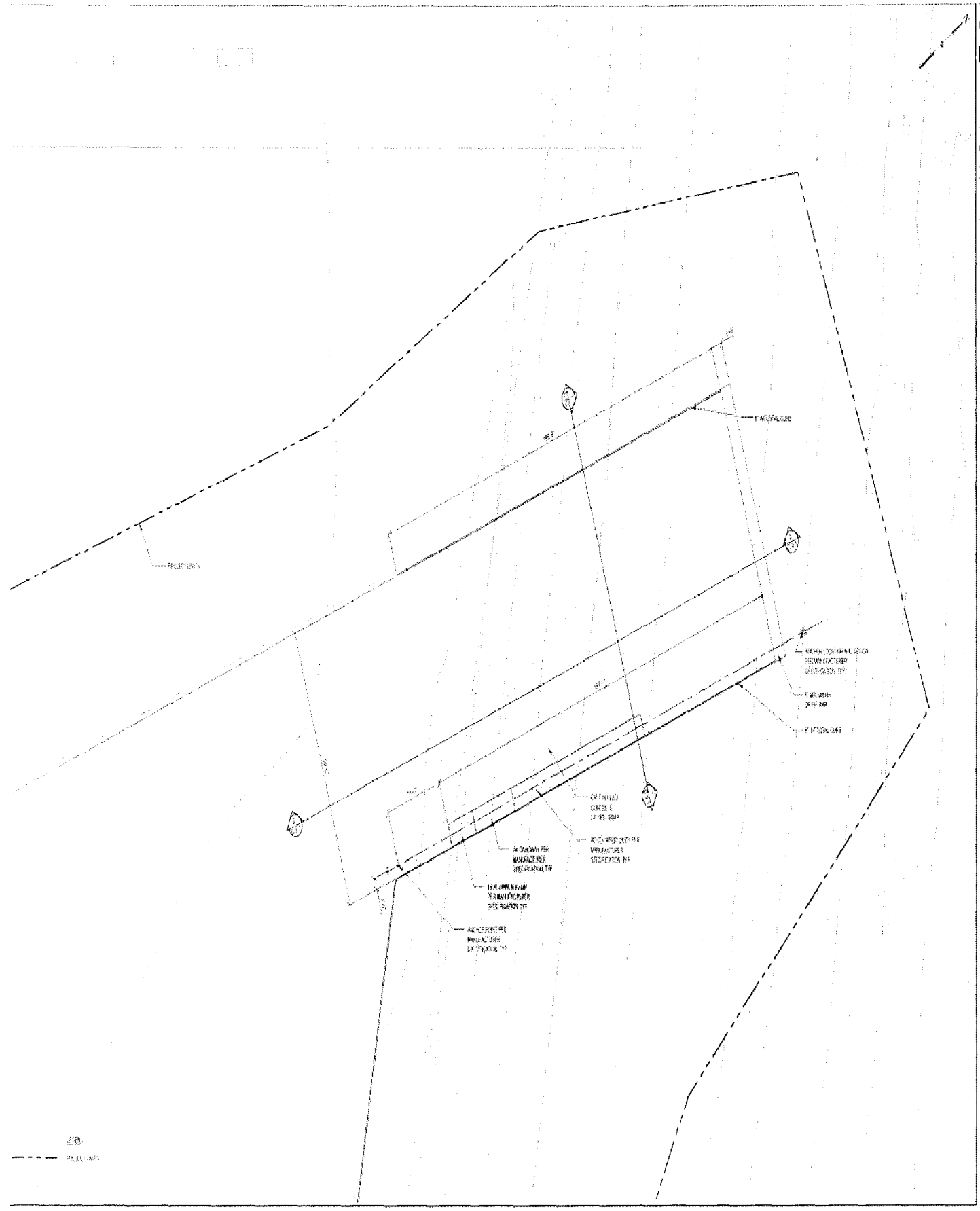
PADUCAH RIVERFRONT BOAT LAUNCH
McCRACKEN COUNTY, KENTUCKY

FILENAME: Redwing\Figures\Design\MPermit Figure REVISED
PROJECT No.: 06-090 DRAWN BY: RSC
PRINT DATE: 5/24/07

REDWING ECOLOGICAL SERVICES, INC.

CONCEPTUAL MITIGATION PLAN

FIGURE: 6



OHIO RIVER BOAT LAUNCH

CITY OF PADUCAH, KENTUCKY

JJR
JJR, LLC
625 WILLIAMSON STREET
MADISON, WISCONSIN 53703
608.251.1177 T
608.251.8147 F
www.jjr-us.com

ISSUED FOR | BY | DATE

NOT FOR CONSTRUCTION

KEY PLAN

DRAWING TITLE

LAUNCH LAYOUT

SCALE: 1" = 30'

JOB NO. 24757.0

SHEET NUMBER

C4.2

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

Ernie Fletcher
Governor

Department for Environmental Protection
Division of Waste Management
14 Reilly Road
Frankfort, Kentucky 40601-1190
www.kentucky.gov

Teresa J. Hill
Secretary

August 6, 2007

Mr. John L. Farmer
Florence & Hutcheson
410 New Salem Hwy
Suite 109
Murfreesboro, Tennessee 37129
RE: Open Records Request

Dear: Mr. Farmer

On August 2, 2007 the Division of Waste Management's Central File Room received your request to look for any records for 6th & Burnett Boat Launch, looking for any former or present hazardous waste sites within the EA study area. County Kentucky. Please be advised that I have done a search and did not locate any files on the surrounding property that you have inquired in your FOI Request. The Underground Storage Tank Branch (502) 564-5981, our Division of Water (502) 564-3410, and our Division of Air Quality (502) 573-3382 may maintain files on these sites, so you may wish to contact the records custodians to review their files.

In addition, please note that the following records will be exempt from an information request under KRS 61.878:

1. Records of law enforcement agencies or agencies involved in administrative adjudication that were compiled in the process of detecting and investigating statutory or regulatory violations, if the disclosure of the information would harm the agency (KRS 61.878(1)(g)).
2. Preliminary drafts, notes and correspondence with private individuals other than correspondence which is intended to give notice of final action of a public agency (KRS 61.878 (1)(h)).
3. Preliminary recommendations and preliminary memoranda in which opinions are expressed or policies are formulated or recommended (KRS 61.878 (1)(j)).
4. All public records or information the disclosure of which is otherwise prohibited by federal law or regulation, and public records or information the disclosure of which is prohibited or restricted or otherwise made confidential by an enactment of the General Assembly (KRS 61.878 (1)(j&k)).

If you have any questions or need any additional information, please call (502) 564-6716, extension 287.

Sincerely,

Tina Fisher
DWM Central Records

PREVENTION PARK
81 C MICHAEL DAVENPORT BLVD.
FRANKFORT, KY 40601
PHONE (502)-564-5981
FAX (502)-564-0094
E-MAIL: UST.KORA@ky.gov

UNDERGROUND STORAGE TANK BRANCH

Fax

To:	John L. Farmer, PE, CPESC	**From:**	Darlene Murphy, Admin. Spec. III
Fax:	615-904-2004	**Pages:**	1
Phone:	615-867-9400	**Date:**	7/18/07
Re:	UST Open Records Request	**CC:**	

Urgent **For Review** **Please Comment** **Please Reply** **Please Recycle**

- **Comments:** The Division of Waste Management, Underground Storage Tank Branch, has conducted a UST file search as a result of your request for information.

Please be advised that based on the information you provided, **specifically**:

6th and Burnett Boat Launch
City of Paducah, KY Waterfront Development
8th and Burnett

No UST records were found in UST file room for the address above. This fax is in response to the UST open records request dated 7/16/077 received via mail by UST 7/18/07.

United States Department of Agriculture
NRCS Natural Resources Conservation Service
2715 Olivet Church Road
Paducah, Ky. 42001
(270) 554-5242 Ext. 3

July 24, 2007

John L Farmer
Environmental Division Manager
Florence & Hutcheson, Inc.
410 New Salem Hwy
Suite 109
Murfreesboro, Tennessee 37129

As requested I have reviewed the site at Paducah, Ky. for the boat launch ramp at 6th and Burnett. Enclosed is a copy of the soils map of the area and a copy of prime farmland soils for McCracken County. Prime farmland soils in this site include Nolin-Robinsonville(Nr) and Newark-Lindside(Nd). Alluvial (Av), Okaw (Oc), and Loring (LoD3) are not classified as prime or statewide soils.

Most of the Nd soil appears to be already converted as the presence of the road indicates. If you have any questions or need more assistance let me know and I will be happy to help.

Sincerely,

John A Shely
District Conservationist

John Farmer

From: Clay, Art (EPPC DEP DOW) [Art.Clay@ky.gov]
Sent: Tuesday, September 25, 2007 9:54 AM
To: John Farmer
Subject: RE: Paducah, KY Boat Launch EA

A stream Construction permit will be required per KRS 151.250. That is the comment from this branch.

Art Clay, Manager
Water Resources Branch
502 564-3410 ext 583
art.clay@ky.gov

From: John Farmer [mailto:Jfarmer@flohut.com]
Sent: Tuesday, September 25, 2007 10:45 AM
To: Clay, Art (EPPC DEP DOW)
Subject: Paducah, KY Boat Launch EA

Mr. Clay:

We submitted a letter to your attention dated July 16, 2007, describing a proposed boat launch development on the banks of the Ohio River in Paducah, Kentucky. This letter was intended to allow your office to comment as part of the NEPA requirements. Though we did not receive comments from your office addressed to us, we are in receipt of your comments to the U.S. Corps of Engineers Public Notice No. LRL-2007-0811-GJD in a "coordinated state response" to Mr. George DeLancey in the Louisville District.

In your response to the public notice, you offered the following comments:

(1) An individual CWA Section 401 Water Quality Certification from the Division of Water is required for the project.
(2) There are no Outstanding State Resource Waters, Wild Rivers, or known Exceptional Waters within the project area.
(3) A KPDES permit is **not** required for the project.
(4) A Stream Construction Permit is required per KRS 151.250.

If there are no comments addressed directly to our letter of July 16, 2007, we will assume that your response to the U.S. Corps of Engineer public notice will suffice.

Thanks for your time!

JOHN L. FARMER, PE, CPESC
FLORENCE & HUTCHESON, INC.
410 New Salem Highway, Suite 109
Murfreesboro, Tennessee 37129
Phone: (615) 867-9400
Fax: (615) 904-2004
jfarmer@flohut.com

John Farmer

From: King, Lori M MS NGKY-KYEM [lori.mechelle.king@us.army.mil]
Sent: Monday, October 01, 2007 10:47 AM
To: John Farmer
Subject: RE:

Mr. Farmer

I am assuming that this letter was also copied to the Corp of Engineers. Floodplain issues fall under their realm of responsibility. They would be more appropriate to handle comments in regard to this. I have no comments.

Thank you

Lori King
Area 1 Manager
State Earthquake Program Manager
Kentucky Division of Emergency Management Office Phone: 270-247-9712
Cell: 270-792-1230
Duty Officer: 1-800-255-2587
Fax: 270-247-4072
P.O. Box 583
Mayfield, KY 42066
Lori.King@ky.ngb.army.mil
Web Site: http://kyem.ky.gov/

-----Original Message-----
From: John Farmer [mailto:Jfarmer@flohut.com]
Sent: Friday, September 28, 2007 2:19 PM
To: King, Lori M MS NGKY-KYEM
Subject:

Ms. King:

We submitted a letter to your attention dated July 16, 2007, describing a proposed boat launch development on the banks of the Ohio River in Paducah, Kentucky. This letter was intended to allow your office to comment as part of the NEPA requirements. We specifically requested that you provide us with floodplain permitting issues along the Ohio River in McCracken County, KY.

If there are no comments addressed directly to our letter of July 16, 2007 from your office, we will assume that there are no floodplain permitting issues.

Thanks for your time!

JOHN L. FARMER, PE, CPESC

FLORENCE & HUTCHESON, INC.

410 New Salem Highway, Suite 109

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3761 Georgetown Road
Frankfort, Kentucky 40601

September 12, 2007

U.S. Army Corps of Engineers
Louisville District
Attn: Mr. George Delancey, CELRL-OP-FW
P.O. Box 489
Newburgh, IN 47629

Subject: FWS Project #2007-B-1117; Public Notice No. LRL-2007-0811-GJD, McCracken County, Kentucky

Dear Mr. Delancey:

The Fish and Wildlife Service (Service) has reviewed the public notice issued on July 19, 2007 for the above-referenced project. According to the public notice, the project will consist of constructing a public boat launch facility that will result in the permanent loss of 5 acres of farmed wetland, 1.7 acres of palustrine forested wetland, and 0.3 acre of palustrine emergent wetland.

We requested and received a copy of the Joint Application for 404 Individual Permit, Section 10 Navigable Waters Permit, and the Section 401 Water Quality Certification on August 22, 2007 from Redwing Ecological Services, Inc (Redwing). After reviewing both documents, we offer the following comments:

Threatened and Endangered Species

According to Service records, an endangered Indiana bat (*Myotis sodalis*) record has been documented within five miles of the proposed project site. Based on this information, the Service believes that: (1) forested areas in the vicinity of or on the project area may provide potentially suitable summer roosting and foraging habitat for the Indiana bat, and (2) caves, rockshelters, and abandoned underground mines in the vicinity of and on the project area may provide potentially suitable winter hibernacula habitat for the Indiana bat.

Redwing Ecological Services, Inc. addressed the presence of Indiana bat summer habitat onsite in their Joint Application. In the application, they have agreed that the removal of trees onsite will only occur between October 15 and March 31 to avoid impacting summer roosting Indiana bats. Also, if Indiana bat hibernacula are identified onsite or are known to occur within 10 miles of the project area, the applicant will only remove trees between November 15 and March 31 to avoid impacting Indiana bat "swarming" behavior. According to Redwing, no caves, rockshelters, or abandoned underground

mines that could provide suitable winter hibernacula habitat for the Indiana bat exist within the project boundary. Therefore, the Service agrees with Redwing that the proposed project will "not likely adversely affect" Indiana bats.

The proposed project is also in close proximity to several federally protected mussel records known to occur within the Ohio River. Redwing has agreed to consult with the Service regarding the specific location and design of the proposed boat launch. Therefore the Service agrees with Redwing that the proposed project will "not likely adversely affect" and federally protected mussel species.

Mitigation

The Service has also reviewed the proposed mitigation plan for this project. We find that 34.4 acres of preserved forested wetland, 3.4 acres of preserved upland buffer, and 10.9 acres of farmed to forested wetland is acceptable mitigation for the proposed impacts.

If you have any questions regarding the information that we have provided, please contact Carrie Lona at (502) 695-0468.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

Ernie Fletcher
Governor

Teresa J. Hill
Secretary
Environmental and Public
Protection Cabinet

Donald S. Dott, Jr.
Director

Commonwealth of Kentucky
Kentucky State Nature Preserves Commission
801 Schenkel Lane
Frankfort, Kentucky 40601-1403
502-573-2886 Voice
502-573-2355 Fax

August 7, 2007

John L. Farmer
Florence & Hutcheson, Inc.
410 New Salem Hwy, Suite 109
Murfreesboro, TN 37129

Data Request **08-011**

Dear Mr. Farmer:

This letter is in response to your data request of July 18, 2007 for the City of Paducah 6th and Burnett Boat Launch project. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Paducah East USGS Quadrangle, as shown on the map provided. Based on our most current information, we have determined that no occurrences of the plants or animals and no occurrences of the exemplary natural communities that are monitored by KSNPC are reported as occurring in the specified area. Please see the attached report for more information.

Myotis austroriparius (Southeastern myotis, federal species of management concern, KSNPC endangered KSNPC endangered) and *Myotis sodalis* (Indiana myotis, federally listed endangered, KSNPC endangered) are known to occur in the bottomland hardwood forest adjacent to the project area. In order to avoid impacts to bats, bottomland forests and riparian corridors should not be disturbed.

In addition, *Nycticeius humeralis* (Evening Bat, KSNPC special concern) is known to occur within 10 miles of the project. Summer habitats include bottomland forests, swamps, and riparian corridors.

Although many of the fishes and mussels listed on the report are believed to be extirpated or are known only from historic records, some are still extant in the area (please see the aquatic elements report for more details). These species are sensitive to increased turbidity, sediment, and other adverse influences on water quality. Our data are not sufficient to guarantee absence of endangered, threatened or sensitive species from the sites of proposed construction disturbance.

We recommend that impacted streams be thoroughly surveyed by a qualified biologist prior to any in-stream disturbance.

Sterna antillarum athalassos (Interior Least Tern, federally endangered, KSNPC endangered) occurs near the area. This species is found on bare or nearly bare alluvial islands or sand bars.

Ammodramus henslowii (Henslow's Sparrow, KSNPC special concern, federal species of management concern) is associated with fallow hayfields, ungrazed pastures with scattered small trees and tall weeds, grassland, and brushland.

Accipiter striatus (Sharp-shinned Hawk, KSNPC special concern) can be found in a variety of habitats from semi-open farmland to woodland openings and borders. This species typically nests in areas of extensive forest, especially areas with some evergreen trees.

Tyto alba (Barn Owl, KSNPC special concern) can be found in hollow trees, old buildings, barns, silos and other abandoned structures. Before demolition of existing structures, it should be determined that these birds are not present.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed, and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines
Data Manager

SLD/SGH

Enclosures: Data Report and Interpretation Key

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Ernie Fletcher
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

George Ward
Secretary

August 16, 2007

Mr. John Farmer
Florence & Hutcheson, Inc
410 New Salem Hwy
Suite 109
Murfeesboro, TN 37129

Re: EA 6th & Burnett Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Farmer:

We have reviewed the information provided for the above mentioned project. Our review indicated that while there are no known archaeological sites in the immediate vicinity of the project area, the project has the potential to impact sites eligible for listing in the National Register of Historic Places. Therefore, I recommend that the entire project area be surveyed by a professional archaeologist. A report documenting the results of this investigation must be submitted for review, comment and approval.

Should you have any questions, feel free to contact Lori Stahlgren of my staff at (502) 564-7005, extension 118.

Sincerely,

Donna M. Neary, Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

February 11, 2008

Mr. John L. Farmer
Florence & Hutcheson, Inc.
410 New Salem Hwy
Suite 109
Murfreesboro, TN 37129

Re: Environmental Assessment – Amendment No. 1,6th & Burnett Boat Launch and Marina/Transient Dock, City of Paducah, Kentucky Waterfront Development

Dear Mr. Farmer:

Thank you for your letter concerning the above referenced project. In our August 16, 2007 letter, we requested that the location of the proposed 6th & Burnett Boat Launch be surveyed for archaeological sites that are eligible for listing on the National Register of Historic Places (NRHP). Though a small portion of the proposed project area has been previously surveyed, the northwest portion of the Boat Launch project area has the potential to contain archaeological sites that are eligible for listing in the NRHP. Our review of the proposed Marina/Transient Dock project area indicates that is also has the potential to impact archaeological sites that are eligible for listing in the NRHP. Both areas should be surveyed by a professional archaeologists and a report documenting the results of these studies should be submitted for my review and approval.

There are many historic structures located within and adjacent to both project areas; a cultural historic survey should be conducted of the Area of Potential Effect for each project to determine if the proposed undertakings will affect historic structures that are eligible for or listed in the NRHP. A report documenting the results of this study should be submitted to this office for review and approval. We understand that this undertaking is part of the city of Paducah's long term development plan to modify and change the city waterfront, and given the funding sources, the effects of this undertaking on cultural resources must be assessed.

Should you have any questions, feel free to contact Lori Stahlgren of my staff at (502) 564-7005, extension 118.

Sincerely,

Donna M. Neary, Executive Director
and State Historic Preservation Officer

Cc: Janie-Rice Brother
LCS:lcs

STEVEN L. BESHEAR
GOVERNOR

DEPARTMENT FOR LOCAL GOVERNMENT
OFFICE OF THE GOVERNOR
1024 CAPITAL CENTER DRIVE, SUITE 340
FRANKFORT, KENTUCKY 40601-8204
PHONE (502) 573-2382 FAX (502) 573-2939
TOLL FREE (800) 346-5606
WWW.DLG.KY.GOV

TONY WILDER
COMMISSIONER

December 15, 2010

Mr. David Waldner
Kentucky Transportation Cabinet
200 Mero Street
Frankfot, KY 40622

RE: Paducah Waterfront Development Project Item No. 1-122.00
SAI# KY20101123-1750
CFDA# 20.205

Dear Mr. Waldner:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of your proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state of federal agency.

The results of this review are valid for one year from the date of this letter. Continuation or renewal applications must be submitted to the State Clearinghouse annually. An application not submitted to the funding agency, or not approved within one year after completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at 502-573-2382.

Sincerely,

Lee Nalley

Lee Nalley
Kentucky State Clearinghouse

Attachments

The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY201011231750

The applicant must ensure compliance with the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36CFR, Part 800) pursuant to the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and Executive Order 11593.

According to the Environmental Assessment, this project's potential to impact cultural resources has been evaluated, and it has been determined by the State Historic Preservation Office that the project will have no effect on any property listed in or eligible for listing in the National Register of Historic Places either above or below the ground. Therefore, we have no objection to the project. Should the scope of the work change, this office will need the opportunity to comment on the change in scope and its potential to affect historic resources. Questions may be directed to Vicki Birenberg at (502) 564-7005, ext. 127., or at vicki.birenberg@ky.gov

The Kentucky Housing Corporation has made the following advisory comment pertaining to State Application Identifier Number KY201011231750
No comments.

The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201011231750

Prior to any construction, drawings shall be submitted to the Paducah City Planning and Zoning Department Division of Code Enforcement. Contact Joel Scarbrough at 270-444-8600 for more information.

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201011231750

PW RATES DO NOT APPLY

The Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY201011231750

The KDFWR echoes the comments made from the USFWS and KSNPC regarding the Indiana bat and various listed mussel species known to occur near the marina project site. The KDFWR does not have any further comments regarding these species, and mitigative measures have already been discussed. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Daniel.stoelb@ky.gov if you have further questions or require additional information.

The Purchase ADD has made the following advisory comment pertaining to State Application Identifier Number KY201011231750
no comments

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201011231750

The Cabinet is currently awaiting data from the applicant to substantiate the claims of no impact. A decision will then be made concerning the certification of the project. Paducah waterfront development will fill in almost 5 acres of prime endangered species mussel habitat. Because of the abundance of Potamilus capax within this bed, the Ohio River is listed as an Outstanding State Resource Waters OSRW. State water quality regulations protect the water quality and habitat of OSRWs. The applicant must provide sufficient data to demonstrate that the water quality and the habitat of the OSRW are not going to be impacted. The applicant must provide information about how the fill structure will impact flow, substrate, and biology within, upstream and downstream of the proposed location. ENDORSED WITH CONDITIONS

This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://air.ky.gov/Pages/OpenBurning.aspx

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Brochure located at http://air.ky.gov/Pages/OpenBurning.aspx The Division also suggests an investigation into compliance with applicable local government regulations.

The proposed project is subject to Division of Water (DOW) jurisdiction because the following are or appear to be involved: Paducah Waterfront Development Project. Prior approval must be obtained from the DOW before construction can begin. The applicant must cite the State Application Identifier #KY201011231750 when submitting plans and specifications to the DOW.

Paducah waterfront development will fill in almost 5 acres of prime endangered species mussel habitat. Because of the abundance of Potamilus capax within this bed, the Ohio River is listed as an Outstanding State Resource Waters (OSRW). State water quality regulations protect the water quality and habitat of OSRWs. The applicant must provide sufficient data to demonstrate that the water quality and the habitat of the OSRW are not going to be impacted. The applicant must provide information about how the fill structure will impact flow, substrate, and biology within, upstream and downstream of the proposed location. The Cabinet is currently awaiting data from the applicant to substantiate the claims of no impact. A decision within be made concerning the certification of the project.

Approval of a FONSI (Finding of No Significant Impact) from US Fish and Wildlife.

The contractor(s) may need a groundwater protection plan depending on the activities at the site. The City/operator will need to develop a groundwater protection plan for the site once it is completed.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) storm water discharge permit.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

The Kentucky Division of Water supports the goals of EPA's Sustainable Infrastructure Initiative. This Initiative seeks to promote sustainable practices that will help to reduce the potential gap between funding needs and spending at the local and national level. The Sustainable Infrastructure Initiative will guide our efforts in changing how Kentucky views, values, manages, and invests in its water infrastructure. This website, www.epa.gov/waterinfrastructure/, contains information that will help you ensure your facility and operations are consistent with and can benefit from the aims of the Sustainable Infrastructure Initiative.

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint and/or other contaminants are encountered they must be properly addressed.

The Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201011231750
no comments

APPENDIX B

John Farmer

From: Tan, Wilson (EPPC DEP DWM) [wilson.tan@ky.gov]
Sent: Thursday, January 17, 2008 2:45 PM
To: Jfarmer@flohut.com
Subject: Environmental Assessment

John,

I like to let you know that there is no hazardous waste site within the additional EA study area that we are aware of. If you have any questions, please feel free to ask. Thanks.

Wilson Tan
Division of Waste Management
Hazardous Waste Branch
Phone: (502) 564-6716 ext. 674
Fax: (502) 564-2705

ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
81 C. MICHAEL DAVENPORT BLVD
FRANKFORT, KENTUCKY 40601-1190
www.kentucky.gov

TERESA J. HILL
SECRETARY

December 5, 2007

ATTN JOHN L FARMER
FLORENCE & HUTCHESON INC
410 NEW SALEM HWY SUITE 109
MURFREESBORO TN 37129

RE: Environmental Assessment – Amendment No. 1
6th & Burnett Boat Launch and Marina/Transient Dock
City of Paducah, KY Waterfront Development
Paducah, McCracken County

Dear Mr. Farmer:

The UST Branch is in receipt of your inquiry submitted on December 3, 2007, regarding the Environmental Assessment – Amendment No. 1 for the City of Paducah. Per your request, the UST Branch has completed a search of our records to identify any registered underground storage tank(s) within the Environmental Assessment study area outlined on your location maps. Our records indicate no registered underground storage tanks have been located within the areas depicted on the location map for both the Boat Launch and Marina/Transient Dock.

We trust that this information is sufficient for your Environmental Assessment requirements. If you have any questions regarding this information, please contact me at 502-564-5981 or 800-928-7782.

Sincerely,

E-Signed by Rob Dani
FY authenticity with Appr

Underground Storage Tank Branch
Division of Waste Management

Cc: File

John Farmer

From: Clay, Art (EPPC DEP DOW) [Art.Clay@ky.gov]
Sent: Tuesday, December 04, 2007 9:45 AM
To: jfarmer@flohut.com
Subject: Paducah Waterfront development

Mr.. Farmer:

I have reviewed your letter dated 11/29/07. You will need to complete an application for a permit to construction in or along a stream for any work completed in the 100 year floodplain. You may also need permits from the Water Quality Branch and the KPDES Branch.

Art Clay, Manager
Water Resources Branch
502 564-3410 ext 583
art.clay@ky.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

January 18, 2008

Mr. John Farmer
Florence & Hutcheson, Inc.
410 New Salem Hwy, Suite 109
Murfreesboro, Tennessee 37129

Subject: FWS #2008-B-0224; EA Amendment #1 6th & Burnett Boat Launch and Marina/Transient Dock, City of Paducah Waterfront Development, McCracken County, Kentucky

Dear Mr. Farmer:

Thank you for your correspondence of November 29, 2007, regarding the proposed marina/transient dock facility located approximately 1 mile upstream from the 6th Burnett Boat Launch facility. According to your letter, the City of Paducah is proposing to construct the marina/transient dock facility on City-owned property which would extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site would comprise approximately 42 acres of riverbank and water surface. Fish and Wildlife Service (Service) personnel have reviewed the information submitted, and we offer the following comments.

According to our records, several mussels which are endangered and one candidate for listing are known to occur in the Ohio River. These mussels are listed below:

Common Name	**Scientific Name**	**Federal Status**
Fanshell	*Cyprogenia stegaria*	endangered
Rough pigtoe	*Pleurobema plenum*	endangered
Pink mucket	*Lampsilis abrupta*	endangered
Fat Pocketbook	*Potamilus capax*	endangered
Orangefoot pimpleback	*Plethobasus cooperianus*	endangered
Clubshell	*Pleurobema clava*	endangered
Sheepnose	*Plethobasus cyphyus*	candidate

You should survey the footprint of the project area and also a certain distance both upstream and downstream of the project site in order to determine the presence or absence of these species in an effort to determine if potential impacts to these species are likely. A qualified biologist, and preferably one who holds the appropriate collection permits for these species, must undertake

such surveys, and we would appreciate the opportunity to approve the biologist's survey plan prior to the survey being undertaken and to review all survey results, both positive and negative. If these species are identified, we request written notification of such occurrence(s) and further coordination and consultation with you.

Thank you for the opportunity to comment on this proposed action. If you have any questions regarding the information we provided, please contact Mindi Lawson at (502)/695-0468 (ext.229).

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

Ernie Fletcher
Governor

Teresa J. Hill
Secretary
Environmental and Public
Protection Cabinet

Donald S. Dott, Jr.
Director

Commonwealth of Kentucky
Kentucky State Nature Preserves Commission
801 Schenkel Lane
Frankfort, Kentucky 40601-1403
502-573-2886 Voice
502-573-2355 Fax

December 21, 2007

John L. Farmer
Florence & Hutcheson, Inc.
410 New Salem Highway, Suite 109
Murfreesboro, TN 37129

Data Request **08-084**

Dear Mr. Farmer:

This letter is in response to your data request of November 28, 2007 for the Marina/Transient Dock in Paducah project. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Paducah East USGS Quadrangle, as shown on the map provided. Please see the attached reports for more information, which reflect analysis of the project area with three buffers applied:

1-mile for all records – 19 records
5-mile for aquatic records – 26 records
5-mile for federally listed species – 14 records
10-mile for mammals and birds – 19 records

Aquatic species and habitats in the area are sensitive to increased turbidity, sediment, and other adverse influences on water quality. A written erosion control plan should be developed that includes stringent erosion control methods (i.e., straw bales, silt fences and erosion mats, immediate seeding and mulching of disturbed areas), which are placed in a staggered manner to provide several stages of control. All erosion control measures should be monitored periodically to ensure that they are functioning as planned. Our data are not sufficient to guarantee absence of endangered, threatened or sensitive species from the sites of proposed construction disturbance. We recommend that impacted streams be thoroughly surveyed by a qualified biologist prior to any in-stream disturbance.

Nycticeius humeralis (Evening Bat, KSNPC special concern) occurs within your search area. Summer habitats include bottomland forests, swamps, and riparian corridors. In order to avoid impacts to bats, a thorough survey should be conducted. The survey should include a search for

potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat.

Myotis austroriparius (Southeastern myotis, federal species of management concern, KSNPC endangered KSNPC endangered) and *Myotis sodalis* (Indiana myotis, federally listed endangered, KSNPC endangered) are known to occur near the proposed project. A thorough survey for these species should be conducted by a qualified biologist if suitable habitat will be disturbed. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat. Summer foraging habitats include upland forests, bottomland forests and riparian corridors. Suitable roost and winter sites include sandstone and limestone caves, rockhouses, clifflines, auger holes, and abandoned mines. In order to avoid impacts to bats, bottomland forests and riparian corridors, particularly near caves, should not be disturbed.

Sterna antillarum athalassos (Interior Least Tern, federally endangered, KSNPC endangered) occurs near the area. This species is found on bare or nearly bare alluvial islands or sand bars.

Haliaeetus leucocephalus (Bald eagle, federally delisted, KSNPC threatened) can be found near seacoasts, rivers and large lakes. Preferentially roosts in conifers in winter in some areas. In winter, may associate with waterfowl concentrations or congregate in areas with abundant dead fish.

Accipiter striatus (Sharp-shinned Hawk, KSNPC special concern) can be found in a variety of habitats from semi-open farmland to woodland openings and borders. This species typically nests in areas of extensive forest, especially areas with some evergreen trees.

Ammodramus henslowii (Henslow's Sparrow, KSNPC special concern, federal species of management concern) is associated with fallow hayfields, ungrazed pastures with scattered small trees and tall weeds, grassland, and brushland.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed, and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a

definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines
Data Manager

SLD/SGH

Enclosures: Data Report and Interpretation Key

KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES
COMMERCE CABINET

Ernie Fletcher
Governor

#1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-3400
1-800-858-1549
Fax (502) 564-0506
fw.ky.gov

George Ward
Secretary

Dr. Jonathan W. Gassett
Commissioner

December 12, 2007

John L. Farmer, PE, CPESC
Environmental Division Manager
Florence & Hutcheson, Inc.
410 New Salem HWY
Suite 109
Murfreesboro, TN 37129

RE: Environmental Assessment – Amendment No. 1
6th & Burnett Boat Launch and Marina/Transient Dock
City of Paducah, KY Waterfront Development

Dear Mr. Farmer:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) have received your request for the above-referenced information. The Kentucky Fish and Wildlife Information System indicates that federal/state threatened and/or endangered fish and wildlife species are known to occur within close proximity to the project area (see attached list). Please be aware that our database system is a dynamic one that only represents our current knowledge of the various species distributions.

- The Indiana bat utilizes a wide array of habitats, including riparian forests, upland forest, and fencerows for both summer foraging and roosting habitat. Indiana bats typically roost under exfoliating bark, in cavities of dead and live trees, and in snags (i.e., dead trees or dead portions of live trees). Trees in excess of 16 inches diameter at breast height (DBH) are considered optimal for maternity colony roosts, but trees in excess of 9 inches DBH appear to provide suitable maternity roosting habitat. Male Indiana bats have been observed roosting in trees as small as 3 inches DBH. Removal of suitable Indiana bat roost trees due to construction of the proposed project should be completed between October 15 and March 31 in order to avoid impacting summer roosting Indiana bats. However, if any Indiana bat hibernacula are identified on the project area or are known to occur within 10 miles of the project area, we recommend the applicant only remove trees between November 15 and March 31 in order to avoid impacting Indiana bat "swarming" behavior.
- Several federal listed mussel species are located within this portion of the Ohio River. We recommend that you contact the U. S. Fish and Wildlife Service Kentucky Field Office at (502) 695-0468 concerning the federally listed endangered species that could be impacted by the proposed project.

It appears that the proposed project has the potential to impact wetland habitats. KDFWR recommends that you look at the appropriate US Department of Interior National Wetland Inventory Map (NWI) and the appropriate county soil surveys to determine where the proposed project may impact wetlands. Additionally, field verification may be needed to determine the extent and quality of wetland habitats within the project area. Any planning should include measures designed to eliminate and/or reduce impacts to

wetland habitats. KDFWR recommends that you contact the appropriate US Army Corps of Engineers office and the Kentucky Division of Water prior to any work within the waterways or wetland habitats of Kentucky.

I hope this information proves helpful to you. If you have any questions or require additional information, please call me at (800) 852-0942 Extension 366.

Sincerely,

Doug Dawson

Doug Dawson
Wildlife Biologist III

Cc: Environmental Section File

Federal/State Listed Species that may occur near the project area according to the KFWIS.

Scientific Name	Common Name	Federal Status	KSNPC Status
Cyprogenia stegaria	Fanshell	LE	E
Lampsilis abrupta	Pink Mucket	LE	E
Myotis grisescens	Gray Myotis	LE	T
Myotis sodalis	Indiana Bat	LE	E
Obovaria retusa	Ring Pink	LE	E
Plethobasus cooperianus	Orangefoot Pimpleback	LE	E
Potamilus capax	Fat Pocketbook	LE	E
Sternula antillarum athalassos	Interior Least Tern	LE	E

US Fish & Wildlife Service Status:

N = None
C = Candidate
LT = Listed as Threatened
LE = Listed as Endangered

KY State Nature Preserves Commission Status

N = None
E = Endangered
T = Threatened
S = Special Concern
H = Historic
X = Extirpated

APPENDIX C

ENGINEERING "NO IMPACT" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the Commonwealth of Kentucky.

It is to further certify that the attached technical data supports the fact that the proposed

6th and Burnett Boat Launch Facility

will not impact the 100-year flood elevations, floodway elevations and floodway widths on

the Ohio River

at published sections in the Flood Insurance Study (FIS) for

McCracken County, Kentucky dated 1979

and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

5/30/07
(Date)

Jason Petersen, P.E., Project Manager
Florence & Hutcheson, Inc.
2250 Irvin Cobb Drive
Paducah, Kentucky 42003
Tel: (270) 444-9691

FEMA
3003 Chamblee Tucker Road
Atlanta, GA 30341

ATTN: F I & Mitigation Division

APPENDIX D

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

December 8, 2011

Mr. Rick Murphy
City of Paducah
300 South 5th Street
Paducah, KY 42002

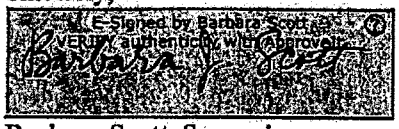
Re: Water Quality Certification #2008-0029-1-Renewal (3)
Paducah Riverfront Redevelopment Project
Burnett Street Boat Ramp
USACE Public Notice No.: 2007-0811-GJD
AI No.: 96535, Activity ID: APE20090002
Ohio River and Adjacent Wetlands
McCracken County, Kentucky

Dear Mr. Murphy:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 96535. The attached document is your official Water Quality Certification; please read it carefully.** If you should have any questions concerning the conditions of this water quality certification, please contact Mr. Alan Grant of my staff by calling (502) 564-3410.

Sincerely,



Barbara Scott, Supervisor
Water Quality Certification Section
Kentucky Division of Water

BS: AG
Attachment
cc: George DeLancey, USACE: Newburgh Regional Office
Matt Blake: Redwing Ecological Services, Inc. (agent), 1139 S 4th St., Louisville, KY 40203-3155
Jason Petersen: Florence & Hutcheson, Inc., 2550 Irvin Cobb Drive, Paducah, KY 42003
Lee Andrews, USFWS: Frankfort

Water Quality Certification
Paducah Riverfront Redevelopment Project
Facility Requirements
Permit Number:2008-0029-1-R(3)
Activity ID No.: APE20090002

ACTV0000000001 (Boat Dock) Burnett Street Boat Ramp -- 9.2 acres of wetland impact:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The City of Paducah shall submit a progress/monitoring report on the wetland restoration project: Due annually, by the 31st of December for a period of at least five years. The first monitoring report is due after the first full growing season of planted vegetation. The Kentucky Division of Water reserves the right to extend the monitoring period until such time as the stated success criteria have been obtained. Any deficiencies noted within the monitoring period shall be addressed in the annual monitoring report for that year and, after approval from the USACE and KDOW, corrective action shall be taken within the next year of monitoring. If the project is deemed unsuccessful after a monitoring period of eight years, the City of Paducah shall pay a fee-in-lieu of mitigation to the Kentucky Department for Fish and Wildlife Resources Stream Restoration Fund, the amount of which will be determined by the Corps of Engineers. [Clean Water Act]
S-2	The City of Paducah shall submit written notification: Due prior to any construction activity. The draft Kentucky Division of Water conservation easement model with applicant's suggested changes shall be submitted to the Water Quality Certification Section before construction may begin. [Clean Water Act]
S-3	The City of Paducah shall submit written notification: Due within 60 days. The conservation easement shall be recorded and a copy of the recorded easement submitted to the KDOW within 60 days of written approval by KDOW and USACE. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - Impacts to 0.7 acre wooded wetland, 8.3 acres farmed wetlands, and 0.2 acre open field wetland resulting in total impacts of 9.2 acres of wetland. - The construction of a boat ramp resulting in impacts to 250 feet of Ohio River riparian area. - Mitigation shall consist of 7.3 acres wooded wetland restoration, 34.4 acres wooded wetland preservation, 3.4 acres upland forest preservation and 765 feet riparian buffer restoration. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the USACE Public Notice 2007-0811-GJD, the Joint Application for Section 404 Individual Permit, Section 10 Navigable Waters Permit and Section 401 Water Quality Certification dated May 30, 2007, and subsequent addendums to the 404/401 Permit Application dated February 25, 2008, and March 28, 2008. [Clean Water Act]
T-3	The applicant is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]

ACTV0000000001 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-5	If construction does not commence within one year of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-6	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Water Resources Branch. The contact person is Barry Elmore. If this project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a KPDES stormwater permit shall be required from the KPDES Branch. The contact person is Allen Ingram. Both can be reached at 502/564-3410. [Clean Water Act]

From: Grant, Alan (EEC) [Alan.Grant@ky.gov]
Sent: Friday, November 18, 2011 9:55 AM
To: mblake@redwingeco.com
Cc: rthomas@redwingeco.com
Subject: Paducah RiverFront Boat Launch AI 96535
Paducah Riverfront Boat Launch

Matt,
Your request (letter dated November 3, 2011) for an extension for the Paducah Riverfront Boat Launch is approved. This extension will expire on December 12, 2012.

Sincerely,
Alan Grant

Environmental Biologist
WQC Section, KDOW

From: Grant, Alan (EEC) [Alan.Grant@ky.gov]
Sent: Monday, November 21, 2011 7:26 AM
To: Ron Thomas
Subject: RE: Paducah RiverFront Boat Launch AI 96535
The email will serve as your documentation. I have entered the email into our Tempo database.

Thanks.

From: Ron Thomas [mailto:rthomas@redwing.win.net]
Sent: Fri 11/18/2011 4:23 PM
To: Grant, Alan (EEC)
Cc: mblake@redwingeco.com
Subject: RE: Paducah RiverFront Boat Launch AI 96535

Thanks Alan. We appreciate the quick response. By the way, I assume there will be a letter coming out for the renewal, is that correct?? Or does this email serve as sole documentation of the extension?

Thanks again and hope things are going well.

Ron

Ron Thomas
Redwing Ecological Services, Inc.
1139 South Fourth Street
Louisville, KY 40203
502.625.3009 office
502.625.3077 fax
502.693.4543 cell
rthomas@redwingeco.com

From: Grant, Alan (EEC) [mailto:Alan.Grant@ky.gov]
Sent: Friday, November 18, 2011 9:55 AM
To: mblake@redwingeco.com
Cc: rthomas@redwingeco.com
Subject: Paducah RiverFront Boat Launch AI 96535

Paducah Riverfront Boat Launch

Matt,
Your request (letter dated November 3, 2011) for an extension for the Paducah Riverfront Boat Launch is approved. This extension will expire on December 12, 2012.

Sincerely,
Alan Grant

Environmental Biologist
WQC Section, KDOW

STEVEN L. BESHEAR
GOVERNOR

ROBERT D. VANCE
SECRETARY

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

April 8, 2008

Mr. Rick Murphy
City of Paducah
300 South 5th St
Paducah, KY 42002

Re: Water Quality Certification #2008-0029-1
Paducah Riverfront Development Project
USACE Public Notice No.: 2007-0811-GJD
AI No.: 96535
Activity ID: APE20070002
Ohio River and adjacent wetlands
McCracken County, Kentucky

Dear Mr. Murphy:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 96535**. **The attached document is your official Water Quality Certification; please read it carefully**. If you should have any questions concerning the conditions of this water quality certification, please contact Ms. Joyce Fry of my staff by calling (502) 564-3410.

Sincerely,

E-Signed by Alan Grant
VERify authenticity with ApproveIt
Alan Grant

Alan Grant, Supervisor
Water Quality Certification Section
Kentucky Division of Water

AG:JF:kp
Attachment

COPIES SENT TO:

George DeLancey, USACE: Newburgh Field Office

Matt Blake (agent), Redwing Ecological Services, Inc., 1139 S Fourth St, Louisville, KY 40203

Jason Petersen, Florence & Hutcheson, Inc., 2550 Irvin Cobb Drive, Paducah, KY 42003

Jason Nally, Four Rivers Basin Coordinator: Paducah

Sharon Vriesenga, KDOW: Frankfort

Water Quality Certification
Paducah Riverfront Redevelopment Project
Facility Requirements
Permit Number:2008-0029-1
Activity ID No.: APE20070002

ACTV1 (boat dock) 7.7 acres of jurisdictional waters:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The City of Paducah shall submit a progress/monitoring report on the wetland restoration project: Due annually, by the 31st of December for a period of at least five years. The Kentucky Division of Water reserves the right to extend the monitoring period until such time as the stated success criteria have been obtained. Any deficiencies noted within the monitoring period shall be addressed in the annual monitoring report for that year and, after approval from the USACE and KDOW, corrective action shall be taken within the next year of monitoring. If the project is deemed unsuccessful after a monitoring period of eight years, the City of Paducah shall pay a fee-in-lieu of mitigation to the Kentucky Department for Fish and Wildlife Resources Stream Restoration Fund, the amount of which will be determined by the Corps of Engineers. [Clean Water Act]
S-2	The City of Paducah shall submit written notification: Due prior to any construction activity. The draft Kentucky Division of Water conservation easement model with applicant's suggested changes shall be submitted to the Water Quality Certification Section before construction may begin. [Clean Water Act]
S-3	The City of Paducah shall submit written notification: Due within 60 days. The conservation easement shall be recorded and a copy of the recorded easement submitted to the KDOW within 60 days of written approval by KDOW and USACE. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - Impacts to 0.7 acre wooded wetland, 8.3 acres farmed wetlands, and 0.2 acre open field wetland resulting in total impacts of 9.2 acres of wetland. - The construction of a boat ramp resulting in impacts to 250 feet of Ohio River riparian area. - Mitigation shall consist of 7.3 acres wooded wetland restoration, 34.4 acres wooded wetland preservation, 3.4 acres upland forest preservation and 765 feet riparian buffer restoration. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the USACE Public Notice 2007-0811-GJD, the Joint Application for Section 404 Individual Permit, Section 10 Navigable Waters Permit and Section 401 Water Quality Certification dated May 30, 2007, and subsequent addendums to the 404/401 Permit Application dated February 25, 2008, and March 28, 2008. [Clean Water Act]
T-3	The applicant is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]

ACTV1 (continued):

Narrative Requirements:

Condition No.	Condition
T-4	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-5	If construction does not commence within one year of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-6	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Water Resources Branch. The contact person is Ron Dutta. If this project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a KPDES stormwater permit shall be required from the KPDES Branch. The contact person is Ronnie Thompson. Both can be reached at 502/564-3410. [Clean Water Act]

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or other wise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

STEPHEN L. BESHEAR
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

ROBERT D. VANCE
SECRETARY

ATTENTION APPLICANT

If your project involves one or more of the following activities, you may need more than one permit from the Kentucky Division of Water.

***building in a floodplain *road culvert in a stream**
***streambank stabilization *stream cleanout**
***utility line crossing a stream**
***construction sites greater than 1 acre**

- **Construction sites greater than 1 acre will require the filing of a Notice of Intent to be covered under the KPDES General Stormwater Permit. This permit requires the creation of an erosion control plan.**
  Contact: Ronnie Thompson

- **Projects that involve filling in the floodplain will require a floodplain construction permit from the Water Resources Branch.**
  Contact: Ron Dutta

- **Projects that involve work IN a stream, such as bank stabilization, road culverts, utility line crossings, and stream alteration will require a floodplain permit and a Water Quality Certification from the Division of Water.**
  Contact: Alan Grant

All three contacts listed above can be reached at (502) 564-3410. A complete listing of environmental programs administered by the Kentucky Department for Environmental Protection is available from Pete Goodmann by calling (502) 564-3410.

APPENDIX E

STEVEN L. BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

LEONARD K. PETERS
SECRETARY

November 29, 2011

City of Paducah
300 S 5th St
Paducah, KY 42002

RE: Stream Construction Permit #16689 **construction of a multi-lane boat launch facility, parking area, and access road in the left descending floodplain of Ohio River at about stream mile 45.6, with coordinates 37.098611, -88.611667, in McCracken County**. AI: 96535

Dear City of Paducah:

We have received your request for an extension of Stream Construction Permit #16689. Since there are no changes in the original plans or circumstances involved, we are extending the expiration date to November 29, 2012. Please note that all restrictions and requirements on the previous permit are still applicable.

If you have any questions, please call Ms. Kathy Allen at (502) 564-3410.

Sincerely,

By: E-Signed by Kathy Allen
VERIFY authenticity with Approvelt

Jory Becker, P.E., Manager
Surface Water Permit Branch

JB/KA/kec

pc: Paducah Regional Office
Rick Murphy – Paducah
Jason Petersen, PE – Florence & Hutcheson

Fax To JJR
F!H
KY. Fish & Wildlife

ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.water.ky.gov

TERESA J. HILL
SECRETARY

RECEIVED
SEP 13 2007
ENGINEERING
DEPARTMENT

STREAM CONSTRUCTION PERMIT

For Construction In Or Along A Stream

Issued to: **City of Paducah**
Address: **300 South 5th St**
Paducah, KY 42002

Permit expires on
September 7, 2008

Permit No. **16689**

In accordance with KRS 151.250 and KRS 151.260, the Environmental and Public Protection Cabinet approves the application dated **May 31, 2007** for **construction of a multi-lane boat launch facility, parking area, and access road in the left descending floodplain of Ohio River at about stream mile 45.6 (935.8 miles below Pittsburgh), with coordinates 37.098611, -88.611667, in McCracken County.**

There shall be no deviation from the plans and specifications submitted and hereby approved unless the proposed change shall first have been submitted to and approved in writing by the Cabinet. This approval is subject to the attached limitations.

This permit is nontransferable and is not valid unless actual construction of this authorized work is begun prior to the expiration date noted above. Any violation of the Water Resources Act of 1966 as amended is subject to penalties as set forth in KRS 151.990.

If you have any questions regarding this permit, please call Mr. Jim Oerther at (502) 564-3410.

Issued September 7, 2007.

By:
Art Clay, P.E., Manager
Water Resources Branch

AC/JO/kla

pc: — Paducah Regional Office
— Rick Murphy – Paducah
— File
JJR
F!H
KY Fish & Wild Life

Stream Construction Permit

Paducah Riverfront Redevelopment Project
Facility Requirements
Permit Number:16689
Activity ID No.: APE20070001

STRC1 (boat dock) construction of a multi-lane boat launch facility, parking area, and access road:

Submittal/Action Requirements:

Condition No.	Condition
S-1	City of Paducah must submit final construction report: Due within 90 days after completion of construction City of Paducah must notify in writing that the project has been completed in accordance with the approved plans and specifications. A Final Construction Report Form is enclosed. [401 KAR 4:060 Section 3(2)]

Narrative Requirements:

Condition No.	Condition
T-1	This permit is issued from the standpoint of stream obstruction only and does not constitute certification of any other aspect of the proposed construction. The applicant is liable for any damage resulting from the construction, operation, or maintenance of this project. This permit has been issued under the provisions of KRS Chapter 151.250 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies. [KRS 151.250]
T-2	A copy of this permit must be available at the construction site. [KRS 151.250]
T-3	This permit holder must obtain a permit from the U.S. Army Corps of Engineers, Louisville District, pursuant to Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act, as may be required. [Clean Water Act Section 404 and River & Harbor Act of 1899]
T-4	Any work performed by or for City of Paducah that does not fully conform to the submitted application or drawings and the limitations set forth in this permit, is subject to partial or total removal and enforcement actions pursuant to KRS 151.280 as directed by the Kentucky Department for Environmental Protection. [KRS 151.280]
T-5	Any design changes or amendments to the approved plans must be submitted to the Division of Water and approved in writing prior to implementation. [KRS 151.250]
T-6	Since City of Paducah participates in the National Flood Insurance Program, a local floodplain permit must be obtained prior to beginning of construction. Upon completion of construction City of Paducah must contact the local permitting agency for final approval of the construction for compliance with the requirements of the local floodplain ordinance. [401 KAR 4:060 Section 1(16)]
T-7	The permittee must obtain a Water Quality Certification through the Division of Water, Water Quality Branch before beginning construction. Contact the Water Quality Certification Supervisor at (502) 564-3410. [KRS 224.16-050 & Clean Water Act Section 401]

STRC1 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	Fill slopes shall be no steeper than 2:1 (horizontal: vertical). Steeper slopes shall require a stability analysis. [401 KAR 4:060 Section 3(1)]
T-9	City of Paducah must use standard silt control practices in such quantity to prevent siltation of the Ohio River. Silt fences, rock check dams and/or straw-bales are acceptable. [KRS 224.70-110]
T-10	To avoid secondary adverse impacts, all materials used shall be stable and inert, free from pollutants and floatable objects, and shall meet all appropriate engineering standards. (Inert here means materials that are not chemically reactive and that will not rot or decompose, such as soil, rock, broken concrete or similar materials.). [401 KAR 4:060 Section 7]
T-11	All debris and excess material shall be removed for disposal outside of the base floodplain. [401 KAR 4:060]
T-12	Upon completion of construction all disturbed areas shall be seeded and mulched or otherwise stabilized to prevent erosion. [401 KAR 4:060]
T-13	The entry of mobile equipment into the stream channel shall be limited as much as reasonably possible to minimize degradation of the waters of the Commonwealth. [401 KAR 4:060]
T-14	Measures shall be taken to prevent possible spills of fuels and lubricants from entering the stream. [KRS 224.70-110]
T-15	Construction other than as authorized by this permit shall require written approval from the Division of Water. [401 KAR 4:060]
T-16	This permit is not valid until the City of Paducah obtains ownership or easement rights for all property on which the project will be located. [401 KAR 4:060]

Fax To JJR
F!H
KY. Fish & Wildlife

ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.water.ky.gov

TERESA J. HILL
SECRETARY

RECEIVED
SEP 13 2007
ENGINEERING
DEPARTMENT

STREAM CONSTRUCTION PERMIT

For Construction In Or Along A Stream

Issued to: **City of Paducah**
Address: **300 South 5th St**
Paducah, KY 42002

Permit expires on
September 7, 2008

Permit No. **16689**

In accordance with KRS 151.250 and KRS 151.260, the Environmental and Public Protection Cabinet approves the application dated **May 31, 2007** for **construction of a multi-lane boat launch facility, parking area, and access road in the left descending floodplain of Ohio River at about stream mile 45.6 (935.8 miles below Pittsburgh), with coordinates 37.098611, -88.611667, in McCracken County.**

There shall be no deviation from the plans and specifications submitted and hereby approved unless the proposed change shall first have been submitted to and approved in writing by the Cabinet. This approval is subject to the attached limitations.

This permit is nontransferable and is not valid unless actual construction of this authorized work is begun prior to the expiration date noted above. Any violation of the Water Resources Act of 1966 as amended is subject to penalties as set forth in KRS 151.990.

If you have any questions regarding this permit, please call Mr. Jim Oerther at (502) 564-3410.

Issued September 7, 2007.

By:
Art Clay, P.E., Manager
Water Resources Branch

AC/JO/kla

pc: – Paducah Regional Office
– Rick Murphy – Paducah
– File
JJR
F!H
KY Fish & Wild Life

Stream Construction Permit

Paducah Riverfront Redevelopment Project
Facility Requirements
Permit Number:16689
Activity ID No.: APE20070001

STRC1 (boat dock) construction of a multi-lane boat launch facility, parking area, and access road:

Submittal/Action Requirements:

Condition No.	Condition
S-1	City of Paducah must submit final construction report: Due within 90 days after completion of construction City of Paducah must notify in writing that the project has been completed in accordance with the approved plans and specifications. A Final Construction Report Form is enclosed. [401 KAR 4:060 Section 3(2)]

Narrative Requirements:

Condition No.	Condition
T-1	This permit is issued from the standpoint of stream obstruction only and does not constitute certification of any other aspect of the proposed construction. The applicant is liable for any damage resulting from the construction, operation, or maintenance of this project. This permit has been issued under the provisions of KRS Chapter 151.250 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies. [KRS 151.250]
T-2	A copy of this permit must be available at the construction site. [KRS 151.250]
T-3	This permit holder must obtain a permit from the U.S. Army Corps of Engineers, Louisville District, pursuant to Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act, as may be required. [Clean Water Act Section 404 and River & Harbor Act of 1899]
T-4	Any work performed by or for City of Paducah that does not fully conform to the submitted application or drawings and the limitations set forth in this permit, is subject to partial or total removal and enforcement actions pursuant to KRS 151.280 as directed by the Kentucky Department for Environmental Protection. [KRS 151.280]
T-5	Any design changes or amendments to the approved plans must be submitted to the Division of Water and approved in writing prior to implementation. [KRS 151.250]
T-6	Since City of Paducah participates in the National Flood Insurance Program, a local floodplain permit must be obtained prior to beginning of construction. Upon completion of construction City of Paducah must contact the local permitting agency for final approval of the construction for compliance with the requirements of the local floodplain ordinance. [401 KAR 4:060 Section 1(16)]
T-7	The permittee must obtain a Water Quality Certification through the Division of Water, Water Quality Branch before beginning construction. Contact the Water Quality Certification Supervisor at (502) 564-3410. [KRS 224.16-050 & Clean Water Act Section 401]

STRC1 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	Fill slopes shall be no steeper than 2:1 (horizontal: vertical). Steeper slopes shall require a stability analysis. [401 KAR 4:060 Section 3(1)]
T-9	City of Paducah must use standard silt control practices in such quantity to prevent siltation of the Ohio River. Silt fences, rock check dams and/or straw-bales are acceptable. [KRS 224.70-110]
T-10	To avoid secondary adverse impacts, all materials used shall be stable and inert, free from pollutants and floatable objects, and shall meet all appropriate engineering standards. (Inert here means materials that are not chemically reactive and that will not rot or decompose, such as soil, rock, broken concrete or similar materials.). [401 KAR 4:060 Section 7]
T-11	All debris and excess material shall be removed for disposal outside of the base floodplain. [401 KAR 4:060]
T-12	Upon completion of construction all disturbed areas shall be seeded and mulched or otherwise stabilized to prevent erosion. [401 KAR 4:060]
T-13	The entry of mobile equipment into the stream channel shall be limited as much as reasonably possible to minimize degradation of the waters of the Commonwealth. [401 KAR 4:060]
T-14	Measures shall be taken to prevent possible spills of fuels and lubricants from entering the stream. [KRS 224.70-110]
T-15	Construction other than as authorized by this permit shall require written approval from the Division of Water. [401 KAR 4:060]
T-16	This permit is not valid until the City of Paducah obtains ownership or easement rights for all property on which the project will be located. [401 KAR 4:060]

APPENDIX F

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
REGULATORY BRANCH, WEST SECTION
P.O. Box 489
NEWBURGH, INDIANA 47629-0489
FAX: (812) 858-2678
http://www.lrl.usace.army.mil

May 23, 2008

Operations Division
Regulatory Branch (West)
ID No. LRL-2007-811-GJD

City of Paducah
Mr. Rick Murphy, City Engineer
300 South 5th Street
Paducah, Kentucky 42002

Dear Mr. Murphy:

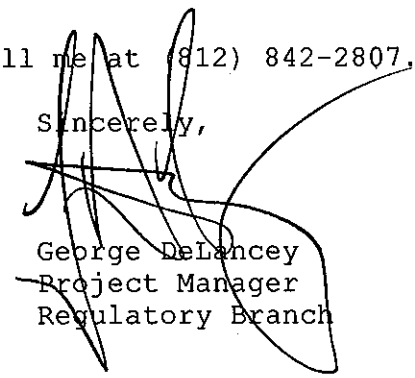
Enclosed is a signed Department of the Army permit relating to your proposal to construct a public boat launch facility. The project would result in the construction of a boat ramp, approximately 260′ x 100′, a paved parking/trailering area, and an access road extension from Burnett Street. There would also be a gang way and courtesy dock constructed at the ramp. The gangway/ramp structure would be approximately 200′ x 8′. The boat ramp would be constructed of a compacted sub grade, 12″ minimum of compacted aggregate, and a 6″ minimum concrete grooved cap. The boat ramp would extend approximately 105′ riverward at normal pool. The gangway/courtesy dock would extend 35′ riverward at normal pool. The Ordinary Highwater Mark is 310.3′ Ohio River Datum (ORD) and the Normal Pool elevation is 302′ ORD. The project would result in the permanent loss of 8.3 acres Farmed Wetlands (FW), 0.7 of Palustrine Forested Wetlands (PFO), and 0.2 acres of Palustrine Emergent Wetlands (PEM). The project is located in Paducah, McCracken County, Kentucky, as described in your application. The proposal has been reviewed and authorized under Section 10 of the Rivers and Harbors Act of 1899. **This permit is valid until December 31, 2011.**

In order to inform all necessary interests (Notice to Navigation Interests) in a timely manner, you must furnish the Corps of Engineers, P.O. Box 59, Louisville, KY 40201-0059, ATTN: CEORL-OP-WN, (Mr. Rick Lewis, 502-315-6100) a written notice two weeks prior to commencement of any work. This written notice should include the following information: name, type and number of equipment, duration of project, hours of operation, location of equipment during non-work hours, any marine radios available, contact person and phone number, and any other pertinent data.

Also enclosed is a notice of authorization card that should be conspicuously displayed at the site of work during construction. If you have any questions concerning this matter, please contact this office at

the above address, ATTN: CELRL-OP-FW or call me at (812) 842-2807.

Sincerely,



George DeLancey
Project Manager
Regulatory Branch

Enclosures

DeLancey/OP-FW
KDOW

US Army Corps
of Engineers
Louisville District

This notice of authorization must be conspicuously displayed at the site of work.

5/23/08
Date

A permit to CONSTRUCT RAMP + PARKING

at ORM 935.8, Paducah KY

has been issued to City of Paducah 5/23/08
Date

Address of Permittee 300 S. 5TH St
Paducah KY 42002

Permit Number

LRL-2007-811

for District Commander

CELRL Form L1261, Nov 00

(Proponent: CELRL-OP-F)

DEPARTMENT OF THE ARMY PERMIT

Permittee: City of Paducah – Mr. Rick Murphy, City Engineer

Permit Number: LRL-2007-811-GJD

Issuing Office: U.S. Army Engineer District, Louisville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The project would result in the construction of a boat ramp, approximately 260' x 100', a paved parking/trailering area, approximately 750' x 325', and an access road extension from Burnett Street. There would also be a gang way and courtesy dock constructed at the ramp. The gangway/ramp structure would be approximately 200' x8'. The boat ramp would be constructed of a compacted sub grade, 12" minimum of compacted aggregate, and a 6" minimum concrete grooved cap. The boat ramp would extend approximately 105' riverward at normal pool. The gangway/courtesy dock would extend 35' riverward at normal pool. The Ordinary Highwater Mark is 310.3' Ohio River Datum (ORD) and the Normal Pool elevation is 302' ORD.

The project would result in the permanent loss of 8.3 acres Farmed Wetlands (FW), 0.7 of Palustrine Forested Wetlands (PFO), and 0.2 acres of Palustrine Emergent Wetlands (PEM).

Project Location: On the left bank of the Ohio River, Mile 935.8, and adjacent wetlands, located in Paducah, McCracken County, Kentucky. Latitude: 37-05-59
Longitude: 88-36-39
7.5 Minute Quad: Paducah East, KY

Permit Conditions:

General Conditions:

1. The time limit for completing the authorized activity ends on December 31, 2011. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

Special Conditions:

a. The permittee shall adhere to the wetland mitigation plans as outlined in "Addendum to 404/401 Permit Application Paducah Riverfront Boat Launch" revised February 25, 2008, and supplemental amendments dated March 28, 2008 and April 28, 2008, of the DA application package. Upon completion of the mitigation construction, as-built plans documenting the final post-mining conditions of the streams and wetlands shall be submitted to this office for review and approval. Any modification to these conditions would be required to be demonstrated on amended plans and submitted to this office for prior approval.

b. Prior to but no later than 60 days after the mitigation site has been determined to be successful, the applicant shall place a perpetual conservation easement or a deed restriction on the site guarding it from future development. A proposed copy of the protective easement shall be submitted to the Corps for review and approval prior to recording with the deed.

c. During monitoring, and until Corps release of the proposed mitigation, the applicant shall maintain the site to remove all volunteer and invasive tree species.

d. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

e. The permittee shall abide by all nine special conditions and nine general conditions in the Kentucky Division of Water's 401 Water Quality Certification, issued on April 8, 2008.

f. In order to inform all necessary interests (Notice to Navigation Interests) in a timely manner, you must furnish the Corps of Engineers, P.O. Box 59, Louisville, KY 40201- 0059, ATTN: CEORL-OP-WN, (Rick Lewis, 502-315-6699) a written notice two weeks prior to commencement of any work. This written notice should include the following information: name, type and number of equipment, duration of project, hours of operation, location of equipment during non-work hours, any marine radios available, contact person and phone number, and any other pertinent data.

g. The permittee's responsibility to complete the required compensatory mitigation proposal in Special Conditions a - c shall not be considered fulfilled until mitigation success has been demonstrated and written verification is received from the U. S. Army Corps of Engineers.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) *(DATE)* 5/21/08

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

5/23/08

RAYMOND G. MIDKIFF
COLONEL, CORPS OF ENGINEERS
(COMMANDER AND DISTRICT ENGINEER) (DATE)

BY: Mr. George DeLancey
Regulatory Specialist
Regulatory Branch

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

APPENDIX G

Redwing Ecological Services, Inc. will submit applications to the US Corps of Engineers and the Kentucky Division of Water for a Section 401 Water Quality Certification, Stream Construction Permit, Section 10 Navigable Waters Permit, and a Section 404 Permit for the marina/transient dock facility. An Individual Section 402 (KPDES) Permit will also be obtained for the project. These permits will be obtained before construction commences.

REDWING ECOLOGICAL SERVICES, INC 1139 South Fourth Street • Louisville, KY 40203 • Phone 502.625.3009 • Fax 502.625.3077

December 6, 2010

Mr. Alan Grant
Supervisor, WQC Section
Kentucky Division of Water
200 Fair Oaks Lane – 4th Floor
Frankfort, KY 40601

Subject: **Application for Section 401 Water Quality Certification**
Paducah Riverfront Development Phase 1 / Transient Dock
McCracken County, Kentucky
Redwing Project 06-090

Dear Mr. Grant:

On behalf of the City of Paducah (City), and in conjunction with Florence & Hutcheson, Inc. (F&H), Redwing Ecological Services, Inc. (Redwing) respectfully submits the attached Application for a Section 401 Water Quality Certification (WQC) for the proposed Paducah Riverfront Development Phase 1/Transient Dock project in Paducah, McCracken County, Kentucky.

Based on the clarifications provided by the Kentucky Division of Water (KDOW) during a November 18, 2010 conference call (and follow-up letter of December 1, 2010), we understand that the November 9, 2010 WQC Denial of the original application was primarily procedural in nature - based on the need for KDOW to respond within one year to prevent the U.S. Army Corps of Engineers (USACE) from considering the KDOW review authority under Section 401 to be waived. We further understand that while the denial under AI No.: 102251 will remain in place, KDOW is committed to processing this new application for the same project.

Due to the extended time period and various complications that have arisen with this project's 401 permit review process, a brief chronology is provided below to help clarify current project status.

- **9/30/08** - City's submittal of Joint 404/401 WQC Application
- **11/12/08** - KDOW *Fee Application Request*
- **11/12/08** - KDOW *Notice of Deficiency* (not requiring a response). The KDOW: 1) noted that WQC could not be issued until the 404 public notice process was complete; 2) noted that the KDOW required their own public notice procedure, which required a complete application (fee application and mitigation); and 3) requested that the City notify the KDOW in writing when formal consultation with the U.S. Fish and Wildlife Service (USFWS) is complete, including the results of the Biological Opinion (BO).
- **11/12/08** - City's submittal of the WQC Application Fee
- **7/9/09** - Redwing email update to KDOW stating that City is working through endangered mussel issues with USFWS
- **11/30/09** - City's submittal of *Request to Reactivate Application for Section 401 Water Quality Certification and Addendum Submittal* with revised project information to KDOW

- **12/18/09 to 1/17/10** - KDOW Public Notice

- **1/19/10 to 1/20/10** - emails with KDOW confirming that no public notice comments were received. KDOW stated that they were going to contact USACE regarding the handling of endangered mussel issues.

- **6/4/10** - joint agency meeting with USFWS to discuss final resolution of endangered mussel issues and the forthcoming BO. KDOW announces that WQC may be held up by regulatory issues associated with endangered mussel species and the Outstanding State Resource Water (OSRW) designation (KAR 10:031 Section 8).

- **6/8/10** – end of the USACE 404 Public Notice period

- **7/6/10** - BO is issued by the USFWS, stating the proposed project will not jeopardize endangered mussel species or critical habitat. (This BO document serves as USFWS' final agreement with the City regarding this matter.)

- **7/26/10** - KDOW issues *Request for Additional Information*

- **8/26/10** - City submits *Response to Request for Additional Information* and includes electronic copies of the Paducah Riverfront Redevelopment Plan and the City of Paducah Transient Dock and Schultz Park Memorandum of Understanding with JJR; as well as the Environmental Assessment (EA), Biological Assessment (BA), and Biological Opinion (BO) documents

- **October 2010** - Meetings and phone conversations with City, in which KDOW states that if additional mussel surveys in the upstream portion of the OSRW reach of the project identify additional fat pocketbook (*Potamilus capax*) mussels, the KDOW can proceed with WQC issuance

- **10/28/10 to 10/29/10** - mussel survey to document presence of fat pocketbooks and general mussel species and habitat characteristics in upstream portion of the identified OSRW reach conducted by Redwing/ESI

- **11/9/10** - KDOW issues *Water Quality Certification Denied* for AI No.: 102251

- **11/18/10** - Conference call with City and KDOW. KDOW explained procedural nature of denial and outlined process for re-application with additional mussel survey data, which will allow KDOW to proceed with WQC issuance.

- **12/1/10** – KDOW issues *Project Status Update* letter confirming discussions during the 11/18/10 conference call and outlining the required application procedures.

Per KDOW's recent request, the City is submitting the attached new *Application for Section 401 Water Quality Certification* for the project. While this document is very similar to the original application package (submitted September 2008), there are some key changes. In order to assist in your review, a comparison of this new application and the original application are summarized below.

- The project layout and development plans have remained unchanged; however, the most recent design drawings are provided in Appendix B.

- Discussions of project purpose and need, alternatives, proposed development components, and existing site conditions in Sections 1, 2 and 3 are largely unchanged.

- Jurisdictional water impacts have been adjusted to 5.9 acres to reflect actual fill below the Ordinary High Water Mark (OHWM). The impact calculations in the original submittal erroneously reflected all fill for the park expansion (including areas of the bank above OHWM). This change was coordinated with the U.S. Army Corps of Engineers prior to the issuance of 404 public notice.

- Section 4 (Potential Project Impacts) has been substantially changed to reflect additional work completed to address the presence of endangered mussels within the project area. This includes: 1) a summary of river flow modeling; 2) the results of formal consultation with the USFWS through preparation of a BA and issuance of a BO; 3) the results of additional mussel surveys of the OSRW reach; and 4) a discussion of the application of state regulations relating OSRW and endangered species to the project (KAR 10:031 Section 8).

- Section 5 (Mitigation) has been added to address compensation for impacts to aquatic habitat (particularly mussel habitat) in the Ohio River.

- Other updates or new information provided since the original application include: 1) State Historic Preservation Office (SHPO) concurrence with the findings of the archaeological survey report; 2) completion of the Environmental Assessment (EA) document, which is being submitted electronically; 3) completion of BA and BO documents under the USFWS formal consultation process, which are being submitted electronically; and 4) the 2010 Mussel Survey Report.

Based on the studies completed to date, the City believes that the proposed Paducah Riverfront Development Phase 1/Transient Dock project meets all state regulations regarding 401 WQC requirements and procedures, and would appreciate your timely review and processing of this permit application.

We look forward to working with you to bring this project to a successful conclusion and appreciate your time and effort. Please contact Ron Thomas of Redwing at 502-625-3009 with any questions regarding this application or the overall project.

Sincerely,

L. Mathew Blake
Project Ecologist

Ronald L. Thomas
Principal
Senior Ecologist

File: 06-090/Reports/TransientDock/401Apl#2-CityCoverLetter

cc (w/o attachment): Sandy Gruzesky - Kentucky Division of Water
Peter Goodman – Kentucky Division of Water
Honorable William F. Paxton, Mayor – City of Paducah
Rick Murphy – City of Paducah
David Waldner – KYTC - Division of Environmental Analysis
Derek Adams – KYTC – Division of Environmental Analysis
Anthony Goodman – Federal Highways Administration
Jason Petersen – Florence & Hutcheson, Inc.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

November 9, 2010

Mr. Rick Murphy
City of Paducah
300 S 5th Street
Paducah, KY 42002

Re: Water Quality Certification Denied
AI No.: 102251, Activity ID: APE20090001
City of Paducah Property
Ohio River, RM 934
McCracken County, Kentucky

Dear City of Paducah:

The Kentucky Division of Water (KDOW) has reviewed your application to construct a riverfront development project at Ohio River Mile 934, including a 200-boat floating dock, fueling station and gangway system for the above-referenced project. Unavoidable impacts associated with this project as proposed would be 4.9 acres of fill placed into existing prime freshwater mussel habitat in which a significant mussel assemblage occurs, including the federally-endangered *Potamilus capax* (the fat pocketbook). Additionally, two federally-listed species, *Plethobasus cooperianus* (orangefoot pimpleback) and *Lampsilis abrupta* (pink mucket) are assumed by the U.S. Fish and Wildlife Service (USFWS) to occur in this area.

Due to the known presence of a federally-endangered species, this reach has been categorized as an Outstanding State Resource Water (OSRW) pursuant to 401 KAR 10:031 Section 8(1)(a). As such, 401 KAR 10:031 Section 8 mandates that "existing water quality and habitat shall be maintained and protected in those waters designated as outstanding state resource waters that support federally threatened and endangered species of aquatic organisms, unless it can be demonstrated that lowering of water quality or a habitat modification will not have a harmful effect on the threatened or endangered species that the water supports."

KDOW asserts that the proposed project will have adverse impacts to the habitat in this OSRW and will have a harmful effect on the species. Therefore, the Cabinet is unable to certify that the discharge you propose will comply with Kentucky's water quality standards and is hereby denying the Water Quality Certification.

Any demand for a hearing on the permit shall be filed in accordance with the procedures specified in KRS 224.10-420, 224.10-440, 224.10-470 and any regulations promulgated thereto. Any person aggrieved by a final determination of the Cabinet by which he or she considers themselves aggrieved may demand a hearing within thirty (30) days from the date of the issuance of this letter. Two (2) copies of the demand for a hearing should be submitted in writing to the Office of Administrative Hearings, 35-36 Fountain Place, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky Energy and Environment Cabinet, Division of Water, 200 Fair Oaks Lane, Frankfort, Kentucky 40601. For your record keeping purposes, it is recommended that this request be sent by certified mail.

Failure to obtain the required Water Quality Certification is a violation of Clean Water Act Section 401(a)(1) and could result in a violation of state water quality standards (401 KAR 5:031). If you have any questions, please call Mr. Alan Grant at (502) 564-3410.

Sincerely,

Alan Grant

Alan Grant, Supervisor
Water Quality Certification Section
Kentucky Division of Water

AG:JF:jf
Attachment
cc: Sam Werner, USACE: Newburg Regulatory Office
Michael Ricketts, USACE: Newburg Regulatory Office
Lee Andrews, USFWS: Frankfort
Leroy Koch, USFWS: Frankfort
Don Dott, KSNPC: Frankfort
Brian O'Neill, Redwing Ecological Services, Inc.: Louisville
Ron Thomas, Redwing Ecological Services, Inc.: Louisville
Jason Petersen, Florence and Hutcheson, Inc.: Paducah
Maggie Morgan, Jackson Purchase RC&D Foundation, Four Rivers Basin Coordinator: Paducah

APPENDIX H

An Engineering “No Impact” Certification which certifies that the marina/transient dock facility will not impact the 100-year flood elevations, floodway elevations, and floodway widths on the Ohio River will be obtained prior to the Finding of No Significant Impact (FONSI) submission.

APPENDIX I


RECEIVED
OCT - 6 2008

STEVEN L. BESHEAR
GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL

MARCHETA SPARROW
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

LINDY CASEBIER
ACTING EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

January 11, 2012

Mr. John L. Farmer, P. E.,
Florence & Hutcheson
410 New Salem Hwy
Suite 109
Murfreesboro, TN 37129

Re: Paducah Riverfront Development Project Proposed Updates, Paducah, McCracken County, Kentucky

Mr. Farmer,

Thank you for your correspondence concerning the above referenced project. Based on the information provided, I concur with your recommendation that the proposed updates to the Boat Launch and the Marina/Transient Dock will have no impact to historic properties within the Area of Potential Effect. However, if the project design or boundaries change again in the future then this office should be consulted to determine the nature and extent of additional documentation that may be needed.

If you have any questions, please do not hesitate to contact Phillip Johnson of my staff at (502) 564-7005 ext 122.

Sincerely,

Lindy Casebier, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

LC:prj

Cc: David Waldner (KYTC-DEA)
Michael Jones (KYTC-OLP)
James Lee Hixon (KYTC-DEA)

Florence & Hutcheson
CONSULTING ENGINEERS

December 10, 2011

Mr. Lindy Casebier, Acting Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

RE: Section 106
Paducah Riverfront Development Project
KYTC Project No. 01-122
Paducah, Kentucky

Dear Mr. Casebier:

We respectfully submit an update to a project proposed in Paducah, Kentucky for which the Kentucky Heritage Council (KHC) has reviewed and concurred. The City of Paducah proposes to construct a boat launch and marina/transient dock as part of their waterfront development effort. The City has completed a master plan for the development and revitalization of the Paducah riverfront which includes an analysis of existing conditions, and recommendations to enhance the cultural, historical, recreational, tourism and economic development plan. The project as proposed would result in certain modifications to the human and natural environment. The significance of the environmental impacts is unknown; therefore, an Environmental Assessment (EA) is in process as required under 23 CFR 771.115(c). (Reference Appendix A)

Project Background

As a requirement under the National Environmental Policy Act (NEPA) of 1969, impacts to the ecological, cultural, and social environments must be determined. Section 106 of the National Historic Preservation Act of 1966 requires that impacts to historic resources be determined through architectural and/or archaeological surveys within the Area of Potential Effect (APE). Through consultation with your office conducted in 2008, KHC concurred with the APE defined for the project. Both architectural and archaeological surveys were completed within the APE and results of those surveys were coordinated with your office in 2008. KHC concurred that there were no impacts to historic resources within the project.

Recently, as a result of both design and environmental review of the proposed project, the following updates have been made:

410 New Salem Hwy., Suite 109 • Murfreesboro, TN 37129 • 615.867.9400 • fax 615.904.2004
email: fhboro@flohut.com

Project Updates

Boat Launch

No changes will be made to the proposed boat launch project. (Reference Appendices B, C) The boat launch will encompass the same area as previously described in the architectural and archaeological surveys completed on May 5, 2008, and May 10, 2008, respectively. The APE for the architectural survey is between 6th and 8th Streets north to south and the area between the end of the proposed boat launch area east to Boyd Street. This area covers approximately 25 acres. KHC reviewed the architectural survey report and concurred by letter dated July 3, 2008, that (1) fifteen previously unrecorded historic resources within the APE do not appear eligible for listing in the National Register of Historic Places (NRHP) and (2) one previously unrecorded historic resource that appears eligible for listing will not be impacted by the project. The Area of Potential Effect (APE) for the archaeological survey encompasses a corridor along Burnett Street from 8th Street to the Ohio River and approximately 500 feet along 6th Street on each side of Burnett Street. The archaeological survey concluded that there are no archaeological sites within the APE for the boat launch. KHC reviewed the archaeological survey report and concurred by letter dated September 30, 2008. (Reference Appendix E)

Marina/Transient Dock

The marina/transient dock facility will be shifted 500 linear feet downstream (northwestward) from the original position but will be remain in the previously agreed-upon Area of Potential Effect (APE) for both the architectural and archaeological impact surveys. (Reference Appendices B, C, D) KHC recommended that the APE for the architectural survey is the project area itself and should not extend beyond the project limits (March 17, 2008). The APE encompasses a 17-acre area within the project boundary, which extends from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 550 linear feet at its maximum into the Ohio River. There are no standing buildings within the prescribed APE; therefore, no architectural survey was completed. An archaeological survey was completed for the marina/transient dock on May 10, 2008. The new location for this proposed facility lies entirely within the area previously defined as the APE and was included in the 2008 archaeological survey for the project. The survey concluded that there are no archaeological sites within the prescribed APE. KHC reviewed the archaeological survey report and concurred by letter dated September 30, 2008. (Reference Appendix E)

Summary

As a result of the architectural and/or archaeological surveys for the boat launch and marina/transient dock, KHC has concurred that there are no impacts to historic resources within the agreed-upon Areas of Potential Effect (APE) for the project. Though the marina/transient dock location has been slightly shifted downstream, the previous determination of the APE remains valid as do the findings of no impact for both above-ground structures as well as archaeological sites. Your concurrence with this determination is requested.

If you have any questions or concerns, please contact Mr. David Waldner, Kentucky Transportation Cabinet, at 502-564-7250, or Mr. Anthony Goodman, Kentucky Federal Highway Administration, at 502-223-6742.

Sincerely,

FLORENCE & HUTCHESON

John L. Farmer, PE, CPESC
Senior Environmental Engineer

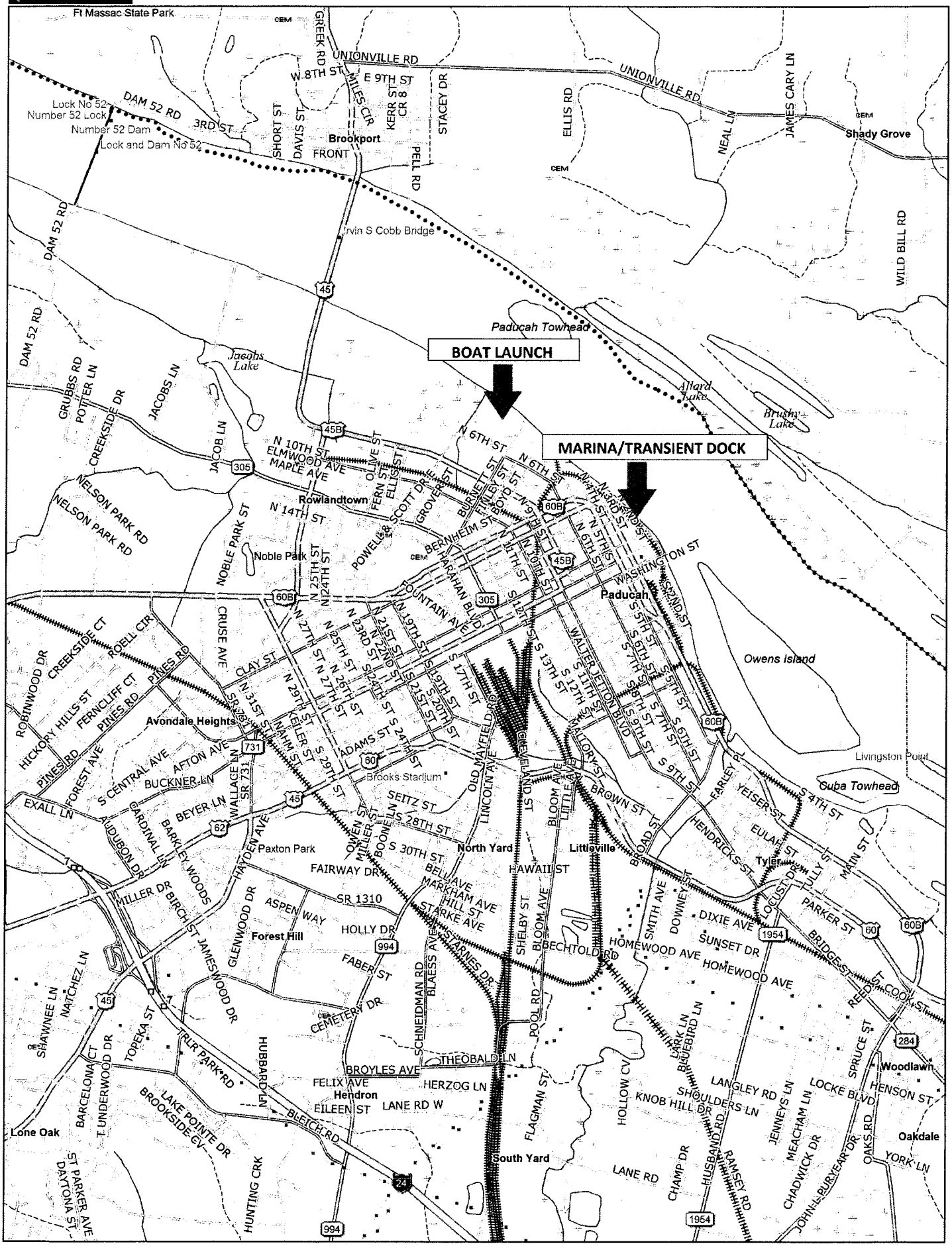
Enclosure

cc: David Waldner, PE
Anthony Goodman
Jason Petersen, PE

APPENDIX

Appendix A- General Location Map
Appendix B- USGS Map
Appendix C- Aerial Photograph
Appendix D- Marina/Transient Dock Re-Location
Appendix E- Correspondence

Appendix A- General Location Map



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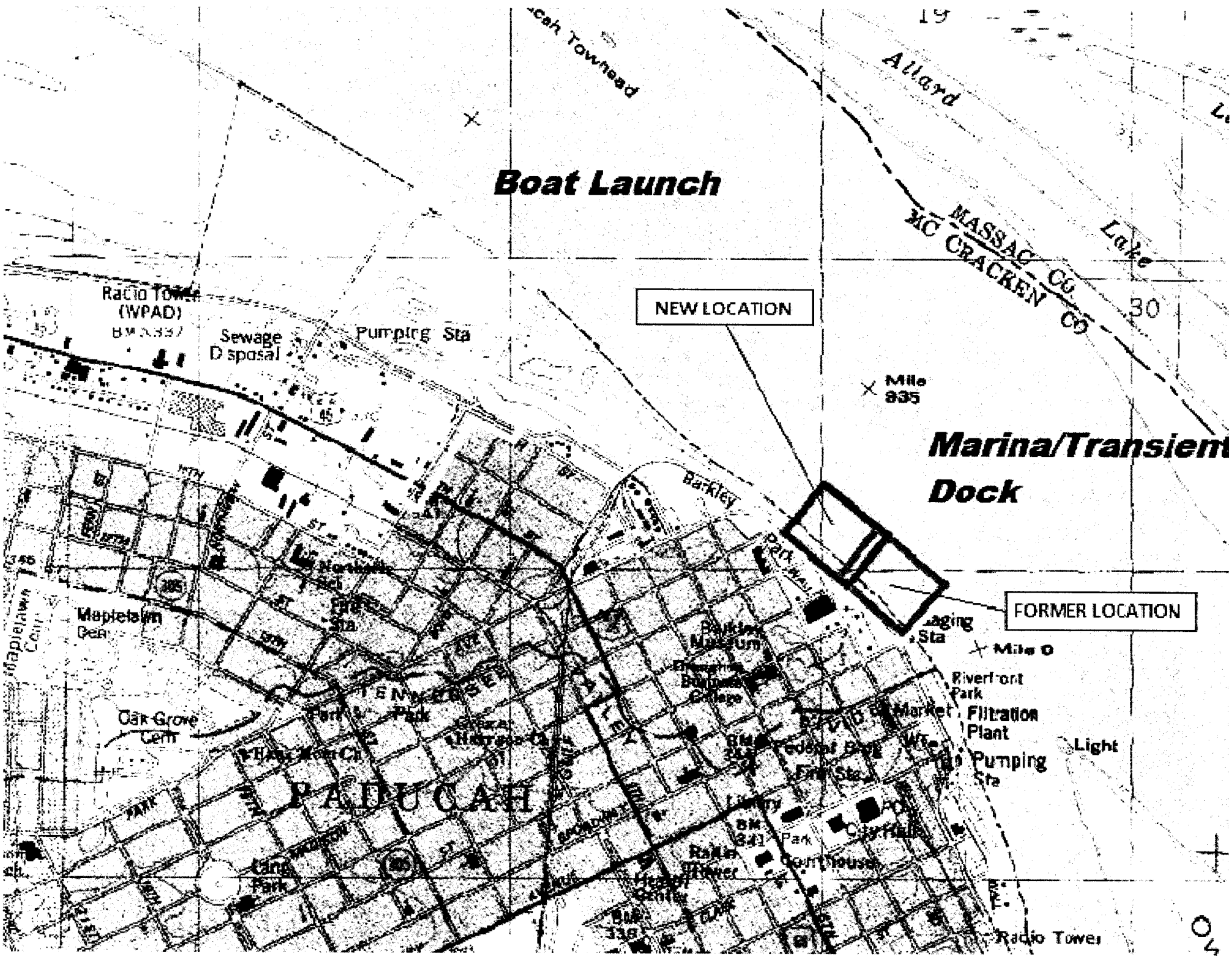
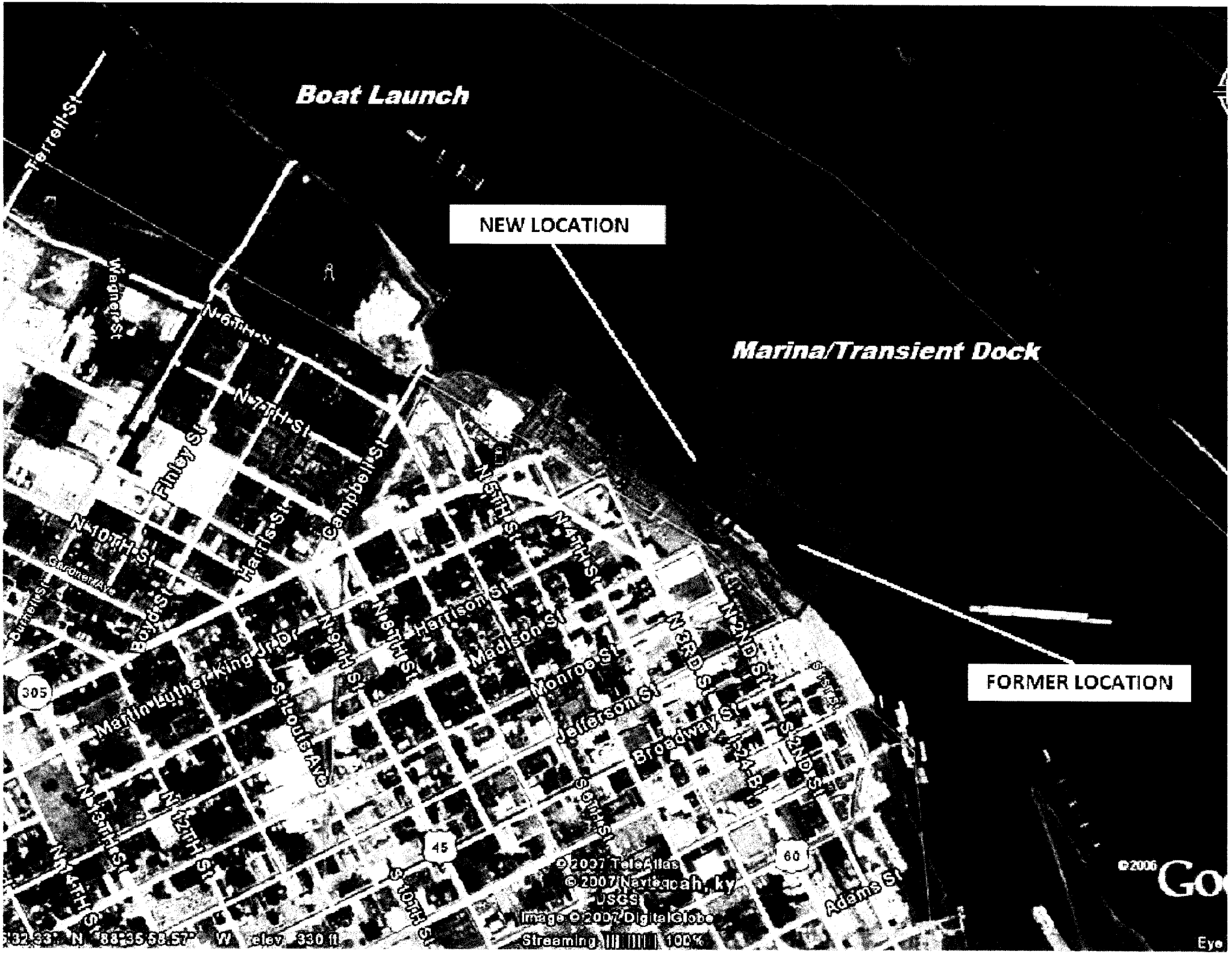
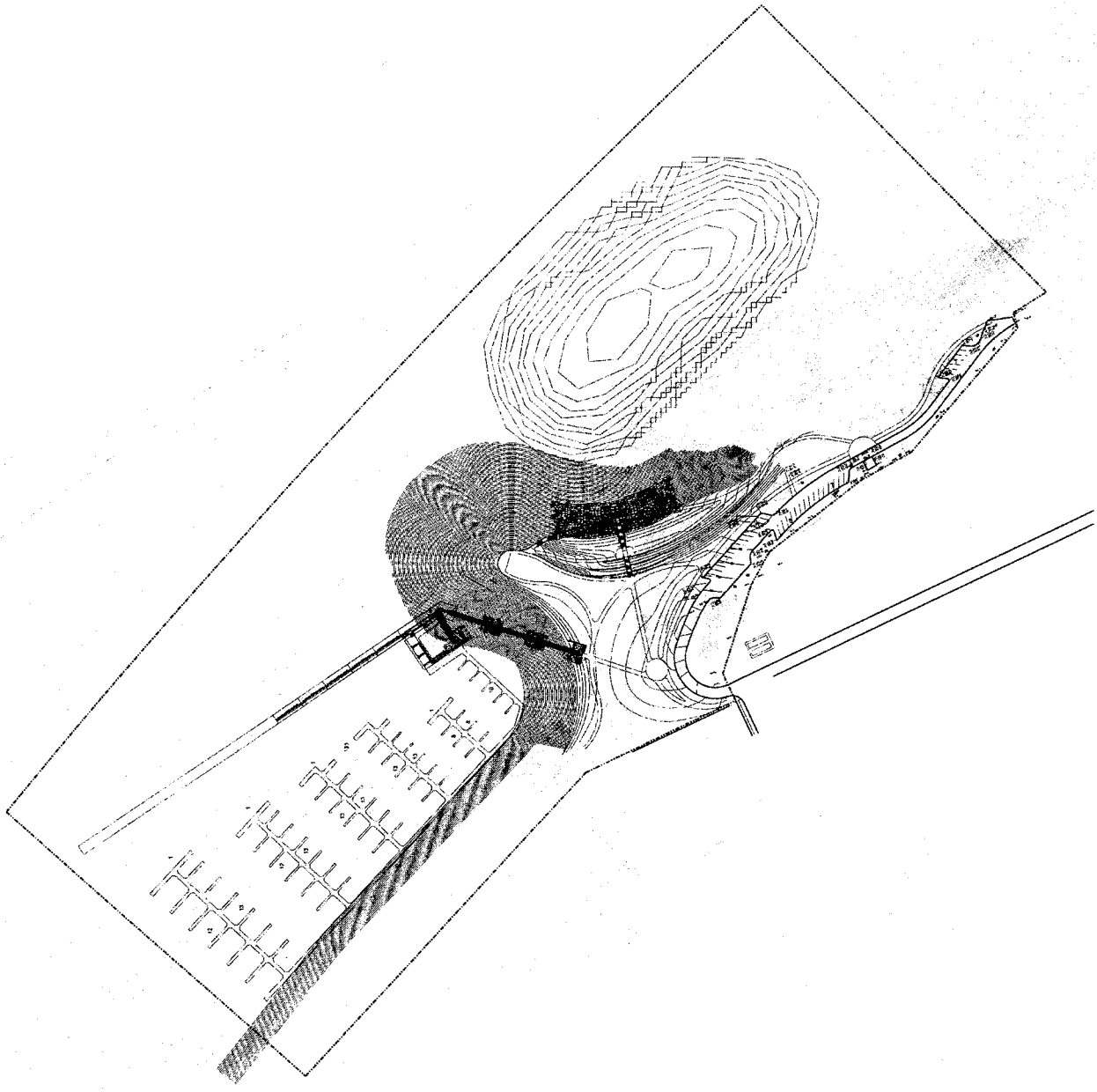
Appendix B- USGS Map


Boat Launch
NEW LOCATION
FORMER LOCATION
Marina/Transient
Dock
MASSAC Co
MC CRACKEN Co
Lake
Allard
Radio Tower
(WPAD)
Sewage
Disposal
Pumping Sta
Mile
935
Mile 0
PADUCAH
Barkley
Riverfront
Park
Filtration
Plant
Pumping
Sta
Light
Maplelawn
Cem
Oak Grove
Cem
Fire
Sta
Park
Radio Tower

Appendix C- Aerial Photograph


Boat Launch
NEW LOCATION
Marina/Transient Dock
FORMER LOCATION
Terrell St
Wagner St
N 6th St
N 7th St
Finley St
Campbell St
N 10th St
Harris St
Boyd St
Gardner Ave
Quimby St
N 9th St
N 8th St
Harrison St
Madison St
N 6th St
Monroe St
Jefferson St
Broadway St
Martin Luther King Jr Dr
St Louis Ave
N 13th St
N 12th St
N 11th St
Clinton St
Hoyt St
Adams St
305
45
60
© 2007 TeleAtlas
© 2007 Navigraph, Inc.
USGS
Image © 2007 DigitalGlobe
Streaming 100%
©2006 Go
Eye

Appendix D- Marina/Transient Dock Re-Location Concept



Appendix E- Correspondence

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

AMERICAN
RESOURCES
GROUP, LTD.

CRM 1607
127 North Washington Street
Carbondale, Illinois 62901
Phone: (618) 529-2741
Fax: (618) 457.5070
e-mail: archaeology@arglid.com

June 6, 2008

Janie-Rice Brother
Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

Re: Draft Report - Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, McCracken County, Kentucky

Dear Ms. Brother:

Enclosed are survey forms and one copy of the above referenced report written by Kevin Lomas of American Resources Group, Ltd. This report describes the results of the architectural assessment survey conducted for Florence and Hutcheson, Inc., to fulfill the permit requirements outlined in Section 106 of the National Historic Preservation Act of 1966 (as amended 1980), the Archaeological and Historical Preservation Act of 1974 (Executive Order 11593), and Title 36 of the Code of Federal Regulations (parts 60–66 and 800 as appropriate). The client has reviewed the report and concurs with the results and recommendations.

The area of potential effect (APE) consists of an area in Paducah between 6th Street and 8th Street extending from the proposed boat launch location east to Boyd Street. Within the APE, 16 historic properties were identified. Only one, McNp 976, is evaluated as potentially eligible for listing on the National Register of Historic Places (NRHP). The remaining 15 properties do not meet the NRHP criteria of significance and are evaluated as ineligible for the National Register. Construction of the proposed boat launch will not adversely impact the viewshed of any the 16 properties identified.

Please review the enclosed report and comment on the report content, findings, and recommendations. If you have any questions or need additional information, please give me a call.

Sincerely,

Steve Titus

Steve Titus, President

ST:gma

copied: Jason Petersen, Florence and Hutcheson, Inc.

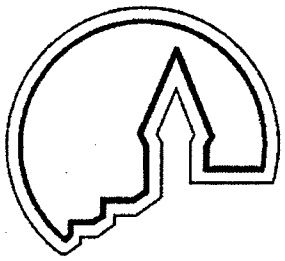
Enclosures

Draft Report

Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, McCracken County, Kentucky

Prepared for
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, Kentucky 42002

Prepared by
American Resources Group, Ltd.
Carbondale, Illinois



Principal Investigator
Steve Titus

Author
Kevin Lomas

Cultural Resources Management
Report No. 1607

June 2008

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

September 30, 2008

Jason Peterson
Florence and Hutcheson, Inc
PO Box 7267
Paducah, Kentucky 42002

Re: **Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky** by Kevin Lomas and Michael McNerney

Dear Mr. Peterson:

This office has received the above mentioned report for review. The survey found no new evidence of prehistoric or early historic occupation in the project area. I concur with the author's findings. In accordance with 36CFR Part 800.4(d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process for archaeology on this portion of the project is fulfilled.

If you have any questions, please do not hesitate to contact Lori Stahlgren of my staff at (502) 564-7005 ext 151.

Sincerely,

Mark Dennen, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Cc. George Crothers
Steve Titus

AMERICAN
RESOURCES
GROUP, LTD.

127 North Washington Street
Carbondale, Illinois 62901
Phone: (618) 529-2741
Fax: (618) 457.5070
e-mail: archaeology@argltd.com

June 19, 2008

Donna M. Neary
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

Re: Draft Report - Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky

Dear Ms. Neary:

Enclosed is one copy of the above referenced survey report written by Kevin Lomas and Michael McNerney of American Resources Group, Ltd (ARG). This report describes the results of the Phase I archaeological survey conducted for Florence and Hutcheson, Inc., to fulfill the permit requirements outlined in Section 106 of the National Historic Preservation Act of 1966 (as amended 1980), the Archaeological and Historical Preservation Act of 1974 (Executive Order 11593), and Title 36 of the Code of Federal Regulations (parts 60–66 and 800 as appropriate). The client has reviewed the report and concurs with the results and recommendations.

Two parcels (43 acres) adjacent to the Ohio River were surveyed. No sites were recorded within the project areas, and it is recommended that the proposed project be allowed to proceed as planned.

Please review the enclosed report and comment on the report content, findings, and recommendations. If you have any questions or need additional information, please give me a call.

Sincerely,

Steve Titus

Steve Titus, President

ST:gma

copied: Jason Petersen, Florence and Hutcheson, Inc.

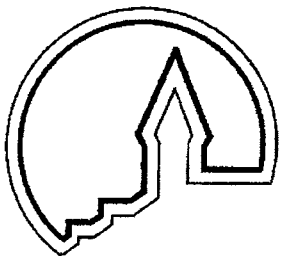
Enclosure

Draft Report

Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky

Prepared for
Florence and Hutcheson, Inc.
P.O. Box 7267
Paducah, Kentucky 42002

Prepared by
American Resources Group, Ltd.
Carbondale, Illinois



Principal Investigator
Steve Titus

Authors
Kevin Lomas
Michael McNerney

Cultural Resources Management
Report No. 1607

June 2008

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

July 17, 2009

Mr. Mark Dennen
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

SUBJECT: Expiration of comment period
Area of Potential Effect
Marina/Transient Dock
City of Paducah, KY Waterfront Project
KYTC SYP Item No. 1-122

Dear Mr. Dennen:

This letter is to inform you that the comment period for your office to comment or respond to the request for formal correspondence with subject project's APE has expired. A letter dated April 15, 2009 (attached) asked for KHC's review and formal correspondence of opinion. With the absence of correspondence, it is assumed that the email correspondence referenced in the letter will suffice for project documentation, and that the APE studied for the riverfront project is appropriate as identified and will be studied accordingly.

If you have questions regarding this notice, please contact Derek Adams or me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E., Director
Division of Environmental Analysis

DMW/dra
Enclosure

cc: Anthony Goodman, FHWA (w/a)
John Farmer, Florence and Hutcheson
Jason Peterson, Florence and Hutcheson, Inc.
Central File w/a
Reading File

Florence & Hutcheson, Inc. • CONSULTING ENGINEERS

April 15, 2009

Ms. Janie Rice Brother
Environmental Review Coordinator
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: Area of Potential Effect (APE)
Marina/Transient Dock
City of Paducah, KY Waterfront Development

Ms. Brother:

American Resources Group (ARG) submitted an architectural survey of the Area of Potential Effect (APE) for a proposed riverfront boat launch in Paducah, McCracken County, Kentucky on June 6, 2008. Your office concurred with the author's identification of 16 previously unrecorded historic resources and the fact that they do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. Your office also agreed that one additional site appears eligible for listing in the NRHP under criterion C but that it will not be impacted by the boat launch project as proposed. (Reference enclosed letter, July 3, 2008).

As part of the Paducah Riverfront Development, the City of Paducah is also proposing to construct a marina/transient dock facility on City-owned property which will extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site comprises approximately 42 acres± of riverbank and water surface with the centroid located at 37°05'32"N, 88°35'47" W near Mile Marker 935. The limits affecting land for the marina/transient dock vary north of the existing floodwall then diverge to the riverside of the Executive Inn located at the northeastern end of Park Avenue. (Reference Consensus Plan)

ARG contacted you via e-mail to verify the extent of APE for the marina/transient dock facility. In the correspondence, you indicated that the APE for the project should be limited to the actual project area itself as depicted on the map provided at that time. (Reference enclosed e-mail, March 10-17, 2008). Based on this response, it is our understanding that an APE survey is not required beyond the project limits for the marina/transient dock facility. With this correspondence, we are requesting that the Kentucky Heritage Council issue formal correspondence by letter summarizing your opinion expressed in the e-mail indicating that no further coordination is required regarding this project. If you have any questions, or wish to discuss this request in greater detail, please don't hesitate to call. I can be reached at (615) 867-9400.

Sincerely,

FLORENCE & HUTCHESON, INC.

John L. Farmer, PE, CPESC
Environmental Division Manager

Enclosures
CC: Mr. Steve Titus

410 New Salem Hwy • Suite 109 • Murfreesboro, Tennessee 37129 • (615) 867-9400 • Fax (615) 904-2004

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

Lake
Manitouwadge
Dock
Park
Radio Tower
(WPAD)
BM ⊕337
Sewage
Disposal
Pumping Sta
Maplelawn Cemetery
Maple Grove
Cem
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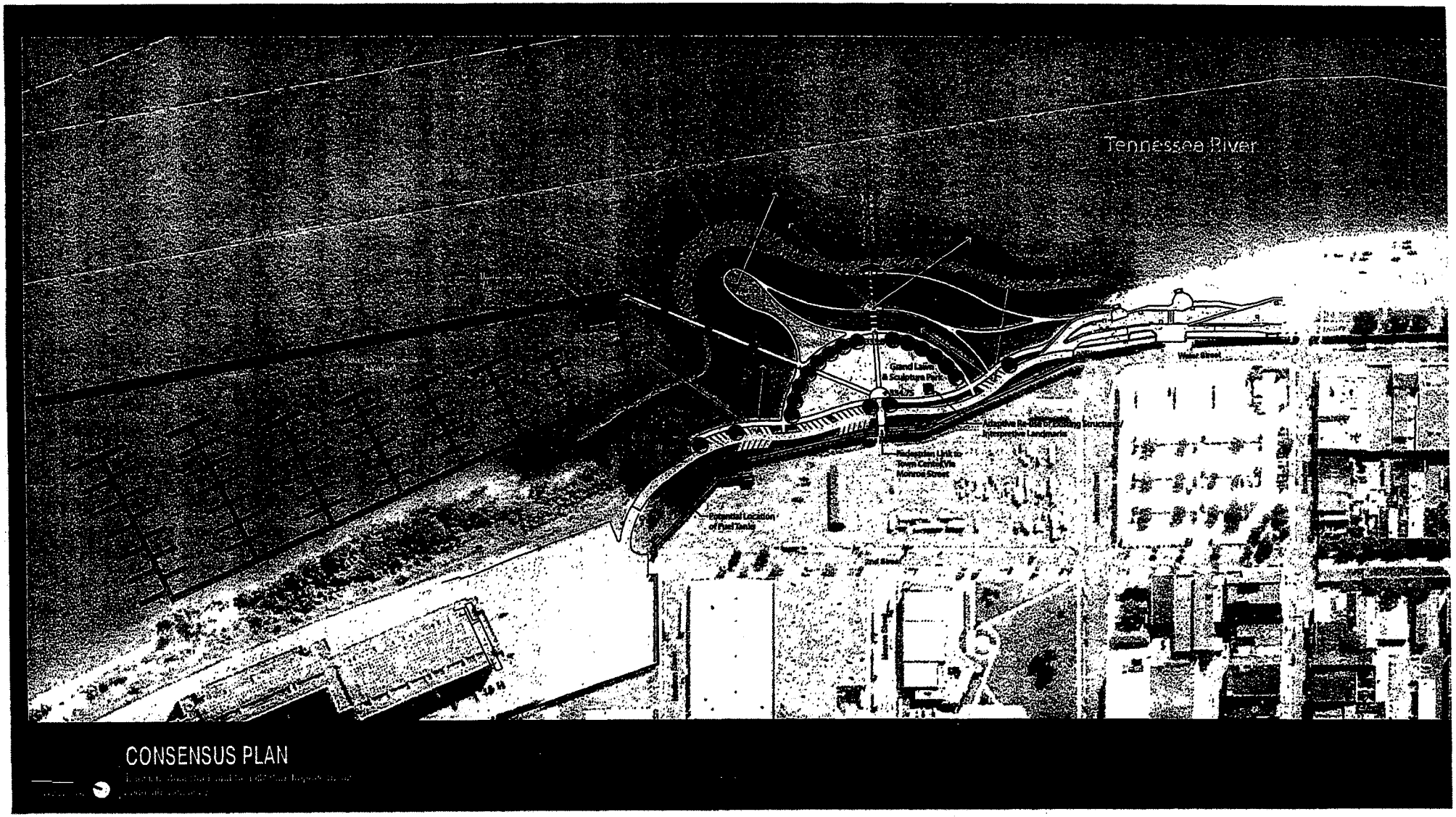


CONSENSUS PLAN

X-Modus-ReverseDNS: OK
X-Modus-BlackList: 162.114.80.64=OK;Janie-Rice.Brother@ky.gov=OK
X-Modus-RBL: 162.114.80.64=OK
X-Modus-Trusted: 162.114.80.64=NO
X-Modus-Audit: FALSE;0;0;0
Subject: RE: Paducah Riverfront Project
Date: Mon, 17 Mar 2008 13:35:55 -0400
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Paducah Riverfront Project
Thread-Index: AcIDt/qfMZ6MzyUrQa+adg7HVtCVOAEnTejA
From: "Brother, Janie-Rice (Heritage Council)" <Janie-Rice.Brother@ky.gov>
To: "American Resources Group, Steve Titus" <steve@argltd.com>
Cc: "Pollack, David (Heritage Council)" <David.Pollack@ky.gov>
X-OriginalArrivalTime: 17 Mar 2008 17:35:55.0693 (UTC) FILETIME=[5ACB4DD0:01C88855]

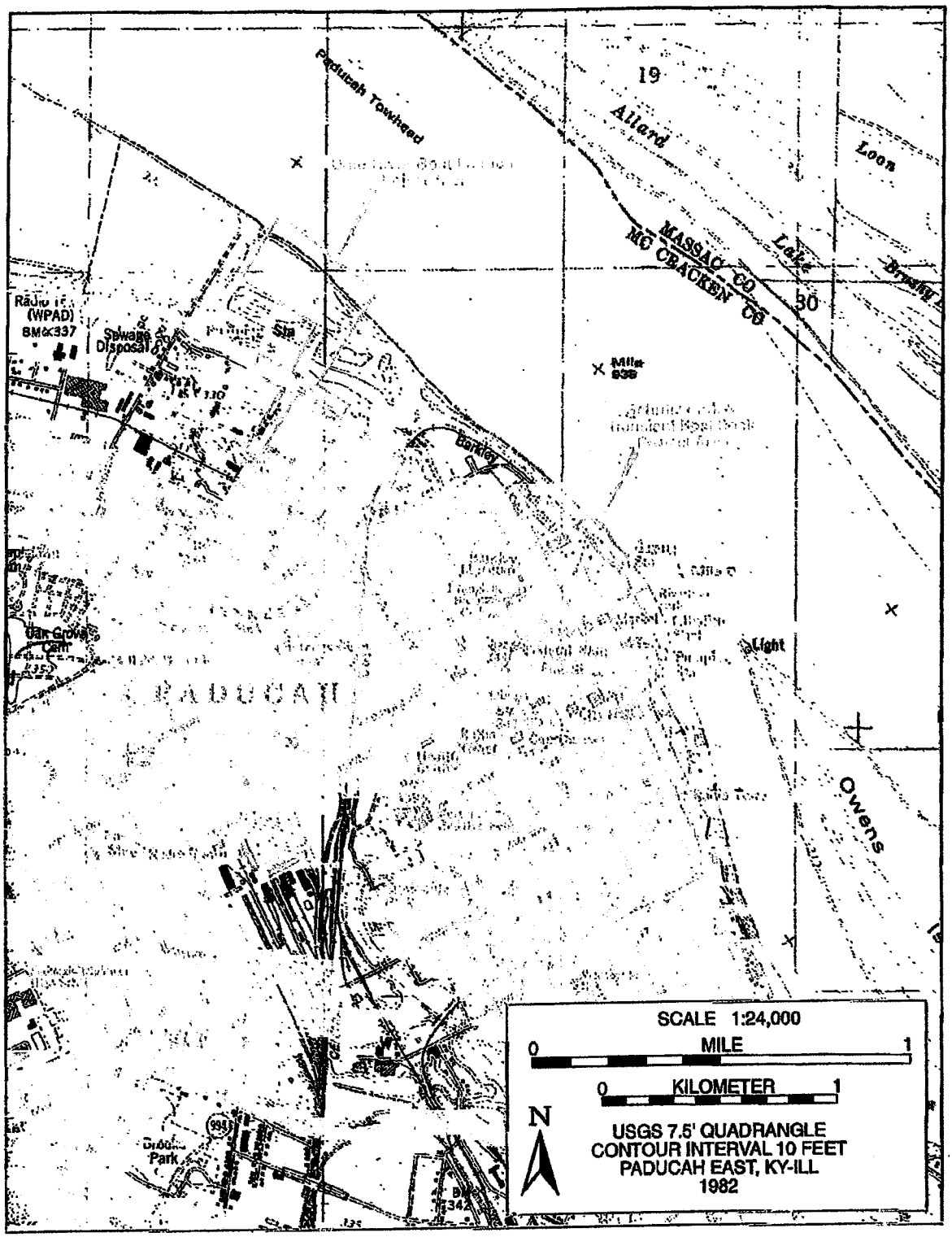
I think the actual project area is fine for an APE - essentially the area depicted on your map.
Thanks,
Janie-Rice

-----Original Message-----
From: American Resources Group, Steve Titus [mailto:steve@argltd.com]
Sent: Tuesday, March 11, 2008 4:41 PM
To: Brother, Janie-Rice (Heritage Council)
Subject: RE: Paducah Riverfront Project

Existing roads will be used to access the boat dock, and an existing parking lot located within the project area boundaries will be slightly modified.

At 12:49 PM 3/11/2008, you wrote:
>Will there be an access road to the boat dock, or will it use existing
>roads? Also, will there be a parking area?
>
>-----Original Message-----
>From: American Resources Group, Steve Titus [mailto:steve@argltd.com]
>Sent: Monday, March 10, 2008 4:50 PM
>To: Brother, Janie-Rice (Heritage Council)
>Subject: Paducah Riverfront Project
>
>Janie-Rice,
>
>Thank you for your feedback on the APE for the Boat Launch portion of
>the Paducah Riverfront Project. As the attached map shows, the second
>portion of the Riverfront Project consists of the proposed Transient
>Boat Dock. Would you help us delineate the APE for the Boat Dock area?
>The proposed boat dock will be a low-lying construction on the river
>that has no aerial projection. Thank you, Janie-Rice.
>

>Steve Titus
>President
>American Resources Group, Ltd.
>127 N. Washington
>Carbondale, IL 62901
>office: (618) 529-2741
>fax: (618) 457-5070
>cell: (618) 527-1122
>e-mail: steve@argltd.com
>


Paducah Towhead
19
Allard
Loon
MASSAC CO.
MC CRACKEN CO
Lake
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Radio
(WPAD)
BM 337
Sewage
Disposal
Site
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939
Berkley
Oak Grove
Cem
Light
PADUCAH
Owens
Park
SCALE 1:24,000
0 MILE 1
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N
USGS 7.5' QUADRANGLE
CONTOUR INTERVAL 10 FEET
PADUCAH EAST, KY-ILL
1982

Figure xx.

119 PUBLIC NOTICE

KENTUCKY TRANSPORTATION CABINET
National Historic Preservation Act, Section 106 Notice

On behalf of the Kentucky Transportation Cabinet (KYTC), Florence & Hutcheson has undertaken an important series of investigations and analyses required by the National Historic Preservation Act for Phase I of the Paducah Waterfront development Project includes the construction of both a boat launch facility and marina/transient dock facility at two separate locations along the Ohio River waterfront within the Paducah city limits. These activities have included (1) the identification of any historic properties in the project area, (2) the evaluation of the potential impact of the project on those properties, and, if necessary, (3) the development of mitigation measures to reduce any harmful effects. The views of the public are essential to this process- and to an informed decision on the ultimate project outcome. The KYTC and Florence & Hutcheson will be making information available to the public on historic resource issues related to the project and will be soliciting feedback from the public on the information and analyses we have presented. If you are aware of any information that you believe we should consider in this process, please provide the information to the address listed below.
Some individuals and organizations may be entitled to participate more actively in this process as "consulting parties". This would entitle them to receive specific types of information, provide comments, and consult with KYTC concerning potential mitigation measures to reduce the adverse effects of the project on historic properties. Participation as a "consulting party" may stem from a party's legal or economic relation to the project or a particular historic property, or from the party's concern with the project's affects on historic properties. If you believe that you might be entitled to participate as a "consulting party" for this project, please forward a letter or email within 15 days of the date of this public notice to the address listed below and identify the reasons why you believe you should be granted "consulting party" status.
Jason Peterson, PE
Project Manager
Florence & Hutcheson
2550 Irvin Cobb Drive
Paducah, Kentucky 42003
jpeterson@flohut.com

119 PUBLIC NOTICE

PUBLIC NOTICE
The Purchase Area Transit Authorities and the Purchase Area Development District will conduct a public hearing to solicit input on public transportation services offered in the region on February 25, 2010, at 9:00 am, at the Purchase Area Development District, 1002 Medical Drive, Mayfield, KY 42066. All interested parties are encouraged to attend this hearing. Those unable to attend may submit written comments to the address listed above For additional information contact your local transit authority or Mark Davis at 270/ 251-6126.

122 FREE FOR THE TAKING

FREE END ROLLS & WOOD PALLETS

The Paducah Sun is pleased to offer free newsprint end rolls and wood pallets to the community. Either may be picked up daily while supplies last in the alley behind The Paducah Sun building.

7 MO. male German Shepherd/Sheltie mix, all shots, 556-6517.

11 FULL blooded American Pit Bulls. 395-9199 or 933-2662.

2 Female housebroken Kittens, spayed. 2 yrs old. 933-7667.

2 EMPLOYMENT

224 DOMESTIC & CHILD CARE

NOTE TO PARENTS
Kentucky State Law requires licensing for child care facilities providing care for 4 or more children not related to the licensee by blood, marriage or adoption.

WANTED: Houses to clean. 462-2979.

227 MEDICAL HELP WANTED

HEALTH CARE OPPORTUNITY

Parkview Nursing & Rehabilitation Center in Paducah

STAFFING COORDINATOR
Full-time position available. Qualified candidate must be a high school graduate with strong communication and computer skills. Prior staffing experience in a health care setting is preferred.

We offer excellent pay and full benefits including Blue Cross/ Blue Shield insurance, 401(k) and paid time off.

Contact Levi Loverkamp
270-443-6543
270-538-2469 Fax
Levi_Loverkamp@LCCA.com
Visit us online at www.LCCA.com
EOE/M/F/V/D · Job #13177

Parkview Nursing & Rehabilitation Center

NURSING OPPORTUNITIES

Parkview Nursing and Rehabilitation Center in Paducah, Kentucky

CNA
Full-time, 3pm-11pm
Must have current KY certification

We offer competitive pay, shift differential and full benefits in a mission-driven environment

Contact Levi Loverkamp
270-443-6543
270-538-2469 Fax
Levi Loverkamp@LCCA.com
Visit us online at www.LCCA.com
EOE/M/F/V/D · Job #9839

Parkview Nursing & Rehabilitation Center

CLINICAL RESEARCH

CNA/CMA/LPN/RN invited to apply for Research Assistant/ Research Coordinator positions.
Send cover letter/ resume to:
Four Rivers Clinical Research,
Attn: Brent Ibata, PhD JD MPH,
225 Medical Center Drive, Ste. 305,
Paducah, KY 42003
or
bibata@FourRiversResearch.com

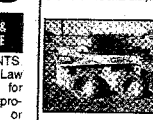
NURSING CARE PLAN COORDINATOR

Southgate Nursing & Rehabilitation Center is seeking an RN or LPN with experience in care plans & MDS. The successful candidate must have excellent organizational skills & be very detail oriented, This is a Mon-Fri. salaried position. Contact Mickey Cavitt for your personal interview at 618-524-2683 or send resume to Southgate, PO Box 843, Metropolis, IL 62960. Attn: Administrator.

Family Service Society

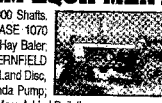
A resource for people in crisis.

Since 1927



Cylinder. Foam Filled Tire; CASE 580K 4x4 Loader Backhoe, CASE 580E Loader Backhoe; CASE 580B Loader Backhoe, SN 8739129. OROPS, Hyd. Thumb; CASE 580B Loader Backhoe: JOHN DEERE 310C Loader Backhoe, SN A739557; EATON Forklift, Dsl., Pneumatic Tires, 10,000#; VERMEER M-455 Trencher/Backhoe, Deutz Dsl SN 1URF092E0E1000640 4' Trencher, Leveling Blade, 2050 Hrs.; More added Daily!!

TRACTORS, FARM EQUIPMENT



IH 766 Tractor, SN 2490181U011815, 540/1000 Shafts, 18.4x34 Rubber; (2) FORD 5000 Tractor; CASE 1070 Tractor; MF 135 Tractor; M & W 5690 Round Hay Baler; NEW HOLLAND 855 Road Hay Baler; WESTERNFIELD Hydraulic Auger; AMCO Model 2024-BG Hard Land Disc, SN 871; 2500 Gal. Water Tank w/Mixer & Honda Pump; 2000 Gal. Fuel Tank w/Pump; MF 175 Tractor; More Added Daily!!

TRUCKS & TRAILERS

(2) 1995 IH 8100 Truck Tractor, 9 Spc., M11 Cummins Dsl.,; 1995 PETERBILT Tandem Truck Tractor, 3406 CAT Dsl., 10 Spd., Wet Kit, Dry Cab, 90% Rubber. 1995 PETERBILT 379 Truck Tractor, N14 Cummins, 10 Spd. Wet Kit, 390 Gears, New Floaters, New Springs & King Pins, Approx. 250,000 miles on engine, Aluminum Wheels; 1994 WESTERN STAR 4964FX Truck Tractor, 425 CAT, 500 HP, 13 Spd., 355 Gears, Wet Kit. New Power Divider, Aluminum Wheels; 1993 FREIGHTLINER Tandem Truck Tractor, Detroit Dsl., 9 Spd.; PETERBILT Truck Tractor; 1993 FORD F250XL Service Truck, 1986 FORD 9000 Refuse Truck, w/IMT Grapple Boom Model 1331, 50 Cu. Yd. Bed, 1982 IH F2575 Flatbed, Twin Screw, 174" Wheel Base: 2004 GMC Box Van, 1987 IH 2574 Tandem Dump Truck, NTC-855, Auto Trans., Double Frame, Air Brakes, Hendricks Suspention, Nice Rock Bed; 1976 CHEVROLET C65 Tandem Grain Truck, 366 Engine, 5 Spd., Air Brakes, 22' Bed w/Roll Over Tarp, 23,000 Rears; 1975 GMC 6000, 2 Ton Dump Truck, 350 Engine, Twin Cylinder Dump, 16' Midwest Grain Bed, Plumbed for Rear Seed Auger, 9:20 Tires; 1977 FORD F600 Grain Truck, 1998 CHEVROLET Extended Cab Dually, Cummins Dsl.; 1994 DODGE Laramie SLT 1500 Pickup Trailer; Tri-Axle Pintle Hitch Trailer; 1993 FORD Econoline 350 Motor Home; 2007 JOHN DEERE Gator TS; 2004 SUZUKI Street Bike; 2003 SUZUKI Street Bike; Scaffold Wagons; More Added Daily!!

ALSO SELLING BUILDING SUPPLIES;
2x4's, 2x6's, 2x8's; THIS IS ONLY A PARTIAL LISTING!
MORE EQUIPMENT ADDED DAILY!!!
EQUIPMENT ACCEPTED UP UNTIL FRIDAY, JAN. 29TH.

This is an OPEN SALE Representatives will be at the Auction site Monday, Jan. 25th through Friday, Jan. 29th to accept your equipment! For more information contact: Steve Bunch (270) 748-8080 or Roy Bunch (270) 748-5527

AUCTION CONDUCTED BY:
Steven J. Bunch - Auctioneer
Roy Bunch - Auctioneer, Real Estate Broker
BUNCH BROS. AUCTION & REALTY, INC.
P. O. Box 175
Wingo, KY 42088
Buck Shelton - Apprentice Auctioneer
Phone: (270) 376-2992 Fax: (270) 378-2997
Website: bunchbrosauctionrealty.com

227 MEDICAL HELP WANTED

LPN

Full-time opening at the Massac County Clinic. Applicant must possess an Illinois LPN License. For more information, visit our website at www.southern7.org. Applications are available online or by calling 618-634-2297 or TTY# (800)526-0844. Please mail completed applications to Human Resources, Southern Seven Health Department, 37 Rustic Campus Drive, Ullin, IL 62992 EOE M/F/D/V

Registered Nurse

Full-time opening at the Massac County Clinic. Applicant must possess an Illinois Registered Nurse License. For more information, visit our website at www.southern7.org. Applications are available online or by calling 618-634-2297, or TTY# 800-526-0844. Please mail completed applications to Human Resources, Southern Seven Health Department, 37 Rustic Campus Drive, Ullin, IL 62992. EOE M/F/D/V

RN/LPN / Women's Health ARNP

All Positions located at the Western Kentucky Correctional Complex in Fredonia, KY. Primary duties to include medication administration, assessment, triage, and response to emergencies. Please forward resume and letter of interest referencing the position and location to CorrectCare - Integrated Health, Fax (859) 685-0901 or email HR@correctcare.com. EEO

227 MEDICAL HELP WANTED

RN CIRCULATOR Open Heart

Western Baptist Hospital is seeking an RN circulator with operating room/open heart experience. Day shift position with call required. Also seeking general RN circulators for varied shifts. Excellent wage and benefits. Apply online at: www.westernbaptist.com
EOE

CNA $1,500 SIGN ON BONUS

Metropolis Nursing & Rehab Center currently has openings for CNA's. This is a full-time position that offers a new competitive wage, shift differential, paid holidays and vacation/sick time. If interested, please apply in person at 2299 Metropolis Street, Metropolis, Illinois or fax your resume to Attn: CNA at 618-524-2507. EOE

Dental Assistant

We are looking to add to our super star team. Expanded Duties preferd or min. of 3 yrs. experience. Competitive wages with incentive bonus plan. 4 day work week, Paducah location. Please email resume to:
dentalsmileswanted@yahoo.com

FULL TIME
CMA/LPN

Needed for busy allergy practice to perform front desk and clinic duties. Excellent customer service skills required. 1- 2 yrs. experience preferred. Fax resume to Director at 502-753-0883.

BUSY Medical Practice seeking full time employee. Willing to train. Optometry/ Opthamology experience helpful Send reply to BB 01094 c/o The Paducah Sun, PO Box 2300, Paducah, KY 42002-2300.

227 MEDICAL HELP WANTED

Clinical Manager

Needed for busy Allergy Practice 3-5 yrs. Clinical Supervisory experience required. RN preferred. Excellent benefits. Fax resume to Director, 502-753-0889.

DENTAL Assistant needed 3-4 days/week in a specialty practice. Send reply to BB 12464 c/o The Paducah Sun PO Box 2300, Paducah, KY 42002-2300.

LPN - NIGHT SHIFT

12 HOURS
7PM-7AM
Apply in person at Mills Health & Rehab, 500 Beck Lane, Mayfield, KY 42066.

PADUCAH medical office looking for LPN or CMA. Send resume to BB 04270 c/o The Paducah Sun, PO Box 2300, Paducah, KY 42002-2300.

228 GENERAL HELP WANTED

TEMPORARY # of openings: 13 Tobacco, Hay/Straw & General Agricultural Workers Needed.
Employer: Wilkerson Farms, Inc., Eddie Ray Kirks & Kyle Kirks-Graves & Calloway Counties, KY Dates: 3/01/2009-12/15/2010. Wages: $7.25-8.00/ hour. 3/4 of hours listed on job order guaranteed. Work tools will be provided at no cost. Free housing provided to those who cannot reasonably return to their permanent residence each working day. Transportation & subsistence paid when 50% of contract is met. Physically able to meet & perform all job specifications. May be required to take random drug and/or alcohol tests. May be required to submit to a criminal background check. Apply for this job at the nearest KY Office of Employment & Training Division of Workforce & Employment Services Office using job order number KY03934038.

228 GENERAL HELP WANTED

PART-TIME CUSTOMER SERVICE REP

Answers customer calls quickly & courteously, accurately processes all transactions to represent The Paducah Sun. Job responsibilities include: Preparing/printing proper paperwork for postal reports, payments, credits & adjustments. Position is for weekends only. Applications may be picked up Monday-Friday. 8am-4pm at The Paducah Sun, 408 Kentucky Ave., Paducah, KY. No phone calls. The Paducah Sun is an equal opportunity employer and does not discriminate on the basis of race, religion, color, sex, age, national origin or disability.

WANTED

956 Highland Drive

Beautiful Stone Wood Burning Fireplace, Hardwood Floors, Kitchen, Central Heat & Air, Metal Roof. 2 Large Covered Wrap Around Decks.

Lot 48 Nordic Circle Gatlinburg, TN 37738: 55'x175' Lot In The Tyrolea Subdivision

Lot 11 Peggy Lane Pigeon Forge, TN 37863: 0.27 Acre Lot In The Harmony Hills Subdivision

AUCTION HELD AT 218 LAUREL OAKS WAY GATLINBURG, TN 37738!
REAL ESTATE WILL BEGIN AT 10:00 AM (EST)!
Call For More Information or Visit: www.harrisauctions.com

Real Estate Auction

Saturday, February 6th 2010 @ 2:00 PM (EST)

SELLING FOR BRANCH BANKING AND TRUST CORPORATE
Property Locations: 1633 Jed Trail Pigeon Forge, TN 37862, 1249 Jayell Rd. Pigeon Forge, TN 37862, Evans Chapel Rd. Sevierville, TN 37876, Mountain Ash Way Sevierville, TN 37876: Lot 65 Harvest Meadows Kodak, TN 37764

3 BDRM, 2 BATH LOG CABIN ~ 35 ACRES ~ 5 ACRES ~ 2 LOTS

REAL ESTATE: 1633 Jed Trail Pigeon Forge TN 37862: A Nice +/- 2,106 Sq Ft. 2 Year Old Log & Stone Cabin Featuring 2 Bedrooms, 2 1/2 Baths, Kitchen w Cherry Cabinets, Living Room w/ Stone Fireplace, Central Heat & Air, Carpet, Ceramic Tile & Hardwood Floors, Tiled Bathtub, & Multiple Covered Decks.

1633 Jed Trail

1249 Jayell Rd. Pigeon Forge, TN 37862: 5.75 Acres Of Level To Gently Rolling Land.

Evans Chapel Rd. Sevierville, TN 37876: 35.22 Acres Of Rolling Wooded Land.

Lot 17 Mountain Ash Way Sevierville, TN 37876: 0.96 Acre Lot Located In The Preserve At English Mountain Community.

Lot 65 Harvest Meadows Kodak, TN 37764: 0.84 Acre Lot.

AUCTION HELD AT 1633 JED TRAIL PIGEON FORGE, TN 37862!
REAL ESTATE WILL BEGIN AT 2:00 PM (EST)!
Call For More Information or Visit: www.harrisauctions.com

REAL ESTATE TERMS: 15% Down Day Of Sale Balance In 30 Days. A 10% Buyer's Premium Will Be Added To Final Bids And Included In The Contract Price. Must Provide A Bank Letter Of Credit. All Properties Sold "As Is, Where Is" Without Warranty Or Representation Either Expressed Or Implied Concerning The Property Made By The Seller Or Auction Company. Buyer Is Responsible For Any HOA Or Membership Fees That May Apply

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GOING GOING GONE

ABSOLUTE AUCTION

NO MINIMUMS!! NO RESERVATIONS!!
Saturday, Jan. 30th, At 10:00 A.M.
A Short Drive Northeast Of Mayfield, Kentucky
The Trace Creek Area ~ Neeley Road

From The Purchase Parkway At Exit 27 "Hwy 131" Proceed N 2 Miles To Neeley Rd, Turn Right, Proceed E 2/10 Mile...Or From The East Side Of Mayfield At The Hwy 121 By Pass, Take Hwy 58 East 1.7 Miles To "Hwy 131" Turn Left ,Proceed N 3 Miles To Neeley Rd!

42.04 ACRES
In 3 Tracts And In Combinations
A Convenient Location For Graves ~ McCracken Or Marshall County !!
GOOD FARMLAND
Mini Tracts ~ Homesites ~ Nice Pond
6.69 Acres ~ 22.74 Acres ~ 12.61 Acres
There Is A State Permitted Gravel Pit On Tract 3 Containing 12.3 Acres

www.jamesrcash.com For More Details!

15% Down With A Minimum Deposit Of $5,000.00 Per Tract, Balance In 30 Days No Buyer's Premium!! Auction Held On Site!

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JRC 772 AUCTIONEER & REAL ESTATE BROKER JRC
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"THE SELLING MACHINE"

GOING GOING GONE

ABSOLUTE AUCTION

Sat. Feb. 13th ~ 10:00 A.M.
Pines Golf Club ~ Dyer, TN
At The South City Limit Edge Of Dyer
1 Trenton Hwy, Dyer, TN 38330
Just A Few Minutes Drive From
Union City ~ Martin ~ Dyersburg ~ Jackson

133 Acres
In 8 Tracts And In Combination Of Tracts
Tract Of 7 Acres To 29 Acres!

Buy The Complete Facility ~ Or Any Portion!
No Minimums ~ No Reservations!
Spacious Two Level Clubhouse
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All The Equipment & Accessories From A Well Established Golf Course & Club House Plus...20 ~ Very Nice EZE-GO Electric Golf Carts
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WE WANT IT BACK!

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TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

November 23, 2010

Mr. Jose Sepulveda, Office Administrator
Federal Highway Administration
330 West Broadway
Frankfort, KY 40601

Re: Paducah Waterfront Development Project
KYTC Six Year Plan Project No. 01-122
Paducah, Kentucky

Dear Mr. Sepulveda:

The City of Paducah has reviewed the referenced project for potential to effect historic properties in conformance with Section 106 of the National Historic Preservation Act and 36 CFR 800.

Project Description

The City of Paducah is proposing (1) the construction of a boat launch facility on city-owned property which will encompass the corridor along Burnett Street from 8th Street to the Ohio River and approximately 500 feet along 6th Street on each side of Burnett Street and (2) the construction of a marina/transient dock facility on city-owned property which extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 550 linear feet into the Ohio River. (Reference Attachment 1)

Purpose and Need

The purpose of the boat launch project is to relocate the existing boat ramp facility located at the northeastern end of Broadway Street, while at the same time allowing for the northeastern end of Broadway Street to be converted back to its original use as a riverboat landing and community focal point along the Ohio River. The relocation of the boat launch facility will reduce congestion and vehicle parking associated with recreational fishing activities such as launching and the parking of fishing boats. The purpose of the marina/transient dock is to provide accommodations for transient boaters and local recreational boat owners. The need for the marina/transient dock is to provide loading/unloading facilities for transient boats and to provide a marina with associated facilities that will allow transient and local recreational boaters to dock in a protected marina near downtown. The proposed boat launch and marina/transient dock sites were selected to minimize cost and environmental impact, while maintaining close proximity to downtown Paducah.

Section 106 of the National Historic Preservation Act of 1966

The Area of Potential Effect (APE) for the boat launch project was defined as the area between 6th and 8th Streets north to south and the area between the end of the proposed boat launch project area east to Boyd Street. The Kentucky Heritage Council reviewed the architectural and archaeological reports for the APE and concurred that none of the sixteen historic properties within the APE will be impacted by the project, nor were there any archaeological sites identified within the APE for the boat launch project.

The Area of Potential Effect (APE) for the marina/transient dock was defined as the project area itself. No archaeological sites were found within the marina/transient dock project area. The following is a summary of the documentation for Section 106 (architectural) for the marina/transient dock facility:

1. American Resource Group (ARG) e-mailed Ms. Janie-Rice Brother of the Kentucky Heritage Council (KHC) on March 11, 2008, requesting for the Area of Potential Effect (APE) for the marina/transient dock. (See Appendix J, Environmental Assessment)
2. Ms. Brother responded to ARG by e-mail on March 17, 2008 stating "the actual project area for the marina/transient dock will be fine for the APE". (See Appendix J, Environmental Assessment)
3. Florence & Hutcheson (F&H) wrote a formal letter to Ms. Brother on April 15, 2009, as directed by KYTC explaining the above and requesting formal opinion for the APE at the marina/transient dock. (See Appendix J, Environmental Assessment)
4. Mr. David Waldner, PE (KYTC) wrote a letter to Mr. Mark Dennen (SHPO/KHC) on July 17, 2009, stating that "the comment period for formal correspondence as requested in the F&H letter of April 15, 2009, has expired, and KYTC assumes that the APE remains the actual project area for the marina/transient dock." (See Appendix J, Environmental Assessment)
5. Page 61, Paragraph 2 in the approved Environmental Assessment, reads that "The Council recommended that the appropriate APE for the proposed marina/transient dock facility was the project itself....Since there are no standing buildings within the APE, no architectural survey for the marina/transient dock was conducted." (See Page 61, Paragraph 2, Environmental Assessment)
6. A Section 106 Consulting Party invitation was advertised on January 24, 2010 with no response from individuals or groups wishing to become consulting parties under Section 106; therefore, no Section 106 meeting was held. (See Page 53 Paragraph 2, FONSI and Appendix B, FONSI)

Since there are no historic properties within APE and floodwall elevations are higher than proposed structures to be constructed within the APE, KYTC determined there would be no effect to historic properties for this project.

Archaeological and architectural impacts have been assessed for both the boat launch and marina/transient dock facilities as required under Section 106 of the National Historic

Preservation Act of 1966. Both local and state historic preservation offices have commented on the findings and are in concurrence. All properties within the APE have been considered and it is concluded in accordance with 36 CFR 800.4(d)(1) that there are No Historic Properties Affected by this undertaking. (Reference Attachment 2)

Please indicate your concurrence with this finding by signing and returning a copy of this letter to this office. Please also forward a copy to the SHPO for their records and to fulfill requirements that they be provided opportunity to comment on the determination. If you have any questions or require further information, please contact me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E. Director
Division of Environmental Analysis

Concurrence by:

for Jose Sepulveda, Division Administrator
Kentucky Division

Attachments

cc: File
P. Logsdon, R. H. Turner, J. Hixon, D. Adams, J. Farmer (Florence and Hutchison)

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: **Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky**

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Jamie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

September 30, 2008

Jason Peterson
Florence and Hutcheson, Inc
PO Box 7267
Paducah, Kentucky 42002

Re: Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky by Kevin Lomas and Michael McNerney

Dear Mr. Peterson:

This office has received the above mentioned report for review. The survey found no new evidence of prehistoric or early historic occupation in the project area. I concur with the author's findings. In accordance with 36CFR Part 800.4(d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process for archaeology on this portion of the project is fulfilled.

If you have any questions, please do not hesitate to contact Lori Stahlgren of my staff at (502) 564-7005 ext 151.

Sincerely,

Mark Dennee, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Cc. George Crothers
Steve Titus

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

July 17, 2009

Mr. Mark Dennen
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

SUBJECT: Expiration of comment period
Area of Potential Effect
Marina/Transient Dock
City of Paducah, KY Waterfront Project
KYTC SYP Item No. 1-122

Dear Mr. Dennen:

This letter is to inform you that the comment period for your office to comment or respond to the request for formal correspondence with subject project's APE has expired. A letter dated April 15, 2009 (attached) asked for KHC's review and formal correspondence of opinion. With the absence of correspondence, it is assumed that the email correspondence referenced in the letter will suffice for project documentation, and that the APE studied for the riverfront project is appropriate as identified and will be studied accordingly.

If you have questions regarding this notice, please contact Derek Adams or me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E., Director
Division of Environmental Analysis

DMW/dra
Enclosure

cc: Anthony Goodman, FHWA (w/a)
John Farmer, Florence and Hutcheson
Jason Peterson, Florence and Hutcheson, Inc.
Central File w/a
Reading File

RECEIVED
JUL 2009

Kentucky
UNBRIDLED SPIRIT

Florence & Hutcheson, Inc. • CONSULTING ENGINEERS

April 15, 2009

Ms. Janie Rice Brother
Environmental Review Coordinator
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: Area of Potential Effect (APE)
Marina/Transient Dock
City of Paducah, KY Waterfront Development

Ms. Brother:

American Resources Group (ARG) submitted an architectural survey of the Area of Potential Effect (APE) for a proposed riverfront boat launch in Paducah, McCracken County, Kentucky on June 6, 2008. Your office concurred with the author's identification of 16 previously unrecorded historic resources and the fact that they do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. Your office also agreed that one additional site appears eligible for listing in the NRHP under criterion C but that it will not be impacted by the boat launch project as proposed. (Reference enclosed letter, July 8, 2008).

As part of the Paducah Riverfront Development, the City of Paducah is also proposing to construct a marina/transient dock facility on City-owned property which will extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site comprises approximately 42 acres± of riverbank and water surface with the centroid located at 37°05'32"N, 88°36'47" W near Mile Marker 935. The limits affecting land for the marina/transient dock vary north of the existing floodwall then diverge to the riverside of the Executive Inn located at the northeastern end of Park Avenue. (Reference Consensus Plan)

ARG contacted you via e-mail to verify the extent of APE for the marina/transient dock facility. In the correspondence, you indicated that the APE for the project should be limited to the actual project area itself as depicted on the map provided at that time. (Reference enclosed e-mail, March 10-17, 2008). Based on this response, it is our understanding that an APE survey is not required beyond the project limits for the marina/transient dock facility. With this correspondence, we are requesting that the Kentucky Heritage Council issue formal correspondence by letter summarizing your opinion expressed in the e-mail indicating that no further coordination is required regarding this project. If you have any questions, or wish to discuss this request in greater detail, please don't hesitate to call. I can be reached at (615) 867-9400.

Sincerely,

FLORENCE & HUTCHESON, INC.

John L. Farmer, PE, CPESC
Environmental Division Manager

Enclosures
CC: Mr. Steve Titus

410 New Salem Hwy • Suite 109 • Murfreesboro, Tennessee 37129 • (615) 867-9400 • Fax (615) 904-2004

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

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Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Peterson
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Peterson:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

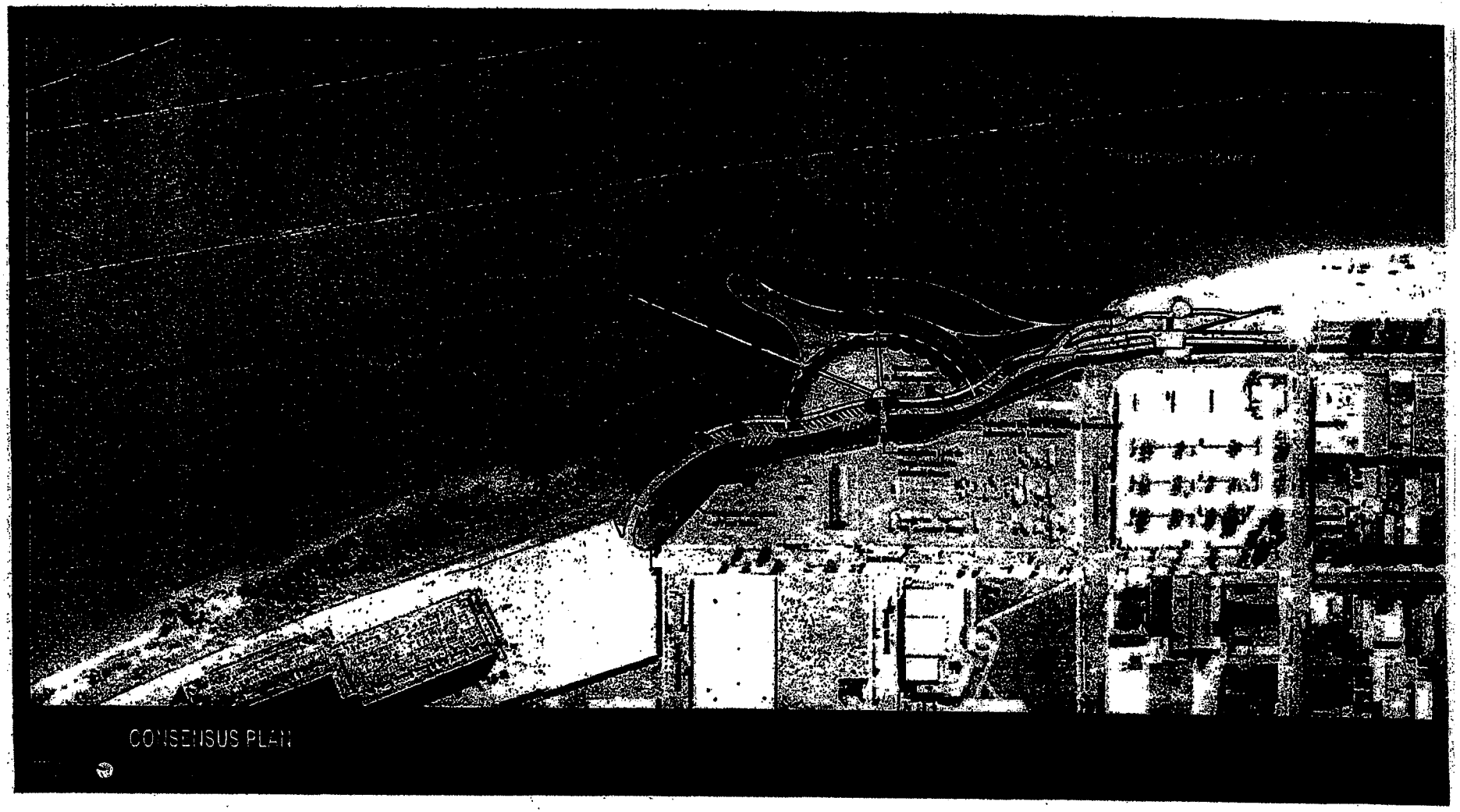
Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

Medical Center
(WPAD)


CONSENSUS PLAN

X-Modus-ReverseDNS: OK
X-Modus-BlackList: 162.114.80.64=OK;Janie-Rice.Brother@ky.gov=OK
X-Modus-RBL: 162.114.80.64=OK
X-Modus-Trusted: 162.114.80.64=NO
X-Modus-Auth: FALSE;0;0;0
Subject: RE: Paducah Riverfront Project
Date: Mon, 17 Mar 2008 13:35:55 -0400
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Paducah Riverfront Project
Thread-Index: AcIDXqMZ6MzyUrQa+adg7HVtCVOAEnTeIA
From: "Brother, Janie-Rice (Heritage Council)" <Janie-Rice.Brother@ky.gov>
To: "American Resources Group, Steve Titus" <steve@arqltd.com>
Cc: "Pollack, David (Heritage Council)" <David.Pollack@ky.gov>
X-OriginalArrivalTime: 17 Mar 2008 17:35:55.0693 (UTC) FILETIME=[5ACB4DD0:01C88855]

I think the actual project area is fine for an APE - essentially the area depicted on your map.
Thanks,
Janie-Rice

-----Original Message-----
From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
Sent: Tuesday, March 11, 2008 4:41 PM
To: Brother, Janie-Rice (Heritage Council)
Subject: RE: Paducah Riverfront Project

Exdsting roads will be used to access the boat dock, and an existing parking lot located within the project area boundaries will be slightly modified.

At 12:49 PM 3/11/2008, you wrote:
>Will there be an access road to the boat dock, or will it use exdsting
>roads? Also, will there be a parking area?
>
>-----Original Message-----
>From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
>Sent: Monday, March 10, 2008 4:50 PM
>To: Brother, Janie-Rice (Heritage Council)
>Subject: Paducah Riverfront Project
>
>Janie-Rice,
>
>Thank you for your feedback on the APE for the Boat Launch portion of
>the Paducah Riverfront Project. As the attached map shows, the second
>portion of the Riverfront Project consists of the proposed Transient
>Boat Dock. Would you help us delineate the APE for the Boat Dock area?
>The proposed boat dock will be a low-lying construction on the river
>that has no aerial projection. Thank you, Janie-Rice.
>

>Steve Titus
>President
>American Resources Group, Ltd.
>127 N. Washington
>Carbondale, IL 62901
>office: (618) 529-2741
>fax: (618) 457-5070
>cell: (618) 527-1122
>e-mail: steve@argltd.com
>

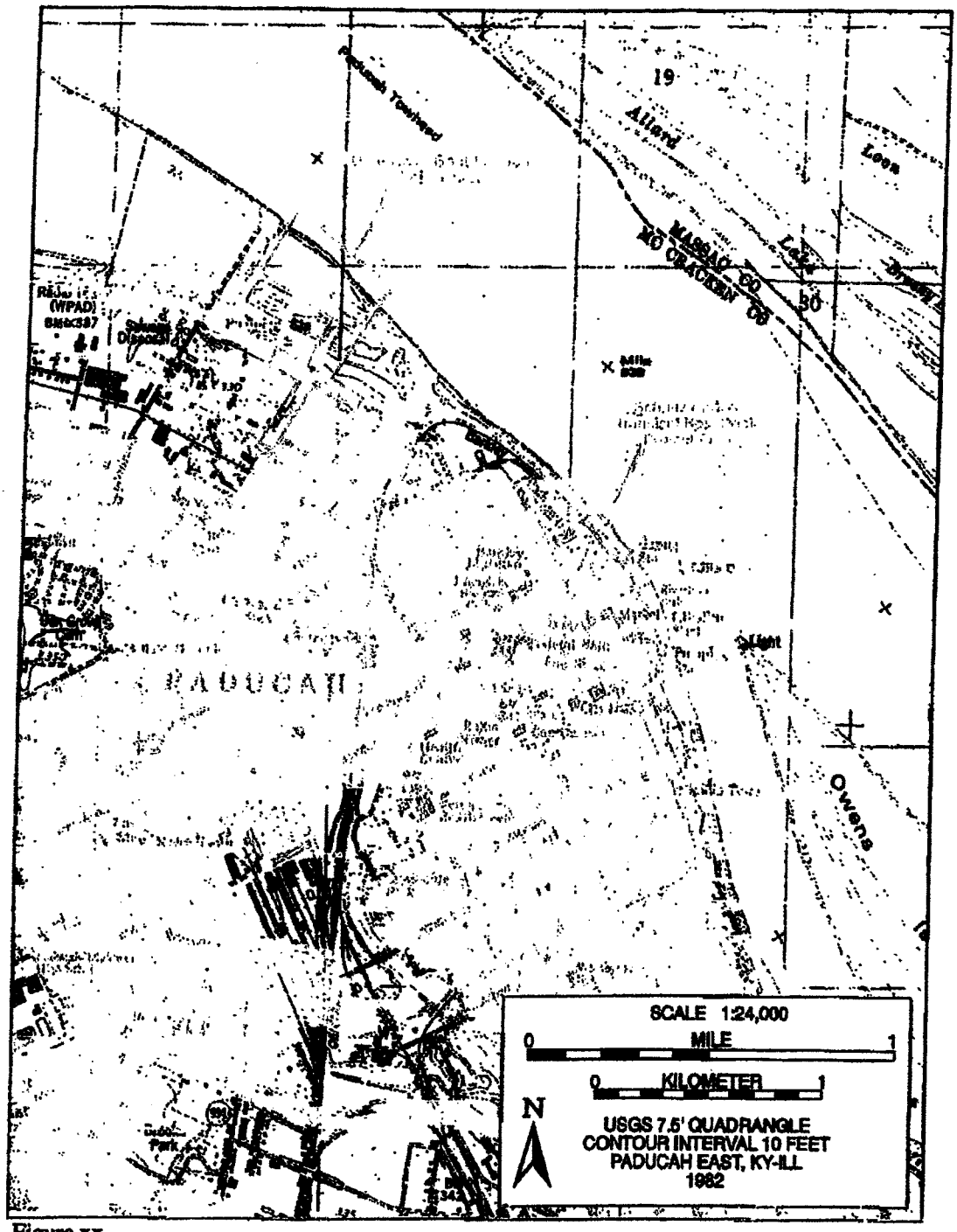

19
Allard
Lee
MASSAC CO
MO CRACKEN CO
30
PADUCAH
Owens
SCALE 1:24,000
0 MILE 1
0 KILOMETER 1
N
USGS 7.5' QUADRANGLE
CONTOUR INTERVAL 10 FEET
PADUCAH EAST, KY-ILL
1982

Figure xx.

APPENDIX J

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

July 17, 2009

Mr. Mark Dennen
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

SUBJECT: Expiration of comment period
Area of Potential Effect
Marina/Transient Dock
City of Paducah, KY Waterfront Project
KYTC SYP Item No. 1-122

Dear Mr. Dennen:

This letter is to inform you that the comment period for your office to comment or respond to the request for formal correspondence with subject project's APE has expired. A letter dated April 15, 2009 (attached) asked for KHC's review and formal correspondence of opinion. With the absence of correspondence, it is assumed that the email correspondence referenced in the letter will suffice for project documentation, and that the APE studied for the riverfront project is appropriate as identified and will be studied accordingly.

If you have questions regarding this notice, please contact Derek Adams or me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E., Director
Division of Environmental Analysis

DMW/dra
Enclosure

cc: Anthony Goodman, FHWA (w/a)
John Farmer, Florence and Hutcheson
Jason Peterson, Florence and Hutcheson, Inc.
Central File w/a
Reading File

Florence & Hutcheson, Inc. • CONSULTING ENGINEERS

April 15, 2009

Ms. Janie-Rice Brother
Environmental Review Coordinator
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: **Area of Potential Effect (APE)**
Marina/Transient Dock
City of Paducah, KY Waterfront Development

Ms. Brother:

American Resources Group (ARG) submitted an architectural survey of the Area of Potential Effect (APE) for a proposed riverfront boat launch in Paducah, McCracken County, Kentucky on June 6, 2008. Your office concurred with the author's identification of 16 previously unrecorded historic resources and the fact that they do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. Your office also agreed that one additional site appears eligible for listing in the NRHP under criterion C but that it will not be impacted by the boat launch project as proposed. (Reference enclosed letter, July 3, 2008).

As part of the Paducah Riverfront Development, the City of Paducah is also proposing to construct a marina/transient dock facility on City-owned property which will extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site comprises approximately 42 acres± of riverbank and water surface with the centroid located at 37°05'32"N, 88°35'47" W near Mile Marker 935. The limits affecting land for the marina/transient dock vary north of the existing floodwall then diverge to the riverside of the Executive Inn located at the northeastern end of Park Avenue. (Reference Consensus Plan)

ARG contacted you via e-mail to verify the extent of APE for the marina/transient dock facility. In the correspondence, you indicated that the APE for the project should be limited to the actual project area itself as depicted on the map provided at that time. (Reference enclosed e-mail, March 10-17, 2008). Based on this response, it is our understanding that an APE survey is not required beyond the project limits for the marina/transient dock facility. With this correspondence, we are requesting that the Kentucky Heritage Council issue formal correspondence by letter summarizing your opinion expressed in the e-mail indicating that no further coordination is required regarding this project. If you have any questions, or wish to discuss this request in greater detail, please don't hesitate to call. I can be reached at (615) 867-9400.

Sincerely,

FLORENCE & HUTCHESON, INC.

John L. Farmer, PE, CPESC
Environmental Division Manager

Enclosures
CC: Mr. Steve Titus

410 New Salem Hwy • Suite 109 • Murfreesboro, Tennessee 37129 • (615) 867-9400 • Fax (615) 904-2004

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
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Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

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The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

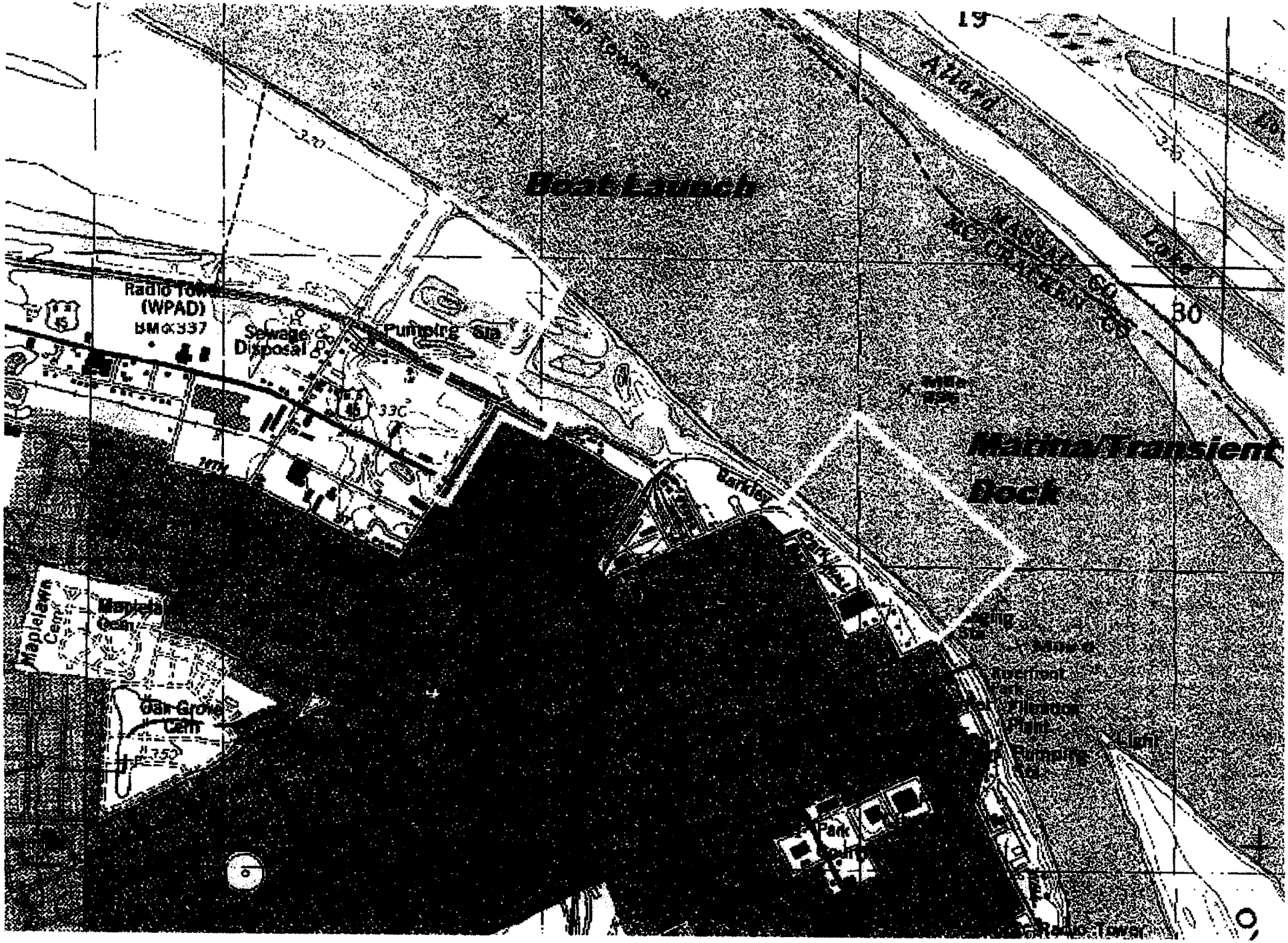
It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

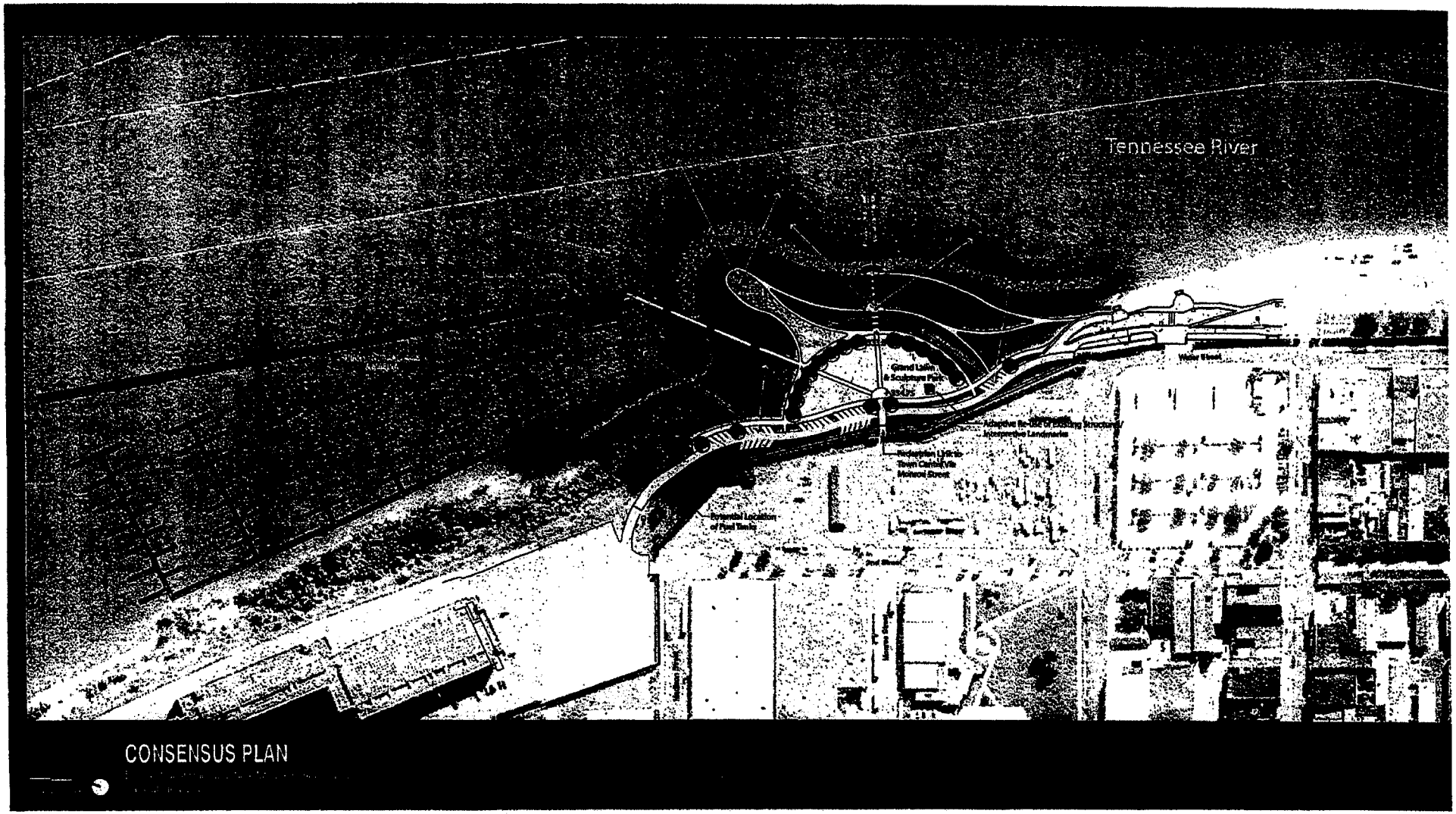
Sincerely,

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb


Boat Launch
Radio Tower
(WPAD)
BM 337
Sewage
Disposal
Pumping Sta
Maple Lawn
Cem
Oak Grove
Cem
Marina Transient
Dock
Park
Light
Radio Tower



CONSENSUS PLAN

X-Modus-ReverseDNS: OK
X-Modus-BlackList: 162.114.80.64=OK;Janie-Rice.Brother@ky.gov=OK
X-Modus-RBL: 162.114.80.64=OK
X-Modus-Trusted: 162.114.80.64=NO
X-Modus-Audit: FALSE;0;0;0
Subject: RE: Paducah Riverfront Project
Date: Mon, 17 Mar 2008 13:35:55 -0400
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Paducah Riverfront Project
Thread-Index: AcIDt/qfMZ6MzyUrQa+adg7HVtCVOAEnTejA
From: "Brother, Janie-Rice (Heritage Council)" <Janie-Rice.Brother@ky.gov>
To: "American Resources Group, Steve Titus" <steve@arglld.com>
Cc: "Pollack, David (Heritage Council)" <David.Pollack@ky.gov>
X-OriginalArrivalTime: 17 Mar 2008 17:35:55.0693 (UTC) FILETIME=[5ACB4DD0:01C88855]

I think the actual project area is fine for an APE - essentially the area depicted on your map.
Thanks,
Janie-Rice

-----Original Message-----
From: American Resources Group, Steve Titus [mailto:steve@arglld.com]
Sent: Tuesday, March 11, 2008 4:41 PM
To: Brother, Janie-Rice (Heritage Council)
Subject: RE: Paducah Riverfront Project

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>The proposed boat dock will be a low-lying construction on the river
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>Steve Titus
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>127 N. Washington
>Carbondale, IL 62901
>office: (618) 529-2741
>fax: (618) 457-5070
>cell: (618) 527-1122
>e-mail: steve@argltd.com
>

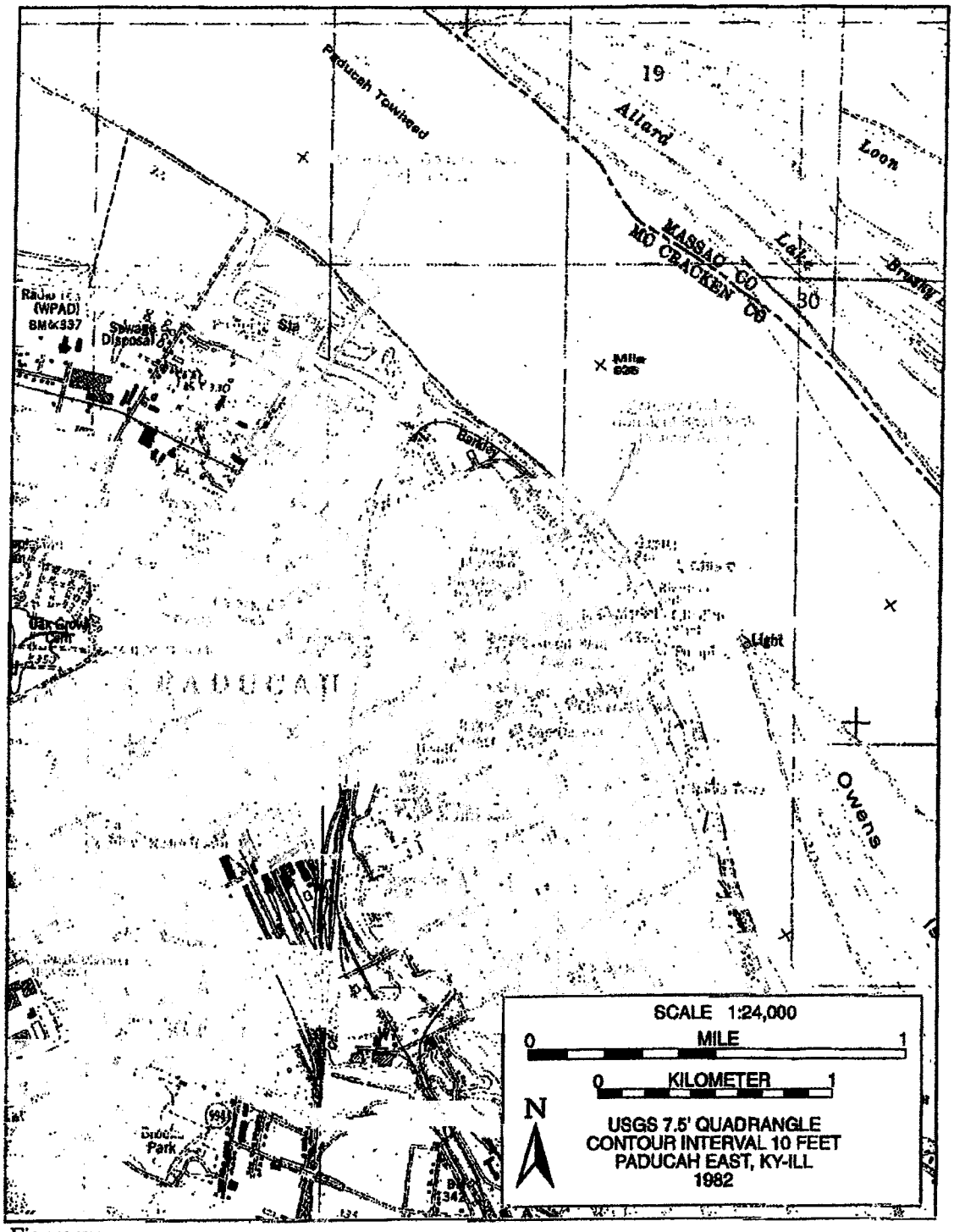

Paducah Towhead
19
Allard
Loon
MASSAC CO
MO CRACKEN CO
Lake
30
Sewage Disposal
Site
Mile
926
Darkey
Light
PADUCAH
Owens
SCALE 1:24,000
0 MILE 1
0 KILOMETER 1
N
USGS 7.5' QUADRANGLE
CONTOUR INTERVAL 10 FEET
PADUCAH EAST, KY-ILL
1982

Figure xx.

STEVEN L. BESHEAR
GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL

MARCHETA SPARROW
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

LINDY CASEBIER
ACTING EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

January 11, 2012

Mr. John L. Farmer, P. E.,
Florence & Hutcheson
410 New Salem Hwy
Suite 109
Murfreesboro, TN 37129

Re: Paducah Riverfront Development Project Proposed Updates, Paducah, McCracken County, Kentucky

Mr. Farmer,

Thank you for your correspondence concerning the above referenced project. Based on the information provided, I concur with your recommendation that the proposed updates to the Boat Launch and the Marina/Transient Dock will have no impact to historic properties within the Area of Potential Effect. However, if the project design or boundaries change again in the future then this office should be consulted to determine the nature and extent of additional documentation that may be needed.

If you have any questions, please do not hesitate to contact Phillip Johnson of my staff at (502) 564-7005 ext 122.

Sincerely,

Lindy Casebier, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

LC:prj

Cc: David Waldner (KYTC-DEA)
Michael Jones (KYTC-OLP)
James Lee Hixon (KYTC-DEA)

Florence & Hutcheson
CONSULTING ENGINEERS

December 10, 2011

Mr. Lindy Casebier, Acting Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

RE: Section 106
Paducah Riverfront Development Project
KYTC Project No. 01-122
Paducah, Kentucky

Dear Mr. Casebier:

We respectfully submit an update to a project proposed in Paducah, Kentucky for which the Kentucky Heritage Council (KHC) has reviewed and concurred. The City of Paducah proposes to construct a boat launch and marina/transient dock as part of their waterfront development effort. The City has completed a master plan for the development and revitalization of the Paducah riverfront which includes an analysis of existing conditions, and recommendations to enhance the cultural, historical, recreational, tourism and economic development plan. The project as proposed would result in certain modifications to the human and natural environment. The significance of the environmental impacts is unknown; therefore, an Environmental Assessment (EA) is in process as required under 23 CFR 771.115(c). (Reference Appendix A)

Project Background

As a requirement under the National Environmental Policy Act (NEPA) of 1969, impacts to the ecological, cultural, and social environments must be determined. Section 106 of the National Historic Preservation Act of 1966 requires that impacts to historic resources be determined through architectural and/or archaeological surveys within the Area of Potential Effect (APE). Through consultation with your office conducted in 2008, KHC concurred with the APE defined for the project. Both architectural and archaeological surveys were completed within the APE and results of those surveys were coordinated with your office in 2008. KHC concurred that there were no impacts to historic resources within the project.

Recently, as a result of both design and environmental review of the proposed project, the following updates have been made:

410 New Salem Hwy., Suite 109 • Murfreesboro, TN 37129 • 615.867.9400 • fax 615.904.2004
email: fhboro@flohut.com

Project Updates

Boat Launch

No changes will be made to the proposed boat launch project. (Reference Appendices B, C) The boat launch will encompass the same area as previously described in the architectural and archaeological surveys completed on May 5, 2008, and May 10, 2008, respectively. The APE for the architectural survey is between 6th and 8th Streets north to south and the area between the end of the proposed boat launch area east to Boyd Street. This area covers approximately 25 acres. KHC reviewed the architectural survey report and concurred by letter dated July 3, 2008, that (1) fifteen previously unrecorded historic resources within the APE do not appear eligible for listing in the National Register of Historic Places (NRHP) and (2) one previously unrecorded historic resource that appears eligible for listing will not be impacted by the project. The Area of Potential Effect (APE) for the archaeological survey encompasses a corridor along Burnett Street from 8th Street to the Ohio River and approximately 500 feet along 6th Street on each side of Burnett Street. The archaeological survey concluded that there are no archaeological sites within the APE for the boat launch. KHC reviewed the archaeological survey report and concurred by letter dated September 30, 2008. (Reference Appendix E)

Marina/Transient Dock

The marina/transient dock facility will be shifted 500 linear feet downstream (northwestward) from the original position but will be remain in the previously agreed-upon Area of Potential Effect (APE) for both the architectural and archaeological impact surveys. (Reference Appendices B, C, D) KHC recommended that the APE for the architectural survey is the project area itself and should not extend beyond the project limits (March 17, 2008). The APE encompasses a 17-acre area within the project boundary, which extends from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 550 linear feet at its maximum into the Ohio River. There are no standing buildings within the prescribed APE; therefore, no architectural survey was completed. An archaeological survey was completed for the marina/transient dock on May 10, 2008. The new location for this proposed facility lies entirely within the area previously defined as the APE and was included in the 2008 archaeological survey for the project. The survey concluded that there are no archaeological sites within the prescribed APE. KHC reviewed the archaeological survey report and concurred by letter dated September 30, 2008. (Reference Appendix E)

Summary

As a result of the architectural and/or archaeological surveys for the boat launch and marina/transient dock, KHC has concurred that there are no impacts to historic resources within the agreed-upon Areas of Potential Effect (APE) for the project. Though the marina/transient dock location has been slightly shifted downstream, the previous determination of the APE remains valid as do the findings of no impact for both above-ground structures as well as archaeological sites. Your concurrence with this determination is requested.

If you have any questions or concerns, please contact Mr. David Waldner, Kentucky Transportation Cabinet, at 502-564-7250, or Mr. Anthony Goodman, Kentucky Federal Highway Administration, at 502-223-6742.

Sincerely,

FLORENCE & HUTCHESON

John L. Farmer, PE, CPESC
Senior Environmental Engineer

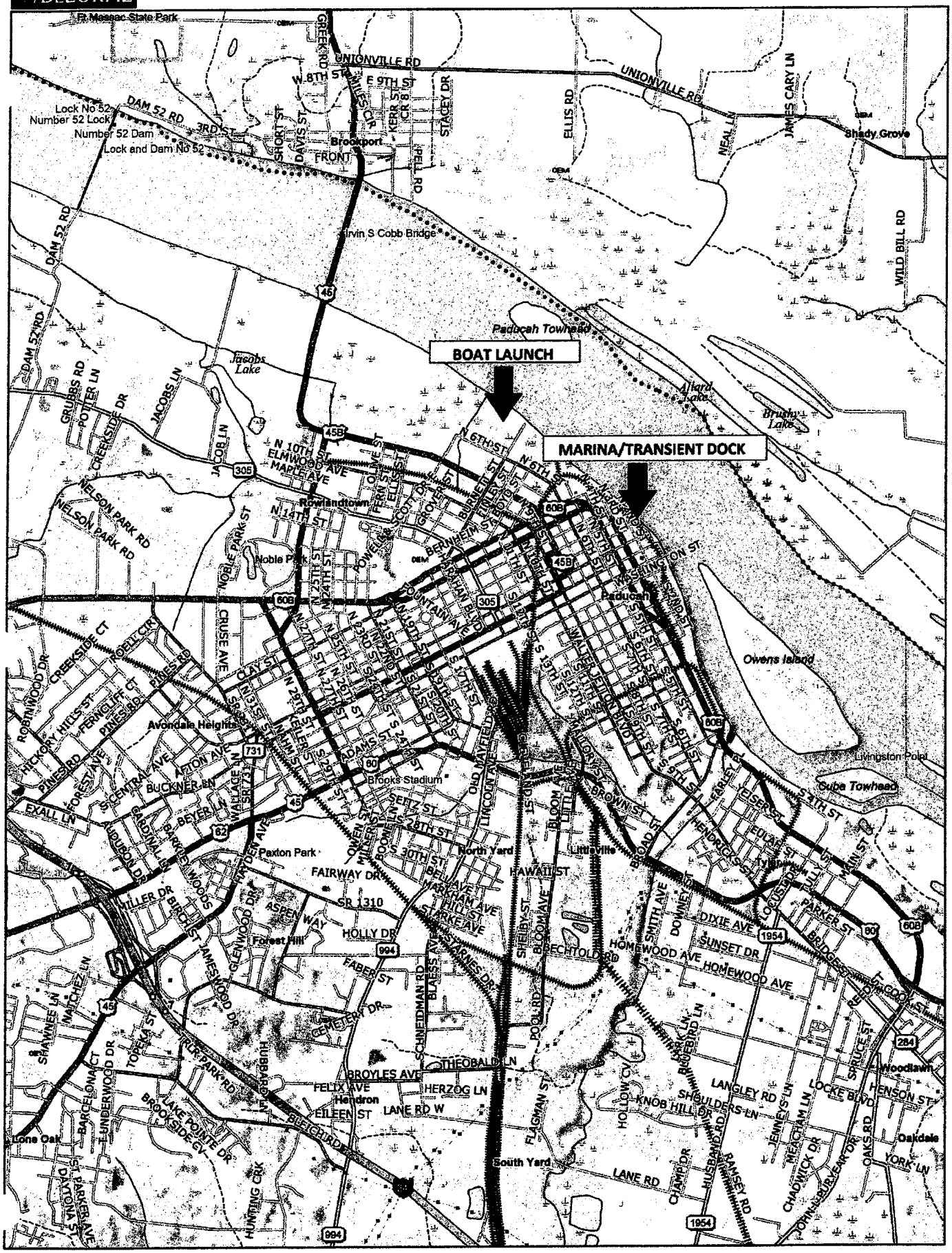
Enclosure

cc: David Waldner, PE
Anthony Goodman
Jason Petersen, PE

APPENDIX

Appendix A- General Location Map
Appendix B- USGS Map
Appendix C- Aerial Photograph
Appendix D- Marina/Transient Dock Re-Location
Appendix E- Correspondence

Appendix A- General Location Map


BOAT LAUNCH
MARINA/TRANSIENT DOCK
Ft Massac State Park
Lock No 52
Number 52 Lock
Number 52 Dam
Lock and Dam No 52
Brookport
FRONT
Irvin S Cobb Bridge
Jacobs Lake
Paducah Townsend
Allard Lake
Brushy Lake
Owens Island
Livingston Point
Cube Townhead
Paducah
Noble Park
Rowlandtown
Avondale Heights
Brooks Stadium
Paxton Park
North Yard
Littleville
South Yard
Forest Hill
Shady Grove
Woodlawn
Oakdale
Lone Oak
UNIONVILLE RD
DAM 52 RD
JACOBS LN
NELSON PARK RD
BUCKNER LN
EXALL LN
SR 1310
LANE RD
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SUNSET DR
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LANGLEY RD
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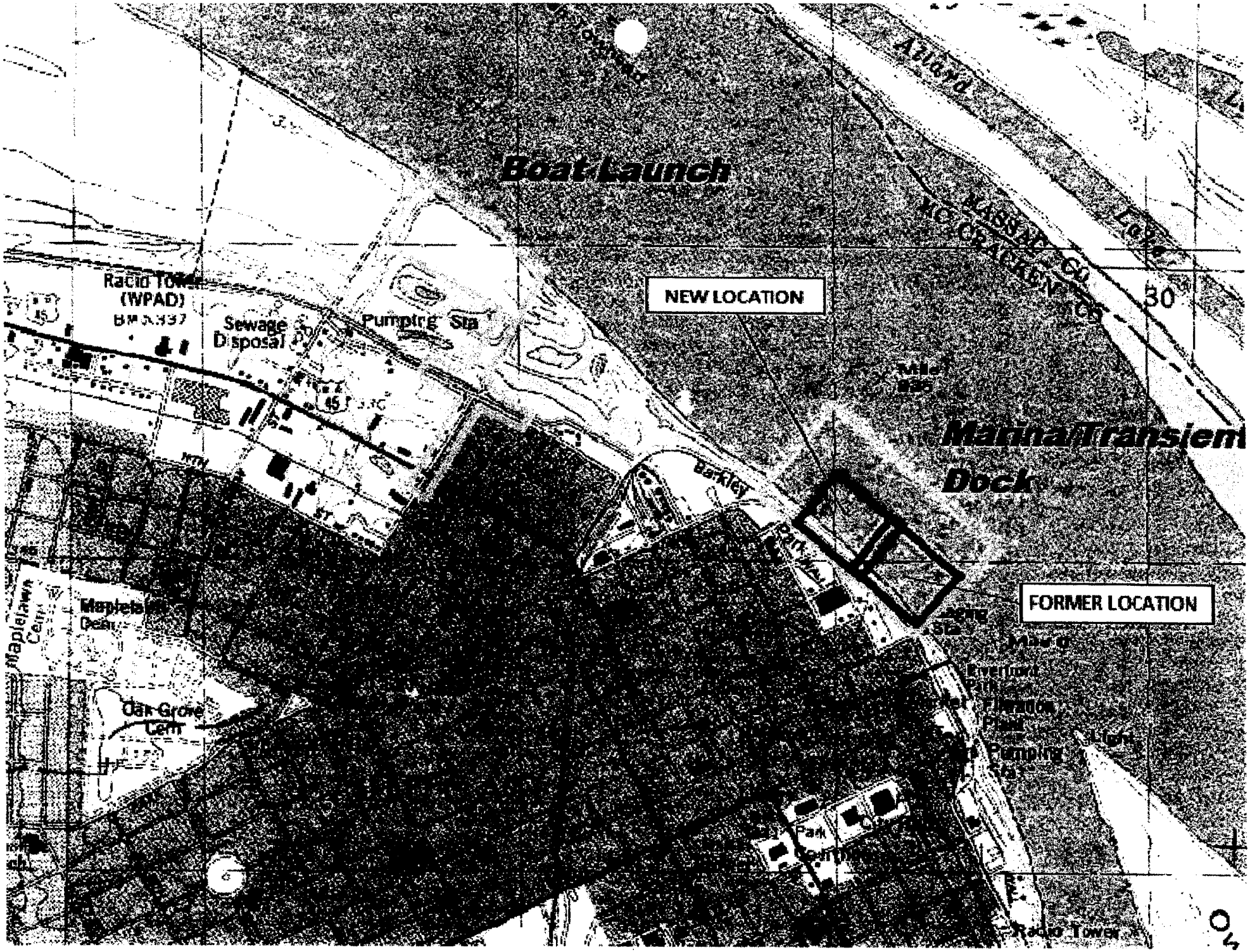
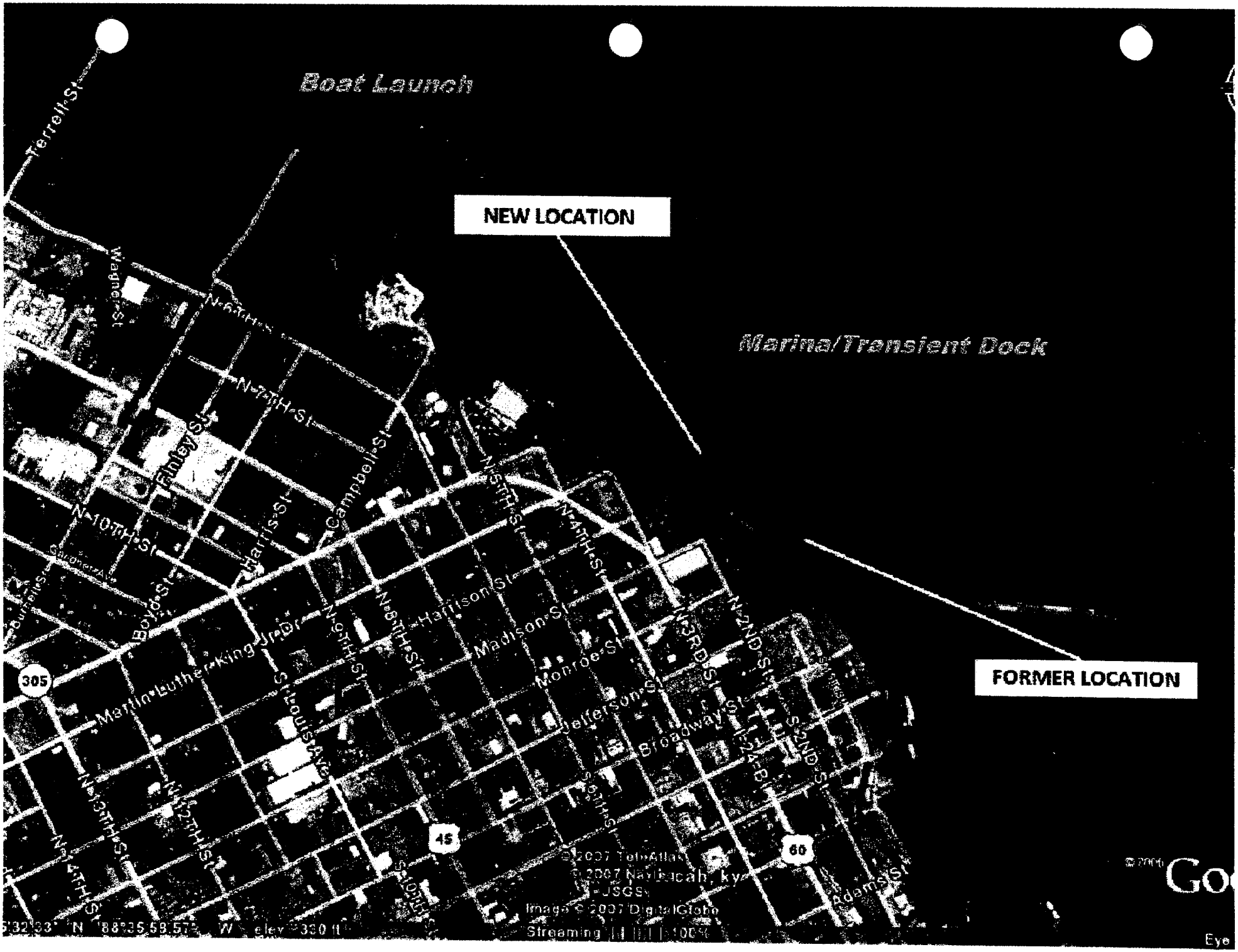
Appendix B- USGS Map


Boat Launch
NEW LOCATION
FORMER LOCATION
Marina/Transient Dock
Sewage Disposal
Pumping Sta
Radio Tower (WPAD)
Maplelawn Cem
Oak Grove Cem
Barkley
Park
Pumping Sta
Radio Tower

Appendix C- Aerial Photograph


Boat Launch
NEW LOCATION
Marina/Transient Dock
FORMER LOCATION
Terrell St
Ward St
N 6TH St
N 7TH St
Finley St
Campbell St
N 10TH St
Harris St
Boyd St
Harrison St
N 8TH St
N 9TH St
N 4TH St
Madison St
Monroe St
N 3RD St
N 2ND St
Martin Luther King Jr Blvd
S 1ST St
S 2ND St
Jefferson St
Broadway St
Louisville Ave
N 13TH St
N 12TH St
N 14TH St
305
45
60
Adams St
© 2007 TerraMetrics
© 2007 NavTeq
USGS
Image © 2007 DigitalGlobe
Streaming

Appendix D- Marina/Transient Dock Re-Location Concept

Appendix E- Correspondence

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

AMERICAN
RESOURCES
GROUP, LTD.

CRM 1607
127 North Washington Street
Carbondale, Illinois 62901
Phone: (618) 529-2741
Fax: (618) 457.5070
e-mail: archaeology@argltd.com

June 6, 2008

Janie-Rice Brother
Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

Re: Draft Report - Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, McCracken County, Kentucky

Dear Ms. Brother:

Enclosed are survey forms and one copy of the above referenced report written by Kevin Lomas of American Resources Group, Ltd. This report describes the results of the architectural assessment survey conducted for Florence and Hutcheson, Inc., to fulfill the permit requirements outlined in Section 106 of the National Historic Preservation Act of 1966 (as amended 1980), the Archaeological and Historical Preservation Act of 1974 (Executive Order 11593), and Title 36 of the Code of Federal Regulations (parts 60–66 and 800 as appropriate). The client has reviewed the report and concurs with the results and recommendations.

The area of potential effect (APE) consists of an area in Paducah between 6th Street and 8th Street extending from the proposed boat launch location east to Boyd Street. Within the APE, 16 historic properties were identified. Only one, McNp 976, is evaluated as potentially eligible for listing on the National Register of Historic Places (NRHP). The remaining 15 properties do not meet the NRHP criteria of significance and are evaluated as ineligible for the National Register. Construction of the proposed boat launch will not adversely impact the viewshed of any the 16 properties identified.

Please review the enclosed report and comment on the report content, findings, and recommendations. If you have any questions or need additional information, please give me a call.

Sincerely,

Steve Titus

Steve Titus, President

ST:gma

copied: Jason Petersen, Florence and Hutcheson, Inc.

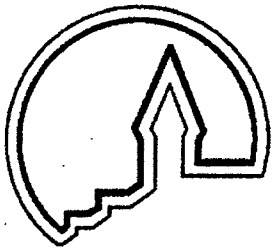
Enclosures

Draft Report

Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, McCracken County, Kentucky

Prepared for
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, Kentucky 42002

Prepared by
American Resources Group, Ltd.
Carbondale, Illinois



Principal Investigator
Steve Titus

Author
Kevin Lomas

Cultural Resources Management
Report No. 1607

June 2008

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

September 30, 2008

Jason Peterson
Florence and Hutcheson, Inc
PO Box 7267
Paducah, Kentucky 42002

Re: **Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky by Kevin Lomas and Michael McNerney**

Dear Mr. Peterson:

This office has received the above mentioned report for review. The survey found no new evidence of prehistoric or early historic occupation in the project area. I concur with the author's findings. In accordance with 36CFR Part 800.4(d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process for archaeology on this portion of the project is fulfilled.

If you have any questions, please do not hesitate to contact Lori Stahlgren of my staff at (502) 564-7005 ext 151.

Sincerely,

Mark Dennen, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Cc. George Crothers
Steve Titus

AMERICAN
RESOURCES
GROUP, LTD.

127 North Washington Street
Carbondale, Illinois 62901
Phone: (618) 529-2741
Fax: (618) 457.5070
e-mail: archaeology@arglid.com

June 19, 2008

Donna M. Neary
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

Re: Draft Report - Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky

Dear Ms. Neary:

Enclosed is one copy of the above referenced survey report written by Kevin Lomas and Michael McNerney of American Resources Group, Ltd (ARG). This report describes the results of the Phase I archaeological survey conducted for Florence and Hutcheson, Inc., to fulfill the permit requirements outlined in Section 106 of the National Historic Preservation Act of 1966 (as amended 1980), the Archaeological and Historical Preservation Act of 1974 (Executive Order 11593), and Title 36 of the Code of Federal Regulations (parts 60–66 and 800 as appropriate). The client has reviewed the report and concurs with the results and recommendations.

Two parcels (43 acres) adjacent to the Ohio River were surveyed. No sites were recorded within the project areas, and it is recommended that the proposed project be allowed to proceed as planned.

Please review the enclosed report and comment on the report content, findings, and recommendations. If you have any questions or need additional information, please give me a call.

Sincerely,

Steve Titus

Steve Titus, President

ST:gma

copied: Jason Petersen, Florence and Hutcheson, Inc.

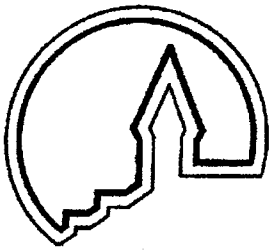
Enclosure

Draft Report

Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky

Prepared for
Florence and Hutcheson, Inc.
P.O. Box 7267
Paducah, Kentucky 42002

Prepared by
American Resources Group, Ltd.
Carbondale, Illinois



Principal Investigator
Steve Titus

Authors
Kevin Lomas
Michael McNerney

Cultural Resources Management
Report No. 1607

June 2008

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

July 17, 2009

Mr. Mark Dennen
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

SUBJECT: Expiration of comment period
Area of Potential Effect
Marina/Transient Dock
City of Paducah, KY Waterfront Project
KYTC SYP Item No. 1-122

Dear Mr. Dennen:

This letter is to inform you that the comment period for your office to comment or respond to the request for formal correspondence with subject project's APE has expired. A letter dated April 15, 2009 (attached) asked for KHC's review and formal correspondence of opinion. With the absence of correspondence, it is assumed that the email correspondence referenced in the letter will suffice for project documentation, and that the APE studied for the riverfront project is appropriate as identified and will be studied accordingly.

If you have questions regarding this notice, please contact Derek Adams or me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E., Director
Division of Environmental Analysis

DMW/dra
Enclosure

cc: Anthony Goodman, FHWA (w/a)
John Farmer, Florence and Hutcheson
Jason Peterson, Florence and Hutcheson, Inc.
Central File w/a
Reading File

Kentucky
UNBRIDLED SPIRIT

Florence & Hutcheson, Inc. • CONSULTING ENGINEERS

April 15, 2009

Ms. Janie Rice Brother
Environmental Review Coordinator
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: Area of Potential Effect (APE)
Marina/Transient Dock
City of Paducah, KY Waterfront Development

Ms. Brother:

American Resources Group (ARG) submitted an architectural survey of the Area of Potential Effect (APE) for a proposed riverfront boat launch in Paducah, McCracken County, Kentucky on June 6, 2008. Your office concurred with the author's identification of 16 previously unrecorded historic resources and the fact that they do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. Your office also agreed that one additional site appears eligible for listing in the NRHP under criterion C but that it will not be impacted by the boat launch project as proposed. (Reference enclosed letter, July 3, 2008).

As part of the Paducah Riverfront Development, the City of Paducah is also proposing to construct a marina/transient dock facility on City-owned property which will extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site comprises approximately 42 acres± of riverbank and water surface with the centroid located at 37°05'32"N, 88°35'47" W near Mile Marker 935. The limits affecting land for the marina/transient dock vary north of the existing floodwall then diverge to the riverside of the Executive Inn located at the northeastern end of Park Avenue. (Reference Consensus Plan)

ARG contacted you via e-mail to verify the extent of APE for the marina/transient dock facility. In the correspondence, you indicated that the APE for the project should be limited to the actual project area itself as depicted on the map provided at that time. (Reference enclosed e-mail, March 10-17, 2008). Based on this response, it is our understanding that an APE survey is not required beyond the project limits for the marina/transient dock facility. With this correspondence, we are requesting that the Kentucky Heritage Council issue formal correspondence by letter summarizing your opinion expressed in the e-mail indicating that no further coordination is required regarding this project. If you have any questions, or wish to discuss this request in greater detail, please don't hesitate to call. I can be reached at (615) 867-9400.

Sincerely,

FLORENCE & HUTCHESON, INC.

John L. Farmer, PE, CPESC
Environmental Division Manager

Enclosures
CC: Mr. Steve Titus

410 New Salem Hwy • Suite 109 • Murfreesboro, Tennessee 37129 • (615) 867-9400 • Fax (615) 904-2004

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

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Governor

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Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@uky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

Redbird
(WPAD) (G)
Maplelawn
Cemetery


CONSENSUS PLAN

X-Modus-ReverseDNS: OK
X-Modus-BlackList: 162.114.80.64=OK;Janie-Rice.Brother@ky.gov=OK
X-Modus-RBL: 162.114.80.64=OK
X-Modus-Trusted: 162.114.80.64=NO
X-Modus-Audit: FALSE;0;0;0
Subject: RE: Paducah Riverfront Project
Date: Mon, 17 Mar 2008 13:35:55 -0400
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Paducah Riverfront Project
Thread-Index: AcIDt/qfMZ6MzyUrQa+adg7HVtCVOAEnTeJA
From: "Brother, Janie-Rice (Heritage Council)" <Janie-Rice.Brother@ky.gov>
To: "American Resources Group, Steve Titus" <steve@arqltd.com>
Cc: "Pollack, David (Heritage Council)" <David.Pollack@ky.gov>
X-OriginalArrivalTime: 17 Mar 2008 17:35:55.0693 (UTC) FILETIME=[5ACB4DD0:01C88855]

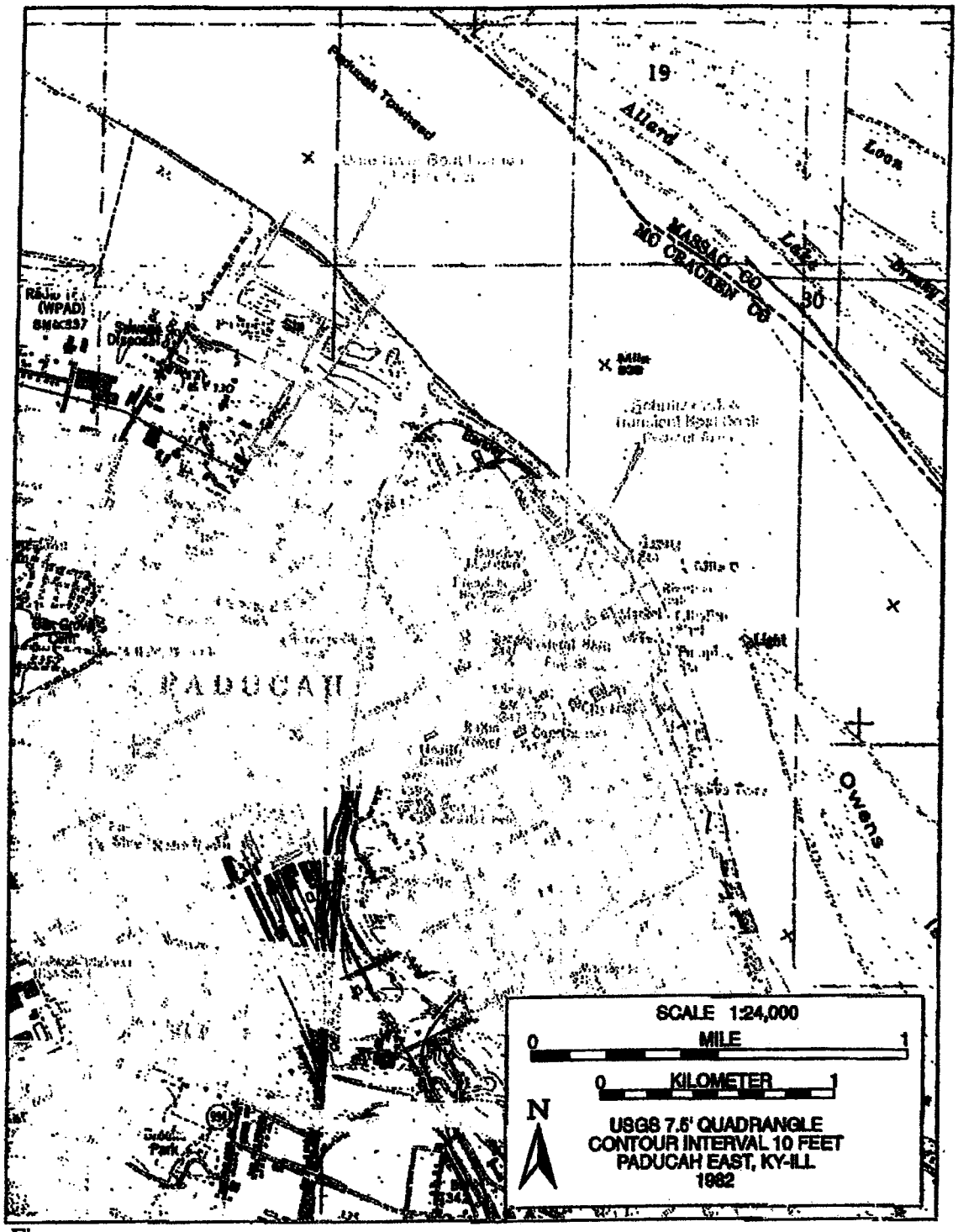
I think the actual project area is fine for an APE - essentially the area depicted on your map.
Thanks,
Janie-Rice

-----Original Message-----
From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
Sent: Tuesday, March 11, 2008 4:41 PM
To: Brother, Janie-Rice (Heritage Council)
Subject: RE: Paducah Riverfront Project

Existing roads will be used to access the boat dock, and an existing parking lot located within the project area boundaries will be slightly modified.

At 12:49 PM 3/11/2008, you wrote:
>Will there be an access road to the boat dock, or will it use existing
>roads? Also, will there be a parking area?
>
>-----Original Message-----
>From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
>Sent: Monday, March 10, 2008 4:50 PM
>To: Brother, Janie-Rice (Heritage Council)
>Subject: Paducah Riverfront Project
>
>Janie-Rice,
>
>Thank you for your feedback on the APE for the Boat Launch portion of
>the Paducah Riverfront Project. As the attached map shows, the second
>portion of the Riverfront Project consists of the proposed Transient
>Boat Dock. Would you help us delineate the APE for the Boat Dock area?
>The proposed boat dock will be a low-lying construction on the river
>that has no aerial projection. Thank you, Janie-Rice.
>

>Steve Titus
>President
>American Resources Group, Ltd.
>127 N. Washington
>Carbondale, IL 62901
>office: (618) 529-2741
>fax: (618) 457-5070
>cell: (618) 527-1122
>e-mail: steve@argltd.com
>


19
Allen
Loss
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PADUCAH
Owens
SCALE 1:24,000
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N
USGS 7.5' QUADRANGLE
CONTOUR INTERVAL 10 FEET
PADUCAH EAST, KY-ILL
1982

Figure xx.

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

November 23, 2010

Mr. Jose Sepulveda, Office Administrator
Federal Highway Administration
330 West Broadway
Frankfort, KY 40601

Re: Paducah Waterfront Development Project
KYTC Six Year Plan Project No. 01-122
Paducah, Kentucky

Dear Mr. Sepulveda:

The City of Paducah has reviewed the referenced project for potential to effect historic properties in conformance with Section 106 of the National Historic Preservation Act and 36 CFR 800.

Project Description

The City of Paducah is proposing (1) the construction of a boat launch facility on city-owned property which will encompass the corridor along Burnett Street from 8th Street to the Ohio River and approximately 500 feet along 6th Street on each side of Burnett Street and (2) the construction of a marina/transient dock facility on city-owned property which extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 550 linear feet into the Ohio River. (Reference Attachment 1)

Purpose and Need

The purpose of the boat launch project is to relocate the existing boat ramp facility located at the northeastern end of Broadway Street, while at the same time allowing for the northeastern end of Broadway Street to be converted back to its original use as a riverboat landing and community focal point along the Ohio River. The relocation of the boat launch facility will reduce congestion and vehicle parking associated with recreational fishing activities such as launching and the parking of fishing boats. The purpose of the marina/transient dock is to provide accommodations for transient boaters and local recreational boat owners. The need for the marina/transient dock is to provide loading/unloading facilities for transient boats and to provide a marina with associated facilities that will allow transient and local recreational boaters to dock in a protected marina near downtown. The proposed boat launch and marina/transient dock sites were selected to minimize cost and environmental impact, while maintaining close proximity to downtown Paducah.

Section 106 of the National Historic Preservation Act of 1966

The Area of Potential Effect (APE) for the boat launch project was defined as the area between 6th and 8th Streets north to south and the area between the end of the proposed boat launch project area east to Boyd Street. The Kentucky Heritage Council reviewed the architectural and archaeological reports for the APE and concurred that none of the sixteen historic properties within the APE will be impacted by the project, nor were there any archaeological sites identified within the APE for the boat launch project.

The Area of Potential Effect (APE) for the marina/transient dock was defined as the project area itself. No archaeological sites were found within the marina/transient dock project area. The following is a summary of the documentation for Section 106 (architectural) for the marina/transient dock facility:

1. American Resource Group (ARG) e-mailed Ms. Janie-Rice Brother of the Kentucky Heritage Council (KHC) on March 11, 2008, requesting for the Area of Potential Effect (APE) for the marina/transient dock. (See Appendix J, Environmental Assessment)
2. Ms. Brother responded to ARG by e-mail on March 17, 2008 stating "the actual project area for the marina/transient dock will be fine for the APE". (See Appendix J, Environmental Assessment)
3. Florence & Hutcheson (F&H) wrote a formal letter to Ms. Brother on April 15, 2009, as directed by KYTC explaining the above and requesting formal opinion for the APE at the marina/transient dock. (See Appendix J, Environmental Assessment)
4. Mr. David Waldner, PE (KYTC) wrote a letter to Mr. Mark Dennen (SHPO/KHC) on July 17, 2009, stating that "the comment period for formal correspondence as requested in the F&H letter of April 15, 2009, has expired, and KYTC assumes that the APE remains the actual project area for the marina/transient dock." (See Appendix J, Environmental Assessment)
5. Page 61, Paragraph 2 in the approved Environmental Assessment, reads that "The Council recommended that the appropriate APE for the proposed marina/transient dock facility was the project itself....Since there are no standing buildings within the APE, no architectural survey for the marina/transient dock was conducted." (See Page 61, Paragraph 2, Environmental Assessment)
6. A Section 106 Consulting Party invitation was advertised on January 24, 2010 with no response from individuals or groups wishing to become consulting parties under Section 106; therefore, no Section 106 meeting was held. (See Page 53 Paragraph 2, FONSI and Appendix B, FONSI)

Since there are no historic properties within APE and floodwall elevations are higher than proposed structures to be constructed within the APE, KYTC determined there would be no effect to historic properties for this project.

Archaeological and architectural impacts have been assessed for both the boat launch and marina/transient dock facilities as required under Section 106 of the National Historic

Preservation Act of 1966. Both local and state historic preservation offices have commented on the findings and are in concurrence. All properties within the APE have been considered and it is concluded in accordance with 36 CFR 800.4(d)(1) that there are No Historic Properties Affected by this undertaking. (Reference Attachment 2)

Please indicate your concurrence with this finding by signing and returning a copy of this letter to this office. Please also forward a copy to the SHPO for their records and to fulfill requirements that they be provided opportunity to comment on the determination. If you have any questions or require further information, please contact me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E. Director
Division of Environmental Analysis

Concurrence by:

for Jose Sepulveda, Division Administrator
Kentucky Division

Attachments

cc: File
P. Logsdon, R. H. Turner, J. Hixon, D. Adams, J. Farmer (Florence and Hutchison)

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

Marcheta Sparrow
Secretary

Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: **Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah RiverFront Boat Launch, Paducah, McCracken County, Kentucky**

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kevin Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@ky.gov to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christina.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb

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KENTUCKY HERITAGE COUNCIL

Steven L. Beshear
Governor

The State Historic Preservation Office
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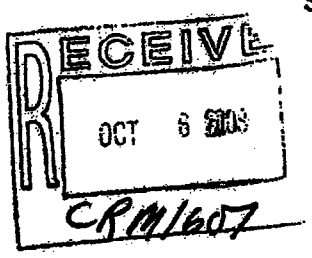
Secretary



September 30, 2008

Jason Peterson
Florence and Hutcheson, Inc
PO Box 7267
Paducah, Kentucky 42002

Re: Phase I Archaeological Survey for the Proposed Development of the Paducah Riverfront Boat Launch and Improvements to Schultz Park, McCracken County, Kentucky by Kevin Lomas and Michael McNerney

Dear Mr. Peterson:

This office has received the above mentioned report for review. The survey found no new evidence of prehistoric or early historic occupation in the project area. I concur with the author's findings. In accordance with 36CFR Part 800.4(d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process for archaeology on this portion of the project is fulfilled.

If you have any questions, please do not hesitate to contact Lori Stahlgren of my staff at (502) 564-7005 ext 151.

Sincerely,

Mark Dennen, Acting Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Cc. George Crothers
Steve Titus

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

July 17, 2009

Mr. Mark Dennen
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

SUBJECT: Expiration of comment period
Area of Potential Effect
Marina/Transient Dock
City of Paducah, KY Waterfront Project
KYTC SYP Item No. 1-122

Dear Mr. Dennen:

This letter is to inform you that the comment period for your office to comment or respond to the request for formal correspondence with subject project's APE has expired. A letter dated April 15, 2009 (attached) asked for KHC's review and formal correspondence of opinion. With the absence of correspondence, it is assumed that the email correspondence referenced in the letter will suffice for project documentation, and that the APE studied for the riverfront project is appropriate as identified and will be studied accordingly.

If you have questions regarding this notice, please contact Derek Adams or me at (502) 564-7250.

Sincerely,

David M. Waldner, P.E., Director
Division of Environmental Analysis

DMW/dra
Enclosure

cc: Anthony Goodman, FHWA (w/a)
John Farmer, Florence and Hutcheson
Jason Peterson, Florence and Hutcheson, Inc.
Central File w/a
Reading File

Florence & Hutcheson, Inc. • CONSULTING ENGINEERS

April 15, 2009

Ms. Janie Rice Brother
Environmental Review Coordinator
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: Area of Potential Effect (APE)
Marina/Transient Dock
City of Paducah, KY Waterfront Development

Ms. Brother:

American Resources Group (ARG) submitted an architectural survey of the Area of Potential Effect (APE) for a proposed riverfront boat launch in Paducah, McCracken County, Kentucky on June 6, 2008. Your office concurred with the author's identification of 16 previously unrecorded historic resources and the fact that they do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. Your office also agreed that one additional site appears eligible for listing in the NRHP under criterion C but that it will not be impacted by the boat launch project as proposed. (Reference enclosed letter, July 8, 2008).

As part of the Paducah Riverfront Development, the City of Paducah is also proposing to construct a marina/transient dock facility on City owned property which will extend from the floodwall at the end of Jefferson Street westward for approximately 2,200 linear feet while extending approximately 800 linear feet into the Ohio River. The site comprises approximately 42 acres± of riverbank and water surface with the centroid located at 37°05'32"N, 88°36'47" W near Mile Marker 935. The limits affecting land for the marina/transient dock vary north of the existing floodwall then diverge to the riverside of the Executive Inn located at the northeastern end of Park Avenue. (Reference Consensus Plan)

ARG contacted you via e-mail to verify the extent of APE for the marina/transient dock facility. In the correspondence, you indicated that the APE for the project should be limited to the actual project area itself as depicted on the map provided at that time. (Reference enclosed e-mail, March 10-17, 2008). Based on this response, it is our understanding that an APE survey is not required beyond the project limits for the marina/transient dock facility. With this correspondence, we are requesting that the Kentucky Heritage Council issue formal correspondence by letter summarizing your opinion expressed in the e-mail indicating that no further coordination is required regarding this project. If you have any questions, or wish to discuss this request in greater detail, please don't hesitate to call. I can be reached at (615) 867-9400.

Sincerely,

FLORENCE & HUTCHESON, INC.

John L. Farmer, PE, CPESC
Environmental Division Manager

Enclosures
CC: Mr. Steve Titus

410 New Salem Hwy • Suite 109 • Murfreesboro, Tennessee 37129 • (615) 867-9400 • Fax (615) 904-2004

COMMERCE CABINET
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Donna M. Neary
Executive Director and
State Historic Preservation Officer

July 3, 2008

Mr. Jason Petersen
Florence & Hutcheson, Inc.
P.O. Box 7267
Paducah, KY 42002

Re: Architectural Survey of the Area of Potential Effect for the Proposed Development of the Paducah Riverfront Boat Launch, Paducah, McCracken County, Kentucky

Dear Mr. Petersen:

The State Historic Preservation Office has received the above-referenced report, completed by Kayla Lomas and Steve Titus of American Resource Group, for review and comment. In the future, all 106 submissions to the Kentucky Heritage Council must complete project registration with this office and with the Office of State Archaeology, (OSA) located in Lexington. Contact Lynn Webb at lynn.webb@uky.edu to register a project and set up a site visit (Wednesday through Friday) at this office. To obtain the archaeology data and registration, contact Chris Pappas at Christine.Pappas@uky.edu. The project registration form should be placed behind the cover sheet in both the cultural historic and archaeology reports.

The authors identified 16 previously unrecorded historic resources within the Area of Potential Effect. We concur with the authors that McN-P-972, McN-P-973, McN-P-974, McN-P-975, McN-P-977, McN-P-978, McN-P-979, McN-P-980, McN-P-981, McN-P-982, McN-P-983, McN-P-984, McN-P-985, McN-P-986 and McN-P-987 do not appear to be eligible for listing in the National Register of Historic Places (NRHP) either individually or as part of a district. We also agree that McN-P-976 appears eligible for listing in the NRHP under Criterion C, but that it will not be impacted by this undertaking as proposed.

It should be noted, however, that this project is not completely cleared by this office until the archaeological report is reviewed and commented upon. Should you have any questions, feel free to contact Janie-Rice Brother of my staff at (502) 564-7005, extension 121.

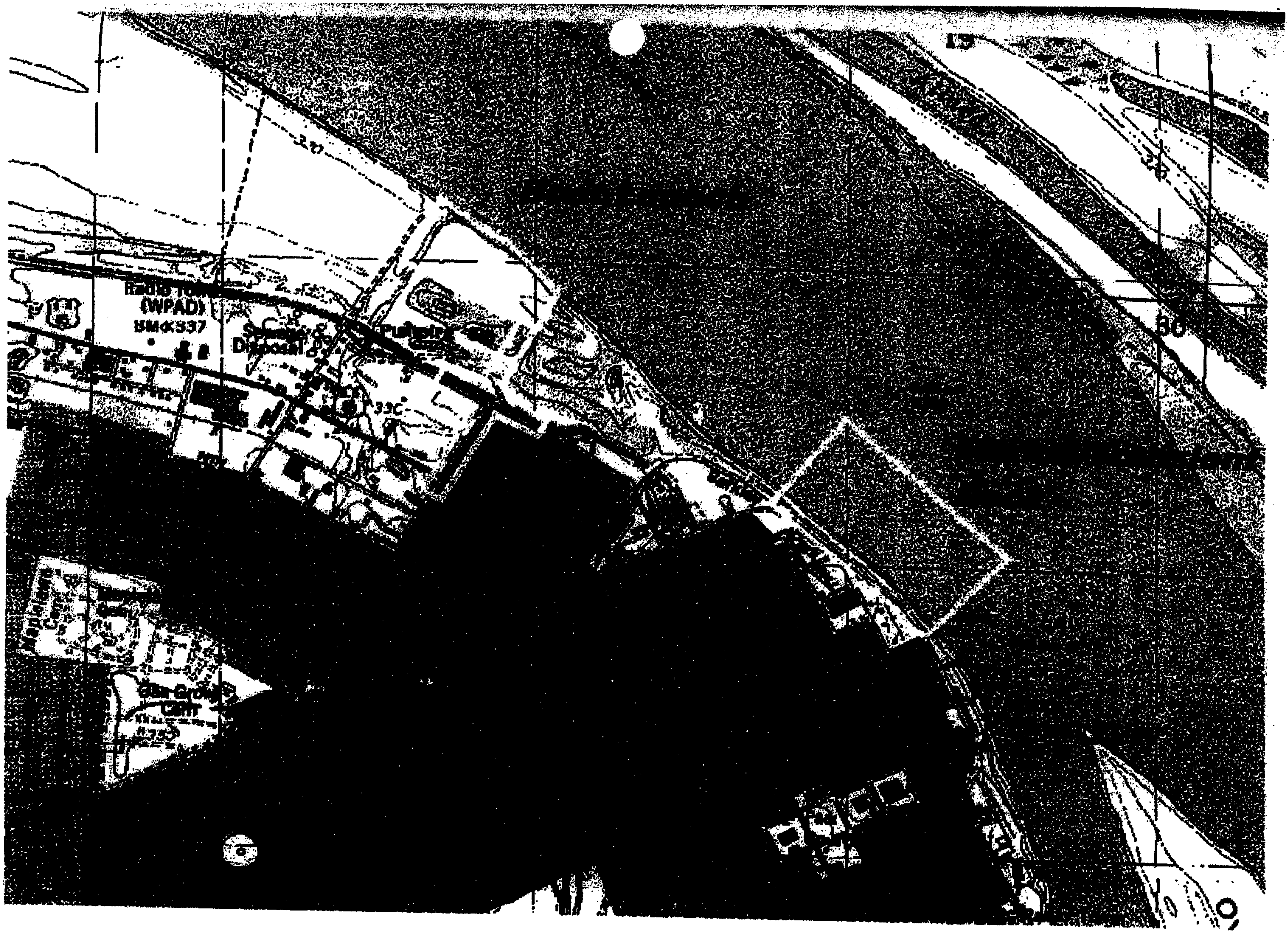
Sincerely,

Donna M. Neary

Donna M. Neary, Executive Director
and State Historic Preservation Officer

RECEIVED
JUL 2008

Cc: Steve Titus, American Resources Group
JRB: jrb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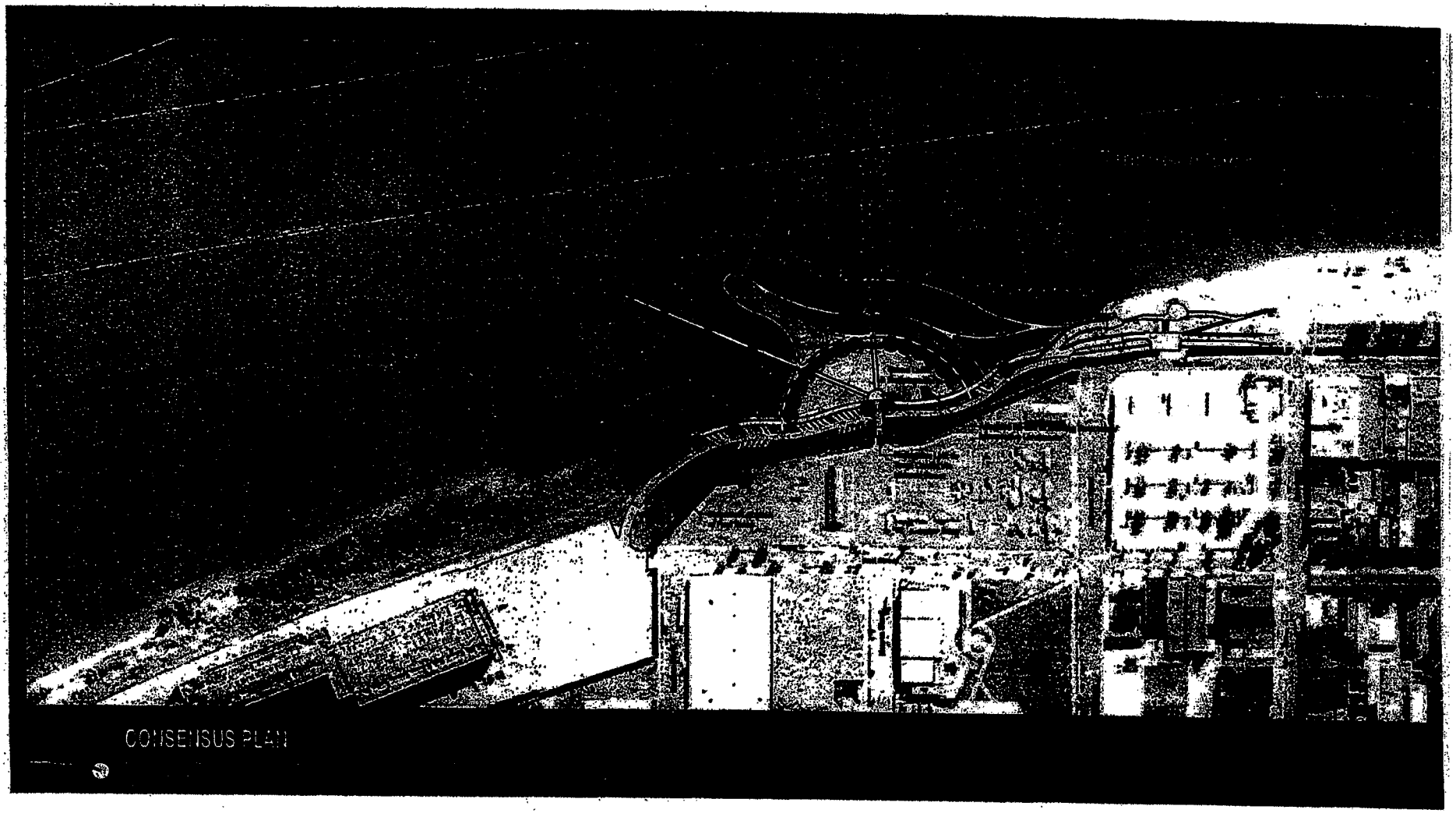

CONSENSUS PLAN

X-Modus-ReverseDNS: OK
X-Modus-BlackList: 162.114.80.64=OK;Janie-Rice.Brother@ky.gov=OK
X-Modus-RBL: 162.114.80.64=OK
X-Modus-Trusted: 162.114.80.64=NO
X-Modus-Audit: FALSE:0;0;0
Subject: RE: Paducah Riverfront Project
Date: Mon, 17 Mar 2008 13:35:55 -0400
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Paducah Riverfront Project
Thread-Index: AcIDVqMZ8MzyUrQeTeadg7HVtCVQAEnTeJA
From: "Brother, Janie-Rice (Heritage Council)" <Janie-Rice.Brother@ky.gov>
To: "American Resources Group, Steve Titus" <steve@arqltd.com>
Cc: "Pollack, David (Heritage Council)" <David.Pollack@ky.gov>
X-OriginalArrivalTime: 17 Mar 2008 17:35:55.0893 (UTC) FILETIME=[5ACB4DD0:01C88855]

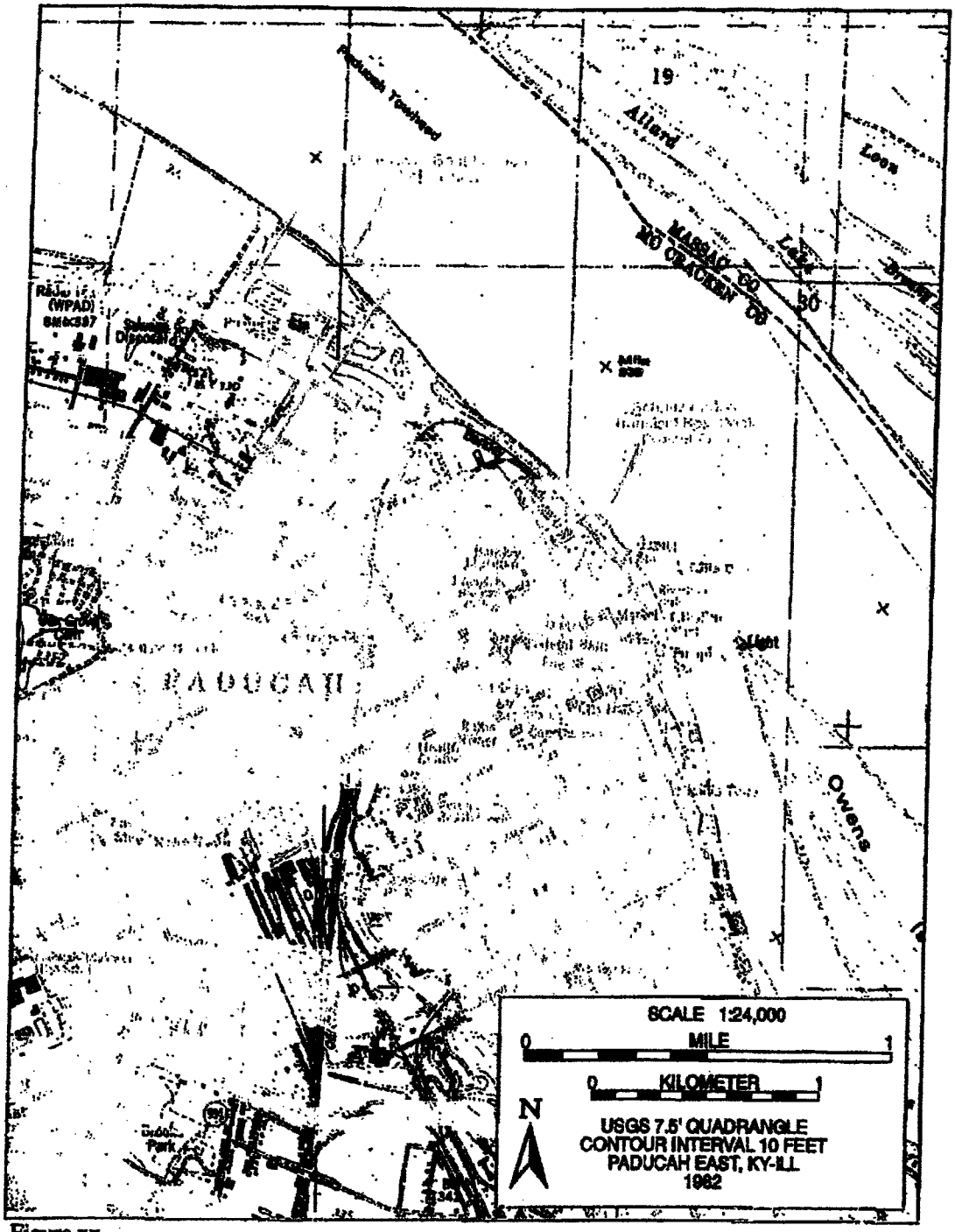
I think the actual project area is fine for an APE - essentially the area depicted on your map.
Thanks,
Janie-Rice

-----Original Message-----
From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
Sent: Tuesday, March 11, 2008 4:41 PM
To: Brother, Janie-Rice (Heritage Council)
Subject: RE: Paducah Riverfront Project

Existing roads will be used to access the boat dock, and an existing parking lot located within the project area boundaries will be slightly modified.

At 12:49 PM 3/11/2008, you wrote:
>Will there be an access road to the boat dock, or will it use existing
>roads? Also, will there be a parking area?
>
>-----Original Message-----
>From: American Resources Group, Steve Titus [mailto:steve@arqltd.com]
>Sent: Monday, March 10, 2008 4:50 PM
>To: Brother, Janie-Rice (Heritage Council)
>Subject: Paducah Riverfront Project
>
>Janie-Rice,
>
>Thank you for your feedback on the APE for the Boat Launch portion of
>the Paducah Riverfront Project. As the attached map shows, the second
>portion of the Riverfront Project consists of the proposed Transient
>Boat Dock. Would you help us delineate the APE for the Boat Dock area?
>The proposed boat dock will be a low-lying construction on the river
>that has no aerial projection. Thank you, Janie-Rice.
>

>Steve Titus
>President
>American Resources Group, Ltd.
>127 N. Washington
>Carbondale, IL 62901
>office: (618) 529-2741
>fax: (618) 457-5070
>cell: (618) 627-1122
>e-mail: steve@arghd.com
>


PADUCAH
SCALE 1:24,000
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USGS 7.5' QUADRANGLE
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PADUCAH EAST, KY-ILL
1982

Figure xx.

National Register of Historic Places

1896
Supreme Court approves racial segregation under "seperate but equal" doctrine in Plessy v. Ferguson.

State Listings | Historic Districts | Vacant/Not In Use

KENTUCKY - McCracken County

Anderson, Artelia, Hall ** (added 1983 - - #83002824)
1400 H.C. Mathis Dr. , Paducah

Historic Significance: Person, Event
Historic Person: Anderson, Dr. D.H.
Significant Year: 1928
Area of Significance: Black, Education
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Education
Historic Sub-function: Educational Related Housing
Current Function: Vacant/Not In Use


Hocking Hills Ohio
Thousands of Years
of History on Display

Anderson-Smith House (added 1984 - - #84001824)
Also known as **Whitehaven**
Lone Oak Rd. , Paducah

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Lassiter,A. L.
Architectural Style: Classical Revival
Area of Significance: Architecture
Period of Significance: 1850-1874
Owner: **State**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Transportation
Current Sub-function: Road-Related

Angles, The *** (added 1976 - - #76002147)
Also known as **Quigley-Barkley House;Alben W. Barkley House**
Alben W. Barkley Dr. near 40th St. , Paducah

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Quigley,Quintus Quincy
Architectural Style: Greek Revival, Federal, Gothic
Historic Person: Barkley,Alben W.,et al.
Significant Year: 1853, 1913
Area of Significance: Politics/Government, Law, Architecture
Period of Significance: 1900-1924, 1875-1899, 1850-1874
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Archeological Site 15McN51 ** (added 1985 - - #85001513)
Also known as **Reed Site**
Address Restricted , Paducah

Historic Significance: Information Potential
Area of Significance: Prehistoric
Cultural Affiliation: Woodland, Mississippian
Period of Significance: 1600-1649, 1500-1599, 1499-1000 AD, 1000-500 AD
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Village Site
Current Function: Agriculture/Subsistence
Current Sub-function: Agricultural Fields

Confederate Monument in Paducah (added 1997 - - #97000678)
Also known as **McN-P-187**
Oak Grove Cemetery. W of jct. of Park Ave. and 13th St. , Paducah

Historic Significance: Event
Area of Significance: Social History
Period of Significance: 1925-1949, 1900-1924
Owner: **Local**
Historic Function: Recreation And Culture
Historic Sub-function: Monument/Marker
Current Function: Recreation And Culture
Current Sub-function: Monument/Marker

Grace Episcopal Church *** (added 1976 - - #76002148)
820 Broadway , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Congdon,Henry M.
Architectural Style: Romanesque, Gothic
Area of Significance: Architecture, Religion
Period of Significance: 1875-1899, 1850-1874
Owner: **Private**
Historic Function: Religion
Historic Sub-function: Religious Structure
Current Function: Religion
Current Sub-function: Religious Structure

Home of the Friendless (added 2000 - - #00000860)
Also known as **Mc--NP--136**
1335 Burnett St. , Paducah

Historic Significance: Event
Area of Significance: Social History
Period of Significance: 1950-1974, 1925-1949, 1900-1924
Owner: **Private**
Historic Function: Domestic, Government
Historic Sub-function: Government Office, Institutional Housing
Current Function: Commerce/Trade, Education, Health Care, Social, Work In Progress
Current Sub-function: Civic, Clinic, School, Specialty Store

Hotel Irvin Cobb ** (added 1978 - - #78003065)
Broadway and 6th St. , Paducah

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Alschlager,Walter
Architectural Style: Other, Art Deco
Historic Person: Weil,Adolph
Significant Year: 1927, 1929
Area of Significance: Architecture, Commerce
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Hotel
Current Function: Domestic
Current Sub-function: Multiple Dwelling

Hotel Metropolitan (added 2002 - - #01001251)
Also known as **MC-NP-751**
724 Jackson St. , Paducah

Historic Significance: Event
Area of Significance: Black, Transportation
Period of Significance: 1950-1974, 1925-1949, 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Hotel, Secondary Structure
Current Function: Commerce/Trade, Domestic, Work In Progress
Current Sub-function: Hotel, Museum, Secondary Structure

Jefferson Street-Fountain Avenue Residential District (added 1982 - - #82002735)

Jefferson and Madison Sts., Broadway, Fountain Ave., and Harahan Blvd. , Paducah

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Colonial Revival, Bungalow/Craftsman, Late Victorian
Historic Person: Barkley,Alben,et al.
Area of Significance: Architecture, Social History
Period of Significance: 1900-1924, 1875-1899
Owner: **Private**
Historic Function: Domestic, Landscape
Historic Sub-function: Plaza, Single Dwelling
Current Function: Domestic, Landscape
Current Sub-function: Plaza, Single Dwelling

Kenmil Place (added 2009 - - #09000008)
4300 Alben Barkley Dr. , Paducah

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Smith, G. Tandy Jr.
Architectural Style: Classical Revival
Area of Significance: Architecture
Period of Significance: 1925-1949, 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Lincoln School (added 1988 - - #88000895)
Also known as **McN-P-184**
S. Eighth St., between Ohio and Tennessee Sts. , Paducah

Historic Significance: Event
Area of Significance: Education, Black
Period of Significance: 1925-1949, 1900-1924, 1875-1899
Owner: **Private**
Historic Function: Education
Historic Sub-function: School
Current Function: Vacant/Not In Use

Lower Town Neighborhood District (added 1982 - - #82002736)
Also known as **Lower Town**
Roughly bounded by Park Ave., Jefferson, 5th and 9th Sts. , Paducah

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Late 19th And 20th Century Revivals, Greek Revival, Late Victorian
Historic Person: Friedman,Joseph,et al.
Area of Significance: Politics/Government, Architecture, Commerce
Period of Significance: 1900-1924, 1875-1899, 1850-1874, 1825-1849
Owner: **Local , Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Market House (added 1973 - - #73002255)
Also known as **Clark,Gen. William,Market House**
S. 2nd St. between Broadway and Kentucky Ave. , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Brainerd,W.L.
Architectural Style: No Style Listed
Area of Significance: Architecture, Commerce
Period of Significance: 1900-1924
Owner: **Local**
Historic Function: Commerce/Trade
Historic Sub-function: Specialty Store
Current Function: Recreation And Culture
Current Sub-function: Museum, Theater

Masonic Temple (added 2002 - - #02001470)
501-505 S. 7th St. , Paducah

Historic Significance: Event
Area of Significance: Commerce, Black
Period of Significance: 1950-1974, 1925-1949, 1900-1924
Owner: **Private**
Historic Function: Commerce/Trade, Social
Historic Sub-function: Department Store, Meeting Hall, Professional, Restaurant
Current Function: Vacant/Not In Use

Nashville, Chattanooga, and St. Louis Railway Office and Freight House (added 1979 - - #79003118)
Also known as **Johnston-Backus Building**
300 S. 3rd St. , Paducah

Historic Significance: Event
Area of Significance: Commerce
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Transportation
Historic Sub-function: Rail-Related
Current Function: Commerce/Trade
Current Sub-function: Warehouse

Paducah Downtown Commercial District (added 1982 - - #82002737)
Also known as **See Also:Paducah Downtown Commercial District (Boundary Incr**
Roughly bounded by 7th, 1st, Clark and Monroe Sts. , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Classical Revival, Italianate, Art Deco
Area of Significance: Architecture, Commerce
Period of Significance: 1925-1949, 1900-1924, 1875-1899, 1850-1874
Owner: **Private**
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Single Dwelling, Specialty Store, Warehouse
Current Function: Commerce/Trade, Domestic
Current Sub-function: Single Dwelling, Specialty Store, Warehouse

Paducah Downtown Commercial District (Boundary Increase) (added 1985 - - #85000952)
Also known as **See Also:Paducah Downtown Commercial District**
Roughly bounded by 1st, Clark, Seventh and Monroe Sts. , Paducah

Historic Significance: Event
Area of Significance: Commerce
Period of Significance: 1900-1924, 1875-1899
Owner: **Local**
Historic Function: Commerce/Trade
Historic Sub-function: Business, Warehouse
Current Function: Vacant/Not In Use

Paducah Market House District ** (added 1978 - - #78003066)
Also known as **See Also:Market House;Paducah Downtown Commercial District;**
2nd St. between Broadway and Kentucky Ave. , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: No Style Listed
Area of Significance: Architecture, Commerce
Period of Significance: 1900-1924, 1875-1899, 1850-1874
Owner: **Private**
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Hotel, Restaurant, Specialty Store
Current Function: Commerce/Trade
Current Sub-function: Professional, Restaurant, Specialty Store, Warehouse

People's First National Bank and Trust Company Building (added 1980 - - #80001655)
Also known as **Old National Bank Building**
300 Broadway , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: C.L. Brey Construction Co., Brainerd,W.L.
Architectural Style: Beaux Arts
Area of Significance: Economics, Architecture
Period of Significance: 1900-1924

Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Financial Institution
Current Function: Work In Progress

Saint Mary Academy Complex (added 1987 - - #87000449)
Bounded by Fourth, Fifth, Monroe, and Jefferson Sts. , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Queen Anne, Classical Revival
Area of Significance: Education, Architecture
Period of Significance: 1925-1949, 1900-1924, 1875-1899
Owner: **Private**
Historic Function: Religion
Historic Sub-function: Church Related Residence, Church School
Current Function: Commerce/Trade, Education
Current Sub-function: Business, College

St. Francis DeSales Roman Catholic Church (added 1979 - - #79003119)
Also known as **Church of St. Francis de Sales**
116 S. 6th St. , Paducah

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Classical Revival
Area of Significance: Architecture, Social History, Religion
Period of Significance: 1900-1924, 1875-1899
Owner: **Private**
Historic Function: Religion
Historic Sub-function: Religious Structure
Current Function: Religion
Current Sub-function: Religious Structure

Tilghman, Augusta, High School (added 1995 - - #95000300)
Also known as **Walter C. Jetton Middle School;MCNP-121**
401 Walter Jetton Blvd. , Paducah

Historic Significance: Event
Area of Significance: Social History, Black
Period of Significance: 1925-1949, 1900-1924
Owner: **Local**
Historic Function: Education, Recreation And Culture
Historic Sub-function: Auditorium, Music Facility, School, Sport Facility
Current Function: Government, Other, Recreation And Culture
Current Sub-function: Auditorium, Government Office, Music Facility, Sport Facility

Tilghman, Lloyd, Memorial (added 1997 - - #97000679)
Also known as **McN-P-186**
Lange Park. Madison St. betweetn 16th and 19th Sts. , Paducah

Historic Significance: Event
Area of Significance: Social History
Period of Significance: 1925-1949, 1900-1924
Owner: **Local**
Historic Function: Recreation And Culture
Historic Sub-function: Monument/Marker
Current Function: Recreation And Culture
Current Sub-function: Monument/Marker

Tilghman--Woolfolk House (added 1998 - - #98000940)
Also known as **McNP-102**
631 Kentucky Ave. , Paducah

Historic Significance: Person, Event
Historic Person: Tilghman, Lloyd, et.al.
Significant Year: 1861, 1864
Area of Significance: Military
Period of Significance: 1850-1874
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic

Current Sub-function: Single Dwelling

Yeiser, Mayor David A., House ** (added 1973 - - #73002130)
Also known as **Barkley,Alben W.,Museum**
533 Madison St. , Paducah

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Greek Revival
Historic Person: Yeiser,David A.
Significant Year: 1852
Area of Significance: Politics/Government, Architecture
Period of Significance: 1850-1874
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Recreation And Culture
Current Sub-function: Museum

Return to Top

Select a Different KENTUCKY County (map) Adair Allen Anderson Ballard Barren Bath Bell Boone Bourbon Boyd Boyle Bracken Breathitt Breckinridge Bullitt Butler Caldwell Calloway Campbell Carlisle Carroll Carter Casey Christian Clark Clay Clinton Crittenden Cumberland Daviess Edmonson Elliott Estill Fayette Fleming Floyd Franklin Fulton Gallatin Garrard Grant Graves Grayson Green Greenup Hancock Hardin Harlan Harrison Hart Henderson Henry Hickman Hopkins Jackson Jefferson Jessamine Johnson Kenton Knott Knox Larue Laurel Lawrence Lee Leslie Letcher Lewis Lincoln Livingston Logan Lyon Madison Magoffin Marion Marshall Martin Mason McCracken McCreary McLean Meade Menifee Mercer Metcalfe Monroe Montgomery Morgan Muhlenberg Nelson Nicholas Ohio Oldham Owen Owsley Pendleton Perry Pike Powell Pulaski Robertson Rockcastle Rowan Russell Scott Shelby Simpson Spencer Taylor Todd Trigg Trimble Union Warren Washington Wayne Webster Whitley Wolfe Woodford

Select a Different State (map) Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District Of Columbia Florida Georgia Hawaii Idaho Illinois Indiana Iowa Kansas Kentucky Louisiana Maine Maryland Massachusetts Michigan Minnesota Mississippi Missouri Montana Nebraska Nevada New Hampshire New Jersey New Mexico New York North Carolina North Dakota Ohio Oklahoma Oregon Pennsylvania Rhode Island South Carolina South Dakota Tennessee Texas Utah Vermont Virginia Washington West Virginia Wisconsin Wyoming

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119 PUBLIC NOTICE

KENTUCKY TRANSPORTATION CABINET
National Historic Preservation Act, Section 106 Notice

On behalf of the Kentucky Transportation Cabinet (KYTC), Florence & Hutsheson has undertaken an important series of investigations and analyses required by the National Historic Preservation Act for Phase I of the Paducah Waterfront development Project includes the construction of both a boat launch facility and marina/transient dock facility at two separate locations along the Ohio River waterfront within the Paducah city limits. These activities have included (1) the identification of any historic properties in the project area, (2) the evaluation of the potential impact of the project on those properties, and, if necessary, (3) the development of mitigation measures to reduce any harmful effects. The views of the public are essential to this process- and to an informed decision on the ultimate project outcome. The KYTC and Florence & Hutcheson will be making information available to the public on historic resource issues related to the project and will be soliciting feedback from the public on the information and analyses we have presented. If you are aware of any information that you believe we should consider in this process, please provide the information to the address listed below. Some individuals and organizations may be entitled to participate more actively in this process as "consulting parties". This would entitle them to receive specific types of information, provide comments, and consult with KYTC concerning potential mitigation measures to reduce the adverse effects of the project on historic properties. Participation as a "consulting party" may stem from a party's legal or economic relation to the project or a particular historic property, or from the party's concern with the project's affects on historic properties. If you believe that you might be entitled to participate as a "consulting party" for this project, please forward a letter or email within 15 days of the date of this public notice to the address listed below and identify the reasons why you believe you should be granted "consulting party" status.

Jason Peterson, PE
Project Manager
Florence & Hutcheson
2550 Irvin Cobb Drive
Paducah, Kentucky 42003
jpeterson@flohut.com

119 PUBLIC NOTICE

PUBLIC NOTICE
The Purchase Area Transit Authorities and the Purchase Area Development District will conduct a public hearing to solicit input on public transportation services offered in the region on February 25, 2010, at 9:00 am, at the Purchase Area Development District, 1002 Medical Drive, Mayfield, KY 42066. All interested parties are encouraged to attend this hearing. Those unable to attend may submit written comments to the address listed above For additional information contact your local transit authority or Mark Davis at 270/251-6126.

122 FREE FOR THE TAKING

FREE END ROLLS & WOOD PALLETS
The Paducah Sun is pleased to offer free newsprint end rolls and wood pallets to the community. Either may be picked up daily while supplies last in the alley behind The Paducah Sun building.

7 MO. male German Shepherd/Sheltie mix, all shots, 556-6517.

11 FULL blooded American Pit Bulls. 395-9199 or 933-2662.

2 Female housebroken Kittens, spayed, 2 yrs old. 933-7667.

224 DOMESTIC & CHILD CARE

NOTE TO PARENTS: Kentucky State Law requires licensing for child care facilities providing care for 4 or more children not related to the licensee by blood, marriage or adoption.

WANTED: Houses to clean. 462-2979.

227 MEDICAL HELP WANTED

HEALTH CARE OPPORTUNITY
Parkview Nursing & Rehabilitation Center in Paducah

STAFFING COORDINATOR
Full-time position available. Qualified candidate must be a high school graduate with strong communication and computer skills. Prior staffing experience in a health care setting is preferred.

We offer excellent pay and full benefits including Blue Cross/Blue Shield insurance, 401(k) and paid time off.

Contact Levi Loverkamp
270-443-6543
270-538-2469 Fax
Levi_Loverkamp@LCCA.com
Visit us online at www.LCCA.com
EOE/M/F/V/D - Job #13177

Parkview Nursing & Rehabilitation Center

NURSING OPPORTUNITIES
Parkview Nursing and Rehabilitation Center in Paducah, Kentucky

CNA
Full-time, 3pm-11pm
Must have current KY certification

We offer competitive pay, shift differential and full benefits in a mission-driven environment

Contact Levi Loverkamp
270-443-6543
270-538-2469 Fax
Levi Loverkamp@LCCA.com
Visit us online at www.LCCA.com
EOE/M/F/V/D - Job #9839

Parkview Nursing & Rehabilitation Center

2 EMPLOYMENT

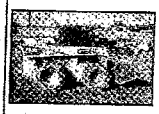
CLINICAL RESEARCH
CNA/CMA/LPN/RN invited to apply for Research Assistant/ Research Coordinator positions.
Send cover letter/ resume to:
Four Rivers Clinical Research,
Attn: Brent Ibata, PhD JD MPH,
225 Medical Center Drive, Ste 305,
Paducah, KY 42003
or
bibata@FourRiversResearch.com

LPN
Full-time opening at the Massac County Clinic. Applicant must possess an Illinois LPN License. For more information, visit our website at www.southern7.org. Applications are available online or by calling 618-634-2297 or TTY# (800)526-0844. Please mail completed applications to Human Resources, Southern Seven Health Department, 37 Rustic Campus Drive, Ullin, IL 62992. EOE M/F/D/V

Registered Nurse
Full-time opening at the Massac County Clinic. Applicant must possess an Illinois Registered Nurse License. For more information, visit our website at www.southern7.org. Applications are available online or by calling 618-634-2297, or TTY# 800-526-0844. Please mail completed applications to Human Resources, Southern Seven Health Department, 37 Rustic Campus Drive, Ullin, IL 62992. EOE M/F/D/V

RN/LPN / Women's Health ARNP
All Positions located at the Western Kentucky Correctional Complex in Fredonia, KY. Primary duties to include medication administration, assessment, triage, and response to emergencies. Please forward resume and letter of interest referencing the position and location to CorrectCare - Integrated Health, Fax (859) 685-0901 or email HR@correctcare.com. EEO

NURSING CARE PLAN COORDINATOR
Southgate Nursing & Rehabilitation Center is seeking an RN or LPN with experience in care plans & MDS. The successful candidate must have excellent organizational skills & be very detail oriented. This is a Mon-Fri, salaried position. Contact Mickey Cavitt for your personal interview at 618-524-2683 or send resume to Southgate, PO Box 843, Metropolis, IL 62960. Attn: Administrator.

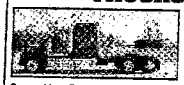


Cylinder, Foam Filled Tire; CASE 580K 4x4 Loader Backhoe, CASE 580E Loader Backhoe; CASE 580B Loader Backhoe, SN 8739129, OROPS, Hyd. Thumb; CASE 580B Loader Backhoe JOHN DEERE 310C Loader Backhoe, SN A739557; EATON Forklift, Dsl., Pneumatic Tires, 10,000#; VERMEER M-455 Trencher/Backhoe, Deutz Dsl. SN 1URF092E0E1000640. 4' Trencher, Leveling Blade, 2059 Hrs.; More added Daily!!

TRACTORS, FARM EQUIPMENT

IH 766 Tractor, SN 2490181U011815, 540/1000 Shafts. 18.4x34 Rubber; (2) FORD 5000 Tractor; CASE 1070 Tractor; MF 135 Tractor; M & W 5690 Round Hay Baler; NEW HOLLAND 855 Road Hay Baler; WESTERNFIELD Hydraulic Auger; AMCO Model 2024-3G Hard Land Disc, SN 871; 2500 Gal. Water Tank w/Mixer & Honda Pump; 2000 Gal. Fuel Tank w/Pump; MF 175 Tractor; More Added Daily!!

TRUCKS & TRAILERS



(2) 1995 IH 8100 Truck Tractor, 9 Spc., M11 Cummins Dsl.,; 1995 PETERBILT Tandem Truck Tractor, 3406 CAT Dsl., 10 Spd., Wet Kit, Dry Cab, 90% Rubber. 1995 PETERBILT 379 Truck Tractor, N14 Cummins 10 Spd. Wet Kit, 390 Gears, New Floaters, New Springs & King Pins, Approx. 250,000 miles on engine, Aluminum Wheels; 1994 WESTERN STAR 4964FX Truck Tractor, 425 CAT, 500 HP, 13 Spd., 355 Gears, Wet Kit, New Power Divider, Aluminum Wheels; 1993 FREIGHTLINER Tandem Truck Tractor, Detroit Dsl., 9 Spd.; PETERBILT Truck Tractor; 1993 FORD F250XL Service Truck; 1986 FORD 9000 Refuse Truck, w/IMT Grapple Boom Model 1331, 50 Cu. Yd. Bed; 1982 IH F2575 Flatbed, Twin Screw, 174" Wheel Base; 2004 GMC Box Van; 1987 IH 2574 Tandem Dump Truck, NTC-855, Auto Trans., Double Frame, Air Brakes, Hendricks Suspension, Nice Rock Bed; 1978 CHEVROLET C65 Tandem Grain Truck, 366 Engine, 5 Spd., Air Brakes, 22' Bed w/Roll Over Tarp, 23,000 Rears; 1975 GMC 6000, 2 Ton Dump Truck, 350 Engine, Twin Cylinder Dump, 16' Midwest Grain Bed, Plumbed for Rear Seed Auger, 9:20 Tires; 1977 FORD F600 Grain Truck, 1998 CHEVROLET Extended Cab Dually, Cummins Dsl., 1994 DODGE Laramie SLT 1500 Pickup Trailer; Tri-Axle Pintle Hitch Trailer; 1993 FORD Econoline 350 Motor Home; 2007 JOHN DEERE Gator TS; 2004 SUZUKI Street Bike; 2003 SUZUKI Street Bike; Scaffold Wagons; More Added Daily!!!

ALSO SELLING BUILDING SUPPLIES;
2x4's, 2x6's, 2x8's; THIS IS ONLY A PARTIAL LISTING!
MORE EQUIPMENT ADDED DAILY!!!
EQUIPMENT ACCEPTED UP UNTIL FRIDAY, JAN. 29TH.

This is an OPEN SALE Representatives will be at the Auction site Monday, Jan. 25th through Friday, Jan. 29th to accept your equipment! For more information contact: Steve Bunch (270) 748-8080 or Roy Bunch (270) 748-5527

AUCTION CONDUCTED BY
Steven J. Bunch - Auctioneer
Roy Bunch - Auctioneer, Real Estate Broker
BUNCH BROS. AUCTION & REALTY, INC.
P. O. Box 173, Wingo, KY 42088
Buck Shelton - Apprentice Auctioneer
Phone: (270) 376-2992 Fax: (270) 376-2997
Website: bunchbrosauctionrealty.com

CNA
$1,500 SIGN ON BONUS
Metropolis Nursing & Rehab Center currently has openings for CNA's. This is a full-time position that offers a new competitive wage, shift differential, paid holidays and vacation/sick time. If interested, please apply in person at 2299 Metropolis Street, Metropolis, Illinois or fax your resume to Attn: CNA at 618-524-2507. EOE

Dental Assistant
We are looking to add to our super star team. Expanded Duties preferd or min. of 3 yrs. experience. Competitive wages with incentive bonus plan. 4 day work week, Paducah location. Please email resume to:
dentalsmileswanted@yahoo.com

FULL TIME
CMA/LPN
Needed for busy allergy practice to perform front desk and clinic duties. Excellent customer service skills required. 1- 2 yrs. experience preferred. Fax resume to Director at 502-753-0883.

BUSY Medical Practice seeking full time employee. Willing to train. Optometry/ Opthamology experience helpful. Send reply to BB 01094 c/o The Paducah Sun, PO Box 2300, Paducah, KY 42002-2300.

RN CIRCULATOR
Open Heart
Western Baptist Hospital is seeking an RN circulator with operating room/open heart experience. Day shift position with call required. Also seeking general RN circulators for varied shifts. Excellent wage and benefits. Apply online at: www.westernbaptist.com
EOE

Clinical Manager
Needed for busy Allergy Practice. 3-5 yrs. Clinical Supervisory experience required. RN preferred. Excellent benefits. Fax resume to Director, 502-753-0889.

DENTAL Assistant needed 3-4 days/week in a specialty practice. Send reply to BB 12464 c/o The Paducah Sun, PO Box 2300, Paducah, KY 42002-2300.

LPN - NIGHT SHIFT
12 HOURS
7PM-7AM
Apply in person at Mills Health & Rehab, 500 Beck Lane, Mayfield, KY 42066.

PADUCAH medical office looking for LPN or CMA. Send resume to BB 04270 c/o The Paducah Sun, PO Box 2300, Paducah, KY 42002-2300.

228 GENERAL HELP WANTED

TEMPORARY: # of openings: 13 Tobacco, Hay/Straw & General Agricultural Workers Needed.
Employer: Wilkerson Farms, Inc., Eddie Ray Kirks & Kyle Kirks-Graves & Calloway Counties, KY Dates: 3/01/2009-12/15/2010
Wages: $7.25-8.00/hour. 3/4 of hours listed on job order guaranteed. Work tools will be provided at no cost. Free housing provided to those who cannot reasonably return to their permanent residence each working day. Transportation & subsistence paid when 50% of contract is met. Physically able to meet & perform all job specifications. May be required to take random drug and/or alcohol tests. May be required to submit to a criminal background check. Apply for this job at the nearest KY Office of Employment & Training Division of Workforce & Employment Services Office using job order number KY03934036.

228 GENERAL HELP WANTED

PART-TIME CUSTOMER SERVICE REP
Answers customer calls quickly & courteously, accurately processes all transactions to represent The Paducah Sun. Job responsibilities include: Preparing/printing proper paperwork for postal reports, payments, credits & adjustments. Position is for weekends only. Applications may be picked up Monday-Friday, 8am-4pm at The Paducah Sun, 408 Kentucky Ave., Paducah, KY. No phone calls. The Paducah Sun is an equal opportunity employer and does not discriminate on the basis of race, religion, color, sex, age, national origin or disability

WANTED

856 Highland Drive

Beautiful Stone Wood Burning Fireplace, Hardwood Floors Kitchen, Central Heat & Air, Metal Roof. 2 Large Covered Wrap Around Decks

Lot 48 Nordic Circle Gatlinburg, TN 37738: 55'x175' Lot In The Tyrolea Subdivision

Lot 11 Peggy Lane Pigeon Forge, TN 37863: 0.27 Acre Lot In The Harmony Hills Subdivision.

AUCTION HELD AT 219 LAUREL OAKS WAY GATLINBURG, TN 37738!
REAL ESTATE WILL BEGIN AT 10:00 AM (EST)!
Call For More Information or Visit: www.harrisauctions.com

Real Estate Auction

Saturday, February 6th 2010 @ 2:00 PM (EST)

SELLING FOR BRANCH BANKING AND TRUST CORPORATE
Property Locations: 1633 Jed Trail Pigeon Forge, TN 37862, 1249 Jayell Rd. Pigeon Forge, TN 37862, Evans Chapel Rd. Sevierville, TN 37876, Mountain Ash Way Sevierville, TN 37876, Lot 65 Harvest Meadows Kodak, TN 37764

3 BDRM, 2 BATH LOG CABIN – 35 ACRES – 5 ACRES – 2 LOTS

REAL ESTATE: 1633 Jed Trail Pigeon Forge TN 37862: A Nice +/- 2,106 Sq Ft. 2 Year Old Log & Stone Cabin Featuring 2 Bedrooms, 2 1/2 Baths, Kitchen w/ Cherry Cabinets, Living Room w/ Stone Fireplace, Central Heat & Air, Carpet, Ceramic Tile & Hardwood Floors, Tiled Bathtub, & Multiple Covered Decks.

1633 Jed Trail

1249 Jayell Rd. Pigeon Forge, TN 37862: 5.75 Acres Of Level To Gently Rolling Land.

Evans Chapel Rd. Sevierville, TN 37876: 35.22 Acres Of Rolling Wooded Land.

Lot 17 Mountain Ash Way Sevierville, TN 37876: 0.96 Acre Lot Located In The Preserve At English Mountain Community.

Lot 65 Harvest Meadows Kodak, TN 37764: 0.84 Acre Lot.

AUCTION HELD AT 1633 JED TRAIL PIGEON FORGE, TN 37862!
REAL ESTATE WILL BEGIN AT 2:00 PM (EST)!
Call For More Information or Visit: www.harrisauctions.com

REAL ESTATE TERMS: 15% Down Day Of Sale Balance In 30 Days. A 10% Buyer's Premium Will Be Added To Final Bids And Included In The Contract Price. Must Provide A Bank Letter Of Credit. All Properties Sold "As Is, Where Is" Without Warranty Or Representation, Either Expressed Or Implied, Concerning The Property Made By The Seller Or Auction Company. Buyer Is Responsible For Any HOA Or Membership Fees That May Apply.

HARRIS REAL ESTATE & AUCTION
TF #85102 • #5624 • TF #4537
MICHAEL HARRIS, BROKER/AUCTIONEER
KENNETH HARRIS, REALTOR/AUCTIONEER
3655 St. Rt. 45 North • Mayfield, KY 42066
270-247-3253 • 800-380-4348
www.harrisauctions.com

GOING GOING GONE
ABSOLUTE AUCTION
NO MINIMUMS!! NO RESERVATIONS!!
Saturday, Jan. 30th, At 10:00 A.M.
A Short Drive Northeast Of Mayfield, Kentucky
The Trace Creek Area – Neeley Road
From The Purchase Parkway At Exit 27 "Hwy 131" Proceed N 2 Miles To Neeley Rd, Turn Right, Proceed E 2/10 Mile....Or From The East Side Of Mayfield At The Hwy 121 By Pass, Take Hwy 58 East 1.7 Miles To "Hwy 131" Turn Left ,Proceed N 3 Miles To Neeley Rd

42-04 ACRES
In 3 Tracts And In Combinations
A Convenient Location For Graves - McCracken Or Marshall County !!
GOOD FARMLAND
Mini Tracts - Homesites - Nice Pond
6.69 Acres - 22.74 Acres - 12.61 Acres
There Is A State Permitted Gravel Pit On Tract 3 Containing 12.3 Acres
www.jamesrcash.com For More Details!
15% Down With A Minimum Deposit Of $5,000.00 Per Tract, Balance In 30 Days
No Buyer's Premium!! Auction Held On Site!
JAMES R. CASH
722 AUCTIONEER & REAL ESTATE BROKER
FANCY FARM, KY- 270-623-8466
"THE SELLING MACHINE"

GOING GOING GONE
ABSOLUTE AUCTION
Sat. Feb. 13th - 10:00 A.M.
Pines Golf Club - Dyer, TN
At The South City Limit Edge Of Dyer
1 Trenton Hwy, Dyer, TN 38330
Just A Few Minutes Drive From
Union City - Martin - Dyersburg - Jackson
133 Acres
In 8 Tracts And In Combination Of Tracts
Tract Of 7 Acres To 29 Acres!
Buy The Complete Facility - Or Any Portion!
No Minimums - No Reservations!
Spacious Two Level Clubhouse
Bermuda Fairways - Bent Grass Greens
Irrigation - Asphalt Cart Paths
Visit Jamesrcash.com For A Video Tour
To Be Sold After The Real Estate
All The Equipment & Accessories From A Well Established Golf Course & Club House Plus...20 - Very Nice EZE-GO Electric Golf Carts
jamesrcash.com for Details And Pictures!!
Complete Settlement Day Of Sale..Bank Letters A Must!
JAMES R. CASH
722 AUCTIONEER & REAL ESTATE BROKER
FANCY FARM, KY- 270-623-8466
TN LIC # 930 • TN FIRM # 2291

WE WANT IT BACK!

APPENDIX K

CITY OF PADUCAH
300 South 5th Street
P. O. Box 2267
Paducah, KY 42002-2267
Phone: (270) 444-8530
Fax: (270) 443-5058

William F. Paxton III
Mayor

City Commissioners
Robert A. Coleman
Gayle Kaler
Gerald Watkins
Buz Smith

December 10, 2008

Mr. David Waldner, P.E.
Kentucky Transportation Cabinet
Division of Environmental Analysis
200 Mero St.
Frankfort, KY 40602

RE: Request to use de *minimis* rule for the
Paducah Riverfront Development Project
McCracken County, Kentucky
KYTC Item No. 1-122

Dear Mr. Waldner:

Please find enclosed the purpose and need statement for the proposed development of the Paducah Riverfront including Schultz Park. The City of Paducah Board of Commissioners is sure the project will enhance the area of the riverfront and increase the ability for tourist and residents to utilize the facility, otherwise we would not be making this monumental investment in our community's future.

The City of Paducah further believes that the construction of our Phase I Riverfront Development Project consisting of a Transient Boat Dock, Shultz Park Enhancements, preparation a future marina and the immediate construction of a boat launch facility located down stream of Schultz Park and Ohio River will have no effect on the park's operation, will not take any of the facilities developed with Land and Water Conservation Funds, and in general will significantly improve the quality of the park.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amended the existing Transportation Act legislation with Section 6009(a) in order to simplify the approval of projects having a *de minimis* impact on a historic or recreational resource. With respect to parks, recreation areas, or wildlife or waterfowl refuges, the US DOT Secretary may make a finding of *de minimis* impact only if the following conditions are met:

I. The Secretary has determined after public notice and opportunity for public review and comment, that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and
II. The finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.

As the official with jurisdiction over Shultz Park, it is determined that the proposed Riverfront development and Marina construction will not adversely affect the use of Shultz Park and that, a *de minimis* finding for the project is appropriate.

Thank you for your time in reviewing this valuable project and increasing the enhancement to the downtown riverfront area of our city.

Sincerely,

William F. Paxton, III
Mayor, City of Paducah

WFP/rbm

Enclosure

C: Jim Zumwalt, City Manager
Rick Murphy, P.E., City Engineer
Steve Doolittle, Exc. Director Paducah Renaissance Alliance
Steve Ervin, Director of Planning
Mark Thompson, Director of Parks Services
Jason Petersen, P.E., Florence & Hutcheson, Inc.
Project File

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

January 6, 2009

Mr. Jose Sepulveda
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Dear Mr. Sepulveda:

RE: Request to use *de minimis* rule
Paducah Riverfront Development Plan
McCracken County, Kentucky
KYTC Item No. 1-122

The Kentucky Transportation Cabinet (KYTC) is proposing the use of the *de minimis* rule for the subject project. The proposed project involves construction within the undeveloped riverbank and surface waters of the Ohio River and the existing Shultz Park in downtown Paducah, Kentucky.

The purpose and need of the project is to relocate the existing boat ramp facility located at the northeastern end of Broadway Street while at the same time allowing for the northeastern end of Broadway Street to be converted back to the original use as a riverboat landing and community focal point along the Ohio River. The relocation of the boat launch facility will reduce congestion and vehicle parking associated with recreational fishing activities. The purpose of the marina/transient dock is to provide accommodations for transient and local recreational boat owners.

Three design alternatives, including the No Build, were studied to determine the impacts to the area. Both build design alternatives are positioned north of the Burnett Street and North 6th Street intersection. There are no other city-owned properties along the riverfront that will accommodate the development of the boat launch facility. A major thrust of the Riverfront Development Plan is to enhance existing amenities in order to "recapture" the riverfront. In order to fulfill this need, the existing facility must be relocated. The proposed marina/transient dock and boat dock sites have been selected to minimize cost and environmental impact, while maintaining close proximity to downtown Paducah. All measures to minimize harm have been taken in the development of this plan.

CITY OF PADUCAH
300 South 5th Street
P. O. Box 2267
Paducah, KY 42002-2267
Phone: (270) 444-8530
Fax: (270) 443-5058

William F. Paxton III
Mayor

City Commissioners
Robert A. Coleman
Gayle Kaler
Gerald Watkins
Buz Smith

December 10, 2008

Mr. David Waldner, P.E.
Kentucky Transportation Cabinet
Division of Environmental Analysis
200 Mero St.
Frankfort, KY 40602

RE: Request to use de *minimis* rule for the
Paducah Riverfront Development Project
McCracken County, Kentucky
KYTC Item No. 1-122

Dear Mr. Waldner:

Please find enclosed the purpose and need statement for the proposed development of the Paducah Riverfront including Schultz Park. The City of Paducah Board of Commissioners is sure the project will enhance the area of the riverfront and increase the ability for tourist and residents to utilize the facility, otherwise we would not be making this monumental investment in our community's future.

The City of Paducah further believes that the construction of our Phase I Riverfront Development Project consisting of a Transient Boat Dock, Shultz Park Enhancements, preparation a future marina and the immediate construction of a boat launch facility located down stream of Schultz Park and Ohio River will have no effect on the park's operation, will not take any of the facilities developed with Land and Water Conservation Funds, and in general will significantly improve the quality of the park.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amended the existing Transportation Act legislation with Section 6009(a) in order to simplify the approval of projects having a *de minimis* impact on a historic or recreational resource. With respect to parks, recreation areas, or wildlife or waterfowl refuges, the US DOT Secretary may make a finding of *de minimis* impact only if the following conditions are met:

I. The Secretary has determined after public notice and opportunity for public review and comment, that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and
II. The finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.

As the official with jurisdiction over Shultz Park, it is determined that the proposed Riverfront development and Marina construction will not adversely affect the use of Shultz Park and that, a *de minimis* finding for the project is appropriate.

Thank you for your time in reviewing this valuable project and increasing the enhancement to the downtown riverfront area of our city.

Sincerely,

William F. Paxton, III
Mayor, City of Paducah

WFP/rbm

Enclosure

C: Jim Zumwalt, City Manager
Rick Murphy, P.E., City Engineer
Steve Doolittle, Exc. Director Paducah Renaissance Alliance
Steve Ervin, Director of Planning
Mark Thompson, Director of Parks Services
Jason Petersen, P.E., Florence & Hutcheson, Inc.
Project File

Paducah Riverfront Development Project
City of Paducah, Kentucky
KYTC Item No. 1-122

Project Purpose and Need:

The Purpose of the boat launch project is to relocate the existing boat ramp facility at the northeastern end of Broadway Street while at the same time allowing for the northeastern end of Broadway Street to be converted back to its original use as a riverboat landing and community focal point along the Ohio River. The relocation of the boat launch facility will reduce congestion and vehicle parking associated with recreational fishing activities such as launching and the parking of fishing boats. The purpose of the marina/transient dock is to provide accommodations for transient boaters and local recreational boat owners. The need for the marina/transient dock is to provide loading/unloading facilities for transient boats and to provide a marina with associated facilities that will allow transient and local recreational boaters to dock in a protected marina near downtown Paducah allowing boaters to refuel, dine, purchase supplies, etc. Currently, recreational boaters are required to dock on the riverbank near downtown Paducah. The closest on-water refueling/marina facilities for recreational boaters are located 33 miles upstream at Golconda, IL (Mile Marker 902). The proposed boat launch and marina/transient dock sites have been selected to minimize cost and environmental impact, while maintaining close proximity to the original downtown Paducah.

U.S. Department
of Transportation
Federal Highway Administration

Kentucky Division Office
Jose Sepulveda, Division Administrator

330 West Broadway
Frankfort, KY 40601
PH. (502) 223-6720
FAX (502) 223-6735

February 3, 2009

William F. Paxton, III
Mayor, City of Paducah
300 South 5th Street
P.O. Box 2267
Paducah, KY 42002

Dear Mr. William F. Paxton, III

After review of the information provided to us by Kentucky Transportation Cabinet (KYTC), the Federal Highway Administration (FHWA) has determined that the Paducah Riverfront Development Project will have a No Adverse Effect to the Shultz Park. FHWA has concluded that the Shultz Park would benefit from the proposed enhancements therefore, we are in agreement this project meets the requirements set forth under the Safe, Accountable, Flexible, Efficient, Transportation Equity Act (SAFETEA-LU) and the de minimis rule be applied.

We are requesting that you sign this letter and return it to our office, so it may be entered into the administrative record.

If you have any questions, please contact me at your convenience at (502) 223-6742.

Anthony Goodman 2/3/2009
Anthony Goodman
Environmental Specialist

William F. Paxton, III
Mayor, City of Paducah

MOVING THE AMERICAN ECONOMY

APPENDIX L

REDWING
ECOLOGICAL SERVICES, INC. 1139 South Fourth Street • Louisville, KY 40203 • Phone 502.625.3009 • Fax 502.625.3077

September 25, 2008

Mr. Leroy Koch
U.S. Fish and Wildlife Service
Frankfort Field Office
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Subject: **Mussel Survey Report**
Paducah Riverfront Redevelopment Project
McCracken County, Kentucky
Redwing Project 06-090

Dear Mr. Koch:

Redwing Ecological Services, Inc. is pleased to submit this Mussel Survey Report for the Paducah Riverfront Redevelopment project in McCracken County, Kentucky. The project is located on the Ohio River and consists of two components, an approximately 21-acre mass fill and transient dock site to expand Schultz Park in downtown Paducah, and an approximately one-acre proposed boat launch site approximately 0.5 mile downstream of Schultz Park. This report presents project background information, methods and results of the mussel surveys completed at both locations: the Schultz Park expansion and the Burnett Street Boat Ramp.

We appreciate the opportunity to work with you on this project. Please contact Brian O'Neill at (502) 625-3009 if you have any questions during your review.

Sincerely,

Brian J. O'Neill
Project Aquatic Biologist

Ronald L. Thomas
Principal
Senior Ecologist

File: 07-008/Reports/Characterization Package

cc: Mr. Rick Murphy, P.E. – City of Paducah
Mr. Jason Petersen, P.E. – Florence & Hutcheson, Inc.

REDWING ECOLOGICAL SERVICES, INC.
1139 South Fourth Street • Louisville, KY 40203 • Phone 502.625.3089 • Fax 502.625.3077

November 3, 2009

Mr. Leroy Koch
U.S. Fish and Wildlife Service
Frankfort Field Office
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Subject: **Biological Assessment Report**
Paducah Riverfront Redevelopment Project
McCracken County, Kentucky
Redwing Project 06-090

Dear Mr. Koch:

Redwing Ecological Services, Inc. is pleased to submit this Biological Assessment Report for the Paducah Riverfront Redevelopment Project in McCracken County, Kentucky. The project is located on the Ohio River in downtown Paducah. This Biological Assessment evaluates potential effects that the proposed project may have on federally protected mussels within the action area which consists of two components, an expansion of Schultz Park and a proposed boat launch site approximately 0.5 mile downstream of Schultz Park. This report presents project background information, protected mussel species information, methods and results of a mussel survey completed at both locations, and a determination of effect based on potential direct, indirect, and cumulative impacts associated with this project.

We appreciate the opportunity to work with you on this project. Please contact Brian O'Neill at (502) 625-3009 if you have any questions during your review.

Sincerely,

Brian J. O'Neill
Project Aquatic Biologist

Ronald L. Thomas
Principal
Senior Ecologist

File 06-090/Reports/MusselSurvey/Mussel_BA

cc: Mr. Rick Murphy, P.E. – City of Paducah
Mr. Jason Petersen, P.E. – Florence & Hutcheson, Inc.
Ms. Kathleen Lake, P.E. – JJR

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Acting Secretary

February 8, 2010

Mr. Jose Sepulveda, Division Administrator
Federal Highway Administration
Region IV, P.O. Box 536
Frankfort, Kentucky 40602

Re: Paducah Riverfront Redevelopment Project
Schulz Expansion Park and Burnett Street Boat Ramp
City of Paducah
McCracken County

Dear Mr. Sepulveda:

Please find attached, a biological assessment for seven (7)endangered and two(2) candidate mussels, for the construction of the Schulz Expansion Park and the Burnett Street Boat Ramp, McCracken County. Our intention is to be in full compliance with Section 7 of the Endangered Species Act; therefore, we solicit your concurrence in the following findings for the referenced project:

1. "The proposed project is likely to adversely affect (LAA) *P.capax, P. cooperianus, L. abrupta, P. cyphus and C. monodonta*" for the Schulz Expansion Park. **KYTC requests that formal consultation with USFWS be initiated by FHWA.**
2. "The proposed project is not likely to adversely affect (NLAA) *O. retusa, C. stegaria, P. clava and P. plenum.*"for the Schulz Expansion Park.
3. "Based on avoidance of the existing mussel assemblage and the ramp's design...the proposed Burnett Boat Ramp is not likely to adversely affect mussels on the Ohio River."

Pursuant to the "step-down" process transmitted by the Federal Highway Administration letter dated March 5, 1980, the federal action agency must make the determination of effect. Your office should forward the results of your findings, requesting concurrence by the U.S. Fish and Wildlife Service upon completion of your review.

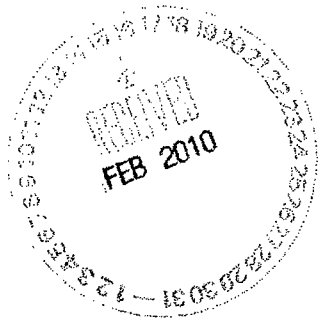
The Kentucky Transportation Cabinet requests your concurrence that our (KYTC and FHWA) responsibilities under Section 7(c) of the Endangered Species Act as amended are fulfilled for all listed and/or candidate species of mussels. If you have any questions, please contact Dale Noe or me at (502)564-7250.

Sincerely,

David M. Waldner

David Waldner, P.E., Director
Division of Environmental Analysis

FDN
Cc: City of Paducah
Florence & Hutcheson
Redwing Ecological Services
D. Adams



Kentucky
UNBRIDLED SPIRIT

U.S. Department
of Transportation
Federal Highway Administration

Kentucky Division Office
José M. Sepúlveda, Division Administrator

February 12, 2010

330 West Broadway
Frankfort, KY 40601
PH. (502) 223-6720
FAX (502) 223-6735

In Reply Refer To:
HDA-KY

Mr. Lee Andrews
Field Supervisor
U.S. Fish and Wildlife Services
330 West Broadway
Frankfort, Kentucky 40601

Dear Mr. Andrews:

This letter requests formal consultation for nine (9) endangered species for the Paducah Riverfront Redevelopment Project in McCracken Co., Kentucky, Project Item No. 1-122.00. The Kentucky Division of the Federal Highway Administration (FHWA) has reviewed the attached Biological Assessment prepared by the Kentucky Transportation Cabinet (KYTC) for the following species:

Species	Recommended Finding
Orange-foot Pimpleback, Plethobasus cooperianus,	likely to adversely effect
Fat Pocketbook Mussel, Potamilus capax,	likely to adversely effect
Ring Pink Mussel, Lampsilis abrupta,	likely to adversely effect
Sheepnose, Plethobasus cyphyus	likely to adversely effect
Spectaclecase, Cumberlandia monodonta	likely to adversely effect
Clubshell Mussel, Pleurobema clava,	not likely to adversely effect
Fanshell Mussel, Cyprogenia stegaria	not likely to adversely effect
Ring Pink, Obovaria retusa	not likely to adversely effect
Rough Pigtoe, Pleurobema plenum	not likely to adversely effect

The KYTC appears to have appropriately addressed their compliance responsibilities under 50 CFR part 402.12 section 7(c) of the Endangered Species Act. We therefore request the initiation of formal consultation with your agency in an effort to resolve any adverse effects. FHWA concurs with the "likely to adversely effect" findings for the Orange-foot Pimpleback, Plethobasus cooperianus, Fat Pocketbook Mussel, Potamilus capax, Ring Pink Mussel, Lampsilis abrupta, Sheepnose, Plethobasus cyphyus, and the Spectaclecase, Cumberlandia monodonta and the "not likely to adversely effect" findings for the Clubshell

Mussel, Pleurobema clava, Fanshell Mussel, Cyprogenia stegaria, Ring Pink, Obovaria retusa, and the Rough Pigtoe, Pleurobema plenu.

The FHWA is requesting that the U.S. Fish and Wildlife Service concur with our findings listed above and issue a Biological opinion on this project. If you have any further questions on the above review, please contact Anthony Goodman at (502) 223-6742.

Sincerely yours,

John Ballantyne
Team Leader
Program Delivery

Enclosure

cc: David Waldner, KYTC-DEA
Dale Noe, KYTC-DEA
Phil DeGarmo, USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

July 6, 2010

Mr. John Ballantyne
U.S. Department of Transportation
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Subject: FWS #2010-B-0327; Biological Opinion on the Paducah Riverfront Development Project, McCracken County, Kentucky, and its effects on federally listed mussels

Dear Mr. Ballantyne:

This document is the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed construction of the Paducah Riverfront Development Project at approximately Ohio River Miles 934.7 to 935.8 in McCracken County, Kentucky, and its effects on federally listed mussels under section 7(a)(2) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Federal Highway Administration's (FHWA) letter requesting formal consultation was received on February 12, 2010 and formal consultation was initiated on May 18, 2009, in a letter from the Service to the FHWA.

This biological opinion is based on information provided in a November 2009 Biological Assessment (BA) prepared by Redwing Ecological Services, Inc. (Redwing), meetings (see consultation history), available literature, communications with experts on the federally listed species considered in this biological opinion, and other sources of information available to us and/or in our files. A complete administrative record of this consultation is on file at the Service's Kentucky Field Office in Frankfort, Kentucky (see address above).

Consultation History

19 June 2008 – A Revised Mussel Survey Workplan was submitted to the Service.

20 June 2008 – The Revised Mussel Survey Workplan was approved by the Service via email.

28 August 2008 – A project review meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews (Service), Leroy Koch (Service), Rick Murphy (City of Paducah), Ron Thomas (Redwing), and Brian O'Neill (Redwing). Discussions included: overall background on the redevelopment project including design considerations.

alternatives investigated, and avoidance/minimization efforts; summary of the regulatory process completed to that point; the significance of the mussel bed observed during the field survey; the need for a formal consultation process including preparation of a BA.

25 September 2008 – A Mussel Survey Report was submitted to the Service.

15 October 2008 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews, Leroy Koch, Ryan Evans (KSNPC), Ron Thomas, and Brian O'Neill. Discussions included: verification of relic shells as *Potamilus capax*, and implications of findings regarding consultation process.

19 December 2008 – A draft Biological Assessment Report was submitted to the Service.

30 January 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Phil DeGarmo (USFWS), and Brian O'Neill. Discussions included comments regarding the Draft Biological Assessment Report and requests for additional information to be included in the final BA.

19 March 2009 – A meeting was held at Florence & Hutcheson's office in Paducah, Kentucky. Meeting participants included: Lee Andrews, Rick Murphy, Jason Petersen (Florence & Hutcheson), Kathy Lake (JJR), and Brian O'Neill. Discussions included: updated project design elements; concerns regarding potential construction techniques; extent of relocation efforts that may be required and other potential conservation measures such as a type of conservation fund payment; and additional information requests.

3 November 2009 – The Final Biological Assessment Report was submitted to the Service.

24 November 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Ron Thomas, and Brian O'Neill. The discussion focused on the completeness of the BA; additional information request; and estimated timeframe regarding the remainder of the consultation process.

18 December 2009 – An additional information letter supporting the Biological Assessment was submitted to the Service.

12 February 2010 – The FHWA requested formal consultation for the project in a letter submitted to the Service.

4 March 2010 – The Service responded to FHWA's request for initiation of formal consultation.

19 May 2010 – The Service provided an additional response to FHWA's February 12, 2010 letter, which modified the consultation by reducing the number of mussel species to be considered in the consultation.

4 June 2010 – A meeting was held at the FHWA's office in Frankfort, Kentucky, to discuss the project and discuss conservation and minimization measures regarding the three federally listed

mussels considered in the consultation. Meeting participants included: Leroy Koch, Lee Andrews, Derek Adams, David Waldner (Kentucky Transportation Cabinet), Sunni Carr (Kentucky Department of Fish and Wildlife Resources (KDFWR)), Dan Stoelb (KDFWR), Dr. Monte McGregor (KDFWR), Anthony Goodman (FHWA), Ian Chidister (FHWA), Rick Murphy, Ron Thomas, Brian O'Neill, Sue Bruenderman (Kentucky Division of Water (KDOW)), Joyce Fry (KDOW), Alan Grant (KDOW), Jason Peterson (via telephone), and Kathleen Lake (JJR via telephone).

11 June 2010 – A meeting was held at the USFWS's office in Frankfort, Kentucky, to discuss conservation and minimization measures and associated costs. Meeting participants included: Anthony Goodman, Ian Chidister, David Waldner, Lee Andrews, Leroy Koch, Ron Thomas, Rick Murphy, and Jason Peterson.

30 June 2010 – A draft final version of the biological opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE), and comments on the draft final biological opinion were solicited from those agencies.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Paducah Riverfront Redevelopment Project is a proactive revitalization effort, resulting from the collaborative effort of a diverse group of constituents including stakeholders, city staff, the general public, and state and federal agencies that began in 2006. The Paducah Riverfront Redevelopment Plan has been in the design and planning phase since 1992. The plan's goal is to reconnect residents and neighbors with the City of Paducah's downtown riverfront as well as provide new tourism, recreation, and economic development opportunities for the city. Improvements to the riverfront outlined in the redevelopment plan include a terraced riverbank with overlooks, a performance plaza, recreational areas along a new Greenway trail, landscaping, renovation of public infrastructure, public education and outreach through interpretative activities, and a five-lane boat launch. The plan's components will link public amenities, recreational facilities, public spaces, and Paducah's downtown to the Ohio River. Due to its long range goals and magnitude of the plan, it will be implemented using a phased approach spanning several years. More information regarding the Paducah Riverfront Redevelopment Plan can be found on their website: riverfrontpaducah.com. For a detailed description of the proposed action and sites, see the Biological Assessment (O'Neill and Thomas 2009) prepared by Redwing.

The Biological Assessment focuses on the first phase of the plan, which includes the Burnett Street Boat Ramp and the Schultz Park Expansion marina/transient dock. These two components of the plan involve the only proposed direct impacts to the Ohio River. Each of these components would also involve other interrelated federal actions. More specifically, the construction of the Burnett Street Boat Ramp would involve a federal boating access grant from the Service to the KDFWR. KDFWR would then use this funding to pay for the City of

Paducah's construction costs for the Burnett Street Boat Ramp. The project also includes a Boating Infrastructure Grant from the Service to KDFWR. KDFWR would then use this funding to pay for the City of Paducah's construction costs associated with the Schultz Park Expansion marina. While the granting of these federal funds do not result in direct impacts to federally listed species (i.e., they are administrative in nature), the use of these federal grant funds will lead to adverse effects on listed freshwater mussels as described below and in the "Effects of the Action" section of this biological opinion.

Burnett Street Boat Ramp

The purpose of the Burnett Street Boat Ramp project, which is located at approximately Ohio River Mile 935.7, is to relocate the existing main boat ramp along the downtown riverfront to a currently undeveloped piece of property approximately one mile downstream so that the existing downtown riverfront can be converted back to its original use as a riverboat landing and community focal point. This component of the redevelopment plan is being undertaken as a partnership with the KDFWR. The proposed boat launch site is located on undeveloped property owned by the City of Paducah and will contain five launch lanes with parking for 100 vehicles and trailers with 24-hour access to the river (O'Neil and Thomas 2009). The property can accommodate an additional 100 parking spaces in the future as needed. The proposed boat launch will be connected to the downtown Riverfront Park via a planned pedestrian and bicycle greenway trail.

Construction of the Burnett Street Boat Ramp and all of the associated parking and access route will result in permanent impacts to wetlands on the proposed project site. Mitigation for these impacts will be provided on site in accordance with the conditions of the approved Section 404/401 permit through a combination of preservation and restoration activities. Mitigation includes permanent preservation of approximately 34.4 acres of high quality forested wetland, restoration of 7.3 acres of forested wetland, preservation of 3.4 acres of forested riparian buffer, and restoration of 765 linear feet of riparian buffer along the Ohio River. These mitigation measures have been designed to ensure the functional components of the impacted wetlands will be maintained on site as well as enhance the quality of the Ohio River riparian corridor and will be monitored for five years to ensure long-term success. Permanent preservation through a conservation easement or deed restriction will ensure long-term indirect benefits through reduced streambank erosion and nonpoint source runoff into the Ohio River.

Direct impacts to the Ohio River will consist of placing coarse granular material as a base for precast concrete ramp faces. The ramp's footprint will cover approximately 0.3 acre of riverbank and extend no greater than 35 meters riverward from normal pool. The compacted subgrade base material and concrete ramp face will be installed from shore and best management practices will be used to ensure erosion and sedimentation is minimized to the greatest extent possible. As required by the 404/401 approved permit, an erosion and sediment control plan will be designed, implemented, and maintained in effective operating condition at all times during construction to prevent degradation of waters of the Commonwealth. All fill material will consist of less than 5% fines, and silt fences and bank stabilization will be used where necessary

and as appropriate to minimize the potential for bank erosion and sedimentation during construction. The proposed boat ramp orientation (i.e., angle in relation to river flow and ramp face slope) was designed to have minimal impact on the prevailing hydraulic conditions of the Ohio River. The slope of the ramp will largely follow the existing contours of the riverbank. The pre-cast ramp faces will be installed over a compacted coarse-granular foundation with a slope of greater than 7:1.

Schultz Park Expansion

Proposed park expansion activities will extend from approximately Ohio River Mile 934.7 to 935.1 and include improvements to the adjacent Schultz Park, construction of a marina/transient dock, associated parking and infrastructure, and connection of park amenities with existing roads, and infrastructure. The Schultz Park Expansion represents the commencement of Paducah's efforts to revitalize its riverfront and will serve as a catalyst for additional riverfront and downtown improvements as outlined in the Riverfront Redevelopment Plan.

Development of the Schultz Park Expansion area will be accomplished in several phases (O'Neill and Thomas 2009). The first phase includes expansion of the existing Schultz Park into the river. Construction will begin by placing appropriately-sized coarse fill material on the riverbed to create a new peninsular landform with a footprint of approximately 4.9 acres. The coarse fill material will meet Kentucky Division of Water Division of Environmental Protection water quality requirements and will not exceed 5% fines. Placement of the fill material may occur from land-side via truck or from river-side via barges depending on the location of source fill material, feasibility and efficiency (i.e., the contract does not limit contractor installation methods). However, if material is transported to and/or unloaded from barges, conditions will be made to ensure disturbance to the existing mussel bed from barge anchoring or propeller wash will be minimized. The landform will be left for approximately one year to settle into the riverbed and stabilize prior to final grading and construction of the transient dock, marina, and other amenities. Once the foundation has settled, the remaining landform will be constructed using no steeper than a 3H:1V ratio slope. The landform will be protected by a combination of revetment techniques using coarse granular material and other naturalized components where applicable. Bioengineered slope stabilization will supplement stone revetment where applicable and native vegetation will be used extensively throughout the project area.

Construction of the first 400 feet of the transient dock on the downstream side of the Schultz Park landform, which will be accessed via a floating gangway system, will begin once the landform has settled and stabilized. The floating gangway system will provide for 200 boat slips that will be installed incrementally as demand grows. Currently, boaters are required to dock on the riverbank. The closest alternatives for on-water refueling/marina facilities for recreational boaters are located 33 miles upstream at Golconda, Illinois. The transient dock will serve as a river walk for the public and a dock for transient vessels. The transient dock will not provide dockage for excursion vessels such as the 'Delta Queen' steamboat. Impacts to the riverbed associated with the transient dock will be limited to placement of a maximum of 50 eight-foot deadman weight cubes for anchoring the floating dock. The marina will be anchored with 20

five-foot deadman weight cubes. The project will maintain a 300-foot buffer from the USACE Navigation Channel.

The second phase of the Schultz Park Expansion includes installation of park amenities. Park amenities are planned to include public open spaces and scenic overlooks with benches, picnic tables, additional parking, pedestrian/bicycle trails, educational/interpretive resources, and other landscape features. Accommodations for a marina and associated utility systems (e.g. fuel, water, sanitary) that will provide restrooms, showers, and a sundries store will be included. While no specific details are yet available for these facilities, all fuel and wastewater systems will be designed to Kentucky state standards. A spill prevention plan will be developed and maintained by the marina operator. The spill prevention plan will comply with state codes and approved by the appropriate agency prior to marina operation.

ACTION AREA

The Service considers the action area to include the lower Ohio River between J.T. Myers Lock and Dam at Ohio River Mile 846.0 downstream to the mouth of the Ohio River at ORM 981.0. This action area also includes the Cumberland River downstream of Barkley Dam and the Tennessee River downstream of Kentucky Dam. The action area is designated in this way because (a) it contains the entirety of the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action and (b) it contains the areas upstream and downstream of the proposed project where the indirect and cumulative effects of the proposed action are likely to occur. Regarding these upstream and downstream areas, the Service believes that the proposed action is likely to result in (a) hydrologic effects on the listed freshwater mussels addressed in this biological opinion and their habitats within and downstream of areas impacted by the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action, (b) localized population reductions of these freshwater mussels that will have corresponding effects on their populations within the described action area, and (c) a reduced likelihood that fish hosts for these freshwater mussel species will provide the same level of pre-project genetic flow throughout the described action area due to the anticipated population reductions of these species within the action area.

The action area includes all areas potentially affected directly and indirectly by the proposed project and includes the Burnett Street Boat Ramp and the marina and Schultz Park Expansion locations (O'Neill and Thomas 2009). Hydrodynamic processes were modeled for existing and proposed conditions to determine the extent of modifications anticipated from the proposed Schultz Park Expansion, and are provided in Appendix C of the Biological Assessment. Because a wide range of hydrodynamic conditions were modeled, only the subset of results pertaining to potential mussel impacts was included in the Biological Assessment. River stages and particle sizes considered relevant to potential effects on mussels included a typical annual hydrograph range (based on hydrograph data from 1990 to 2008) and particle sizes corresponding to suitable mussel habitat. These include river stages 304, 310, and 320 for particle sizes 0.1mm (very fine sand), 1mm (very coarse sand), 2mm (very fine gravel), and 5mm (fine gravel). Particle sizes

greater than 5mm were not mobile within the project area for existing or proposed conditions. A river stage of 304' is slightly greater than the normal pool elevation of 302' whereas a river stage of 320' corresponds with an approximately 10% exceedance probability. The City of Paducah Action Stage is 318' and Flood Stage is 325'. It should be noted that river stage elevations and actual local reach conditions are complicated by the effects of the Smithland Lock and Dam, Lock and Dam 52 and Kentucky Lake Dam influencing flows and water levels.

Modeling hydrodynamic processes specifically related to the proposed Burnett Street Boat Ramp was cost prohibitive due to the relatively small proposed encroachment into the river and the data-intensive model input requirements. Therefore, the modeling results for the Schultz Park Expansion site were used as a qualitative comparison for relative hydrodynamic changes at the proposed Burnett Street Boat Ramp location. A discussion of the proposed activities within the action area, including cumulative effects on protected species is provided in Section 4 of the Biological Assessment. A more detailed description of portions of the action area including baseline environmental conditions is provided below.

Burnett Street Boat Ramp

Currently, the Burnett Street Boat Ramp location at approximately Ohio River Mile 935.7, consists of undeveloped shoreline with a narrow riparian corridor and the riparian floodplain that is used for agricultural activities. Fill material associated with the boat ramp will cover approximately 0.3 acre of the riverbank and toe of slope and will extend no greater than 35 meters from shore (normal pool elevation of 302 feet). Indirect impacts at the proposed boat ramp site associated with future boating traffic and launching and extracting boats from the river may include increased substrate disturbance from propeller wash, bank erosion from wave action, and spills/debris from increased recreational activity. It was estimated that the most significant increase in boating activity as a result of the proposed boat ramp would occur within a 100 meter radius of the ramp.

The proposed boat ramp lies flush with the existing contours of the riverbank to avoid significant permanent modifications to hydrodynamic processes and ensure long-term stability. Based on a qualitative comparison with the hydrodynamic model results from the Schultz Park Expansion site (presented in Section 1.3.2 of the Biological Assessment), any potential sedimentation as a result of the proposed boat ramp should occur on the downstream side of the ramp and shoreward. If sedimentation were to occur, it would be restricted to the existing riverbank rather than the riverbed. Higher bed shear stress would likely occur on the ramp face itself. Indirect effects anticipated from boat traffic and propeller wash have not been quantitatively assessed. However, it is reasonably clear that the greatest influence on sediment transport potential will be dependent on the magnitude of boat-induced wave action and propeller wash versus the force of river currents. Where river currents are slow, such as in shallow water near shore, the effects of boat wave action/propeller wash on bank erosion and riverbed suspension are likely greater. In the near shore, these effects would likely include entrainment of particles as boats enter/exit the water. To prevent potential riverbank and riverbed erosion, areas immediately upstream and downstream of the ramp along the riverbank will be stabilized with coarse material such as cobble and/or small boulders. In addition, the toe of slope will be protected with cobble material

to prevent potential entrainment of fine particles that could occur as a result of propeller wash when boaters are running their motors to load the boat on the trailer.

The influence of boating activity on riverbed particle entrainment decreases further from shore as a result of a boat's wave generating potential relative to river depth and currents. Increased boating activity within this portion of the action area will be associated with recreational vessels approaching and exiting the boat ramp area at relatively slow speeds. Recreational vessels (typically ranging from "bass" boats to pontoon boats) characteristically have small displacement hulls with low wave generating potential (particularly at slow speeds) relative to the large cross section of the river and relatively deep water (>4m deep beyond the extent of the proposed ramp). Therefore, beyond the immediate vicinity of the proposed ramp, boating activity is not expected to influence river sediment transport potential/substrate characteristics or cause any adverse effects on mussel habitat.

Schultz Park Expansion

The Schultz Park Expansion portion of the action area was determined based on the extent of the proposed fill required to construct the park expansion landform, the anticipated extent of hydrodynamic modifications caused by the proposed landform, the pile locations required to construct the transient dock and marina, and the anticipated extent of potential indirect impacts (O'Neill and Thomas 2009). It is estimated this portion of the action area extends riverward approximately 410 feet to the base of the fill area. After the fill activity is completed the new shoreline will be approximately 270 feet riverward from the current shoreline.

The proposed park expansion and marina/transient dock is located at approximately Ohio River Mile 934.7 to 935.1, immediately downstream of the existing downtown boat launch, and consists of a relatively developed shoreline with armored riverbanks and a narrow park setting on the river side of the floodwall, as shown in figures 1 and 3 in the Biological Assessment (O'Neill and Thomas 2009). The Ohio River within the vicinity of the City of Paducah experiences a high volume of boat and barge traffic due to its proximity to the existing downtown boat ramp and lock system. The City of Paducah and nearby area is also a major hub for commercial barge activity. Barges frequently use the shoreline in the proposed marina/transient dock area for staging purposes because of the high volume of barge activity through the locks. Barge staging consists of beaching the nose of the barge onto the shore at an angle sufficient to maintain position in the river while waiting for lock traffic to clear. Many recreational boaters use the area for fishing, water skiing, cruising, and other activities. The shoreline, along where the proposed park expansion and transient dock is located, receives a considerable volume of foot traffic (e.g., fishing, sight-seeing, etc.) from the existing riverfront park and along the floodwall.

Direct effects of the expansion of Schultz Park as proposed, includes the required placement of fill material over a footprint covering approximately 4.9 acres of riverbed, and the permanent modifications to hydrodynamic processes. The location of the proposed expansion, as well as the orientation of the proposed landform, was designed to infringe as little as possible on the river's hydrodynamics as well as the commercial navigation channel. The results of

hydrodynamic modeling provide an estimation of the potential change in deposition and entrainment patterns of sediment particles as a result of the proposed Schultz Park landform. Model results indicate sediment entrainment potential (mobility index > 1) of particles within the location of the proposed landform for existing conditions between river stages 304' and 320' is limited to particle sizes less than 5mm (fine gravel) (Appendix D in the Biological Assessment). Sediment entrainment potential model results, including the proposed landform, includes 5mm particles located on the surface of the landform fill slope at a river stage of 320'. Because the fill slope will be constructed with particles significantly greater than 5mm, the following discussion will be limited to sediment transport potential of particles less than 5mm at river stages 304', 310', and 320'.

The modeled sediment transport potential of all mobile particles between river stages 304' and 320' is summarized in Figure 13 of the Biological Assessment. The figure represents the increased deposition and entrainment potential caused by the proposed landform beyond the existing potential deposition and entrainment. Deposition and entrainment potential for existing conditions is not shown on the figure in order to highlight the changes in sediment transport potential resulting from the project. At river stage 304', potential entrainment of 1mm particles is likely to occur at the furthest extent of the proposed landform from shore. The remaining modifications to the sediment transport potential of the river include an increased potential deposition of 01.mm, 1mm, and 2mm particles primarily downstream and shoreward of the proposed landform.

It is anticipated that approximately 5.8 acres may be indirectly affected by increased boating activity such as wave action and propeller wash from boats accessing the transient dock boat slips and marina. Potential sedimentation or scour from boating activity within the transient dock marina is expected to be minimal due to the slow speed required to maneuver within the dock area. In addition, a wave attenuator was integrated into the transient dock design to buffer the boat harbor and shoreline from wave action generated from vessels operating within the navigation channel of the river.

Mussel Conservation Measures

Proposed mussel conservation measures were included in the Biological Assessment on pages 24 and 25 (O'Neill and Thomas 2009). The Service recognizes that, individually and/or cumulatively, these mussel conservation measures contribute to the avoidance and minimization of adverse effects to these listed mussels, but that these measures do not necessarily eliminate all adverse effects that may result from the proposed action.

From the Conservation Measures in the Biological Assessment, the Service believes that essentially two general measures are proposed. They are: 1) a mussel relocation effort and 2) a contribution of some amount of funds to mussel research. These conservation measures are included with more detail, along with additional minimization actions, in the Reasonable and Prudent Measures and Terms and Conditions portion of this Biological Opinion.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

This biological opinion covers the fat pocketbook, *Potamilus capax*; pink mucket, *Lampsilis abrupta*; and orangefoot pimpleback, *Plethobasus cooperianus*. All three species are federally listed as an endangered.

Fat pocketbook mussel

The fat pocketbook was first listed as endangered in 1976, and a recovery plan was written in 1985 and then revised in 1989 (USFWS 1985a, USFWS 1989). This species is currently undergoing a 5-year review to determine its current status by the Service's Mississippi Field Office (USFWS 2007). Critical habitat for this species has not been designated.

The following taxonomic information is gleaned from the recovery plan for this species (USFWS 1989). The fat pocketbook was described twice in 1832 by two authors giving it different names. It was first described by J. Green as *Unio capax* and by I. Lea as *Symphnota globosa*. A few name changes have occurred since 1832, and the current accepted name, which includes the author who first described it, is *Potamilus capax* (Green 1832).

The type locality is the upper Mississippi River at the Falls of St. Anthony in Minnesota. The fat pocketbook has a round to oblong shell that is greatly inflated and has a strong s-shaped hinge line. The beak cavity is very deep (NatureServe 2007, Cummings and Mayer 1992). The shell is thin to moderately thick and the periostracum varies in color from light brown, yellow, or olive, and becoming dark brown in older individuals. The shell is typically rayless, smooth, and very shiny. Both anterior and posterior ends of the shell are rounded. Young fat pocketbook shells may have a few faint ridges on the umbo as well as have a small posterior wing present, but these characteristics are not necessarily visible in older individuals. The umbos are greatly inflated, elevated above the hinge line, and turned inward. The fat pocketbook is known to grow to a length of 5 inches. Internal morphology includes two pseudocardinal teeth in each valve, and both are thin, compressed, and elevated. There are two lateral teeth in the left valve and one in the right valve. Lateral teeth are thin and greatly curved in both valves. The nacre is bluish white and often iridescent; however, it may include some pink or salmon color in some specimens (Cummings and Mayer 1992).

Pink mucket

The pink mucket (*Lampsilis abrupta*) was listed as an endangered species on June 14, 1976 (Code of Federal Regulations 1976). No critical habitat has been designated for this species.

The pink mucket is a medium-sized mussel, growing to a length of approximately 4.5-5in. The shells are subquadrate or circular in shape and become thick and heavy in mature individuals. Anterior edges of the shells are rounded, with slightly curved dorsal and ventral margins. The posterior margins of the shells in females are slightly rounded to straight; shells of the males are rounded or bluntly pointed. A well-defined posterior ridge is present in the males. Color of the outer shell surface (periostracum) varies from light yellow or yellowish-brown to dark brown, occasionally marked with broken fine to fairly wide dark green rays. The color of the inner shell

surface (nacre) varies from white to pink to salmon in color, with the posterior margin being iridescent (Parmalee and Bogan 1998).

Orangefoot pimpleback

The orangefoot pimpleback (*Plethobasus cooperianus*) is an Ohioan species (i.e., Interior Basin) species. Records are only known from the Ohio River basin. It was officially listed as an endangered species on July 14, 1976 (Code of Federal Regulations 1976). No critical habitat has been designated for this species.

The orangefoot pimpleback is a medium-sized mussel, growing to a length of approximately 3.5 inches. The shell is circular or sub-triangular in shape, with prominent beaks that are directed anteriorly. The periostracum is brown to reddish-brown and the surface of the shell is marked by concentric growth lines. The posterior two-thirds of the shell are covered with numerous raised, irregular pustules (Parmalee and Bogan 1998). Nacre color varies from white to pink inside the pallial line, being more intense toward the hinge-teeth (Bogan and Parmalee 1983).

Life History

Fat pocketbook

The fat pocketbook is a filter-feeding species from the Unionidea family. The fat pocketbook occurs primarily in sand and mud substrates, although the species has been found in fine gravel and hard clay occasionally (Parmalee 1967, Bates and Dennis 1983, Clarke 1985). The species occurs at water depths that range from a few inches to several feet (Parmalee 1967). The life cycle of the fat pocketbook is similar to that of other freshwater mussels, in which the glochidia (larvae) require a fish host to transform to the juvenile stage. Larval mussels must attach to a host (usually on a fish gill) where they metamorphose into free-living individuals called juveniles. The fat pocketbook is a long-term brooder, with females becoming gravid in the fall, retaining glochidia over winter, and releasing the progeny during spring and summer. The freshwater drum is the primary host fish for the species (Barnhart 1997, Watters 2007).

The fat pocketbook is a large-river species that is typically found in slow-flowing water with a mud (silt/clay), sand, or gravel substrate, at depths of a few inches to eight or more feet (USFWS 1997, Cummings and Mayer 1992, USFWS 1989, EA 2007, Parmalee 1967). In the St. Francis River in Arkansas and lower Wabash River, fat pocketbooks have been found to utilize sand, mud and fine gravel substrates (Bates and Dennis 1983, Clarke 1985). The fat pocketbook is known to exist in 200 miles of the St. Francis River watershed, which includes man-made ditches, bayous, and sloughs. These habitat types are characterized as depositional areas with slow-moving water, and surveys of the St. Francis River watershed indicate that the fat pocketbook is surviving and reproducing in these conditions (Miller and Payne 2005). The reproductive strategy of the fat pocketbook is not known, but it is suspected to be a long-term brooder (bradytictic), which holds glochidia through the winter and releases them in the spring of the year (USFWS 1989). Several unpublished studies since the species Recovery Plan have reported that fat pocketbook glochidia successfully transformed on the freshwater drum (*Aplodinotus grunniens*) (Watters 1994, Barnhart 1996, Barnhart and Roberts 1996, Barnhart and Riusech 1997). Barnhart (1997) found that fat pocketbook transformed only on freshwater drum among 29 fish species tested.

Pink mucket

The pink mucket inhabits areas in large rivers with swift currents, depths of 1.6 ft to 26.2 ft, and mixed sand/gravel/cobble substrate. Notwithstanding this, the pink mucket appears to have adapted to reservoir-type conditions in the upper reaches of some impoundments. This species is a long term brooder with a life span greater than 20 years. Females become gravid by age three and brood glochidia from August through June of the following year (Hubbs 2010b).

Reproduction is likely similar to other freshwater mussels. Males release sperm into the water column; the sperm are taken in by females during normal siphoning activity. Fertilized eggs are retained in specially modified gills (marsupia) until the larvae (glochidia) are fully developed. Once released, the glochidia must attach to the gills or fins of an appropriate fish host. They encyst and metamorphose into juvenile mussels. Fully developed juveniles drop from the fish host and settle to the river bottom. The glochidia are undescribed. Freshwater mussels feed by siphoning food items that drift in the water column. The pink mucket likely feeds on items similar to other mussel species including algae, zooplankton, diatoms, and detritus.

Host fishes identified through laboratory induced infections include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), and walleye (*Sander vitreus*) (Barnhart et al. 1997) as well as white crappie (*Pomoxis annularis*) and sauger (*Sander canadense*) (J.B. Layzer and L.M. Madison, USGS, from pers. comm., in Williams et al. 2008). The use of large piscivorous fishes for hosts is consistent with the presence of a fish-like mantle lure in the pink mucket (Barnhart et at. 1997). Freshwater drum (*Aplodinotus grunniens*) was erroneously cited as being a host by Fuller (1974).

The pink mucket often inhabits regulated rivers, particularly those navigational waters modified by locks and dams. Although not reservoir tolerant *per se*, it is found in tailwaters having good riverine-quality habitat (generally rocky substrates swept free of excessive fine sediment deposits by adequate currents). Reservoir conditions (characterized by slackwater, low oxygen, and heavy silt deposition) are not conducive for its survival and population sustainability. However, its host fishes are more habitat generalists, being commonly found in reservoir, tailwater, and riverine habitats.

The mobility of its hosts and/or host fish tolerance for habitats unsuitable for the pink mucket may partially account for sometimes seemingly disjunct records of the mussel in streams like the Paint Rock River in Alabama, the Bourbeuse River in Missouri, and Bear Creek in Mississippi. It is possible that these highly sporadic occurrences in otherwise well-sampled streams do not actually represent populations but are merely occurrences of low-probability events (e.g., having a highly mobile host fish carry juveniles spawned from a nearby source population shed post-metamorphosed pink mucket into suitable habitat). Without a readily accessible source population (Tennessee River, Guntersville Dam tailwaters for Paint Rock River; Tennessee River, Wilson Dam tailwaters for Bear Creek; and Meramec River for Bourbeuse and Big Rivers), the pink mucket could possibly not exist in these streams.

Using the growth ring method, qualitative age estimations from external shell growth-rest ring counts (Neves and Moyer 1988) from 36 individuals collected from Osage River, Missouri suggests that the pink mucket has a lifespan of at least 36 years (Ecological Services Inc. 2003).

It is probable the species lives several years longer considering that the growth ring method typically underestimates age compared to quantitative age determinations (thin sectioning shells) and that the older the specimen the greater the underestimate of age (Neves and Moyer 1988). Unfortunately, no empirical age data exists from thin sectioning pink mucket shells.

An experimental pond propagation study took place in early 2006 using pink mucket stock from Pickwick Landing Dam tailwater in the Tennessee River, Tennessee, and sheds light on aspects of its early life history (Don Hubbs 2009). Host fish (largemouth bass) were infested with mature glochidia teased out of a gravid female pink mucket and contained in a small pond enclosure. By late summer 2006, six juvenile individuals that had survived post-metamorphosis were released into an enclosure in their parent tailwaters to monitor survival, growth, and sexual activity. After approximately 20 months, they had all survived and grown from approximately 0.9 in length at the time of translocation to a range of 2.2-2.7 in, and were beginning to develop sexual dimorphic shell characters (apparently four females and two males). A reassessment of the grow-out experiment in March 2009 when the mussels were approaching age 3 found 100% survival and that there were indeed four females and two males. The females all had charged gills (whether with eggs or glochidia was unknown) and had grown to a length range of 2.4-2.8 in, while the males were larger at 3.1 and 3.2 in (Bob Butler 2010). From this age and growth data, it appears that at least female pink mucket reach sexual maturity at age 2+. Growth is rapid for the first few years, especially in males. In general, mussel growth slows considerably after the first few years, presumably when individuals become fully mature, with energy instead going towards gamete production and development (Baird 2000).

Orangefoot pimpleback

The orangefoot pimpleback is found in medium to large rivers with sand and gravel substrates (USFWS 1984). The reproductive cycle of the orangefoot pimpleback is likely similar to that of other native freshwater mussels. Males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The mussel glochidia are released into the water, and within a few days they must attach to the appropriate species of fish, which they parasitize for a short time while they develop into juvenile mussels. The orangefoot pimpleback is likely a short term brooder with spawning occurring in the spring and release of glochidia during summer months (USFWS 1984). Wilson and Clark (1914) collected two gravid females in early June. Utterback (1915) reported the orangefoot pimpleback to be a summer breeder and Yokley (1972a) observed one specimen with gills charged in August.

The glochidia of the orangefoot pimpleback have not been described, but the sexual glands and soft parts are usually pinkish in color and also grayish or brown (Service 1984). The glochidia have been observed to be pale orange in June (Hubbs 2010b). It is probable that the glochidia are semi-oval, and hookless, similar to those in the closely related species, sheepnose (*Plethobasus cyphyus*) (Ortmann 1912, 1919).

Specific glochidial hosts for this species are unknown; however, the sauger (*Stizostedion canadense*) is reported by Surber (1913) and Wilson (1916) to be the fish host for the orangefoot pimpleback. The Kentucky Department of Fish and Wildlife Resources, under the direction of Dr. Monte McGregor is planning studies to identify the species' fish host(s) and other life history

aspects, and is maintaining captive individuals at their Center for Mollusk Conservation in Frankfort, Kentucky.

Population dynamics

Population size - fat pocketbook

Little is known on the population dynamics of the fat pocketbook; however, relatively dense populations do occur in portions of the St. Francis River drainage in Arkansas and Missouri, and sporadically elsewhere, but extensive surveys have not been conducted. Surveys conducted within the last 5-10 years in the lower Ohio River that have recorded this species, are usually targeted at specific projects (e.g., fleeting areas, loading/unloading facilities, Corps dredging needs, and sand and gravel dredging operations), or records have been obtained from commercial mussel fishermen working that portion of the lower Ohio River near Paducah, Kentucky, and Metropolis, Illinois. Based on these more recent records, it appears the fat pocketbook may be somewhat more common than previously believed in this reach of river, but no quantitative assessment is available. Many of these records are of young individuals (i.e., <5 years), so it is apparent the species has been able to successfully recruit in recent years.

Population size - pink mucket

Despite its wide range in historical times, the pink mucket has apparently always been an uncommon species (Ortmann 1919, Johnson 1980, Service 1985b). Most literature records report very low population numbers. In addition, only 11 of 232 Ohio State University Museum of Zoology (OSUM) pink mucket records rangewide, over several decades, contained more than 10 specimens. All 11 of these OSUM lots represented collections made ca. 1980 from commercial sheller's cull piles in lower Tennessee and middle Cumberland Rivers, meaning the records represented protracted spatial and temporal collections from harvesting along several mile river reaches over extended collecting periods (L.M. Koch 2009).

Pink muckets collected during surveys tend to be large, old adult animals. Smaller juveniles or subadults are rarely if ever found in the vast majority of populations, despite recent quantitative quadrat sampling in several streams. If the species' rate of recruitment is characteristically very low (which there is no empirical data to support), this would at least partially explain the typical lack of evidence for recruitment that most populations exhibit. It is entirely possible that many of the populations now considered extant have recruitment rates that are below population maintenance levels if they don't suffer from outright recruitment failure. Below population maintenance levels indicate that a population is below the threshold of sustainability and that the population is in decline. Unless this downward population trend is arrested or reversed, the ultimate result will be extirpation. Considering the advanced age the pink mucket attains (36+ years), non-recruiting populations may take decades to become extirpated. Therefore, it may not be known whether most populations are viable or not for many years to come (Bob Butler 2010).

The tendency of pink mucket to inhabit larger streams and oftentimes deeper water habitats may partially account for apparent rareness, since most collectors historically were unable to sample these habitats effectively. But recruitment rates may play a significant role in dictating relative population size. Current pink mucket recruitment rates would appear to be very low given the scant evidence we have for the presence of juveniles in many populations and despite

considerable effort expended conducting quantitative sampling. Considering the species longevity and the fact that it has always appeared to be an uncommon species, it is possible that recruitment rates are naturally low for pink mucket. If true, having a low rate of recruitment would make populations inherently more susceptible to extirpation when factors act in concert to further compromise the already low recruitment level (Bob Butler 2010).

A contributing factor to the pink mucket being a rare species, is the fact that its inhabited range is a fraction of what it was historically (over a 100 years ago), having lost several thousand miles of large river habitat to habitat degradation. Considering the huge loss of range, it is likely the current total population size of pink mucket represents a small proportion of its historical numbers. Unfortunately, very little quantifiable information is available for estimating population size for this species either historically or currently (Bob Butler 2010).

Population size - orangefoot pimpleback

Historical records for the orangefoot pimpleback indicate this species is strictly an Ohioan or Interior Basin species (i.e., Ohio, Cumberland and Tennessee river drainages) (Ortmann, 1919). Populations of the orangefoot pimpleback continue to occur in the lower Ohio River and in the Tennessee River, while the best remaining population of the species occurs in the lower, free-flowing reach of the Ohio River, and in the riverine portion of Kentucky Lake downstream of Pickwick Landing Dam in Tennessee.

Hubbs (2010b) recently collected two individuals from the Pickwick Landing Dam tailwater that were approximately seven years in age, demonstrating recruitment in this Tennessee River population of the orangefoot pimpleback. It is not known if any genetic interchange is occurring between the two populations in the Ohio and Tennessee Rivers. The Cumberland River does not currently contain a known viable population of the species, but individuals may still exist there in low numbers (Widlak 2010).

No new populations of orangefoot pimpleback have been discovered and populations have not yet been reestablished in historic habitat. The lower French Broad River and lower Holston River have, however, been recently designated for establishment of nonessential experimental populations of the species. When the orangefoot pimpleback is collected during surveys, older, often eroded, adult specimens of this species are sampled (Widlak 2010).

Population variability - fat pocketbook

Little is known on the population variability of the fat pocketbook; however, in recent years in the lower Ohio River, young individuals may comprise the majority of a population. Densities are often so low that only a few individuals of various age groups comprise the population.

Population variability - pink mucket

Little is known on the population variability of the pink mucket. Few individuals are observed during survey efforts, making it difficult to accurately assess populations. Densities are often so low that only a few individuals may comprise a population.

Population variability - orangefoot pimpleback

This species is considered extremely rare wherever it is found. Little is known on the population variability of the orangefoot pimpleback. Few individuals are observed during survey efforts, making it difficult to accurately assess populations. In the Tennessee River, the Pickwick Landing Dam tailwater supports the only known population in which recent recruitment has been observed. The Tennessee Wildlife Resources Agency collected a seven year old individual at TRM 170 in the vicinity of Swallow Bluff Island in 2009. Finding mussels of this early age indicates that some level of recruitment is occurring in this reach of the Tennessee River (Don Hubbs 2010a). During a June 17-21, 2008 pre-project survey at TRM 160.7, one orangefoot pimpleback was collected and comprised <0.001 percent of the total species composition (11,090 native mussels, representing 17 species) (Shaw 2010).

Population stability - fat pocketbook

The stability of fat pocketbook populations is not well known; however, there have been examples of this species recolonizing areas that have been dredged in ditches in Arkansas. In most locations, the presence of fat pocketbooks is evident from occasional individuals or a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Population stability – pink mucket

The stability of pink mucket populations is not well known. In most locations where this species appears to be present, the presence of pink muckets is evident from occasional individuals or only a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Population stability – orangefoot pimpleback

The stability of orangefoot pimpleback populations is not well known. In most locations where this species appears to be present, the presence of orangefoot pimplebacks is evident from occasional individuals or only a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Status and distribution

Reasons for listing - fat pocketbook

The primary causes for the decline of the fat pocketbook in its historic range are from navigation (e.g., maintenance dredging) and flood control activities on the rivers where it was once found (USFWS 1989). Channel dredging is a direct impact that physically removes fat pocketbooks from their habitat. Dredging activities can affect aquatic systems both physically (e.g., accelerated erosion, decreased habitat diversity, increased bedload, and increased habitat instability) and biologically (e.g., altered behavior of host fish from changing flow patterns, decreased biomass, and altered species composition and abundance) (USEPA 2007). Construction of impoundments for flood control in the river basins in which fat pocketbook had been collected has caused a loss of fat pocketbook habitat from inundation, changes in flow

distributions, and sedimentation. Reductions in water quality (metals, pesticides, and other pollutants) from point sources discharges also have likely affected mussel populations. However, with the implementation of the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System in 1972, industrial discharges have been regulated, and point source pollutants have significantly declined in the large river systems, in which the fat pocketbook is reported. Non-point source pollution (stormwater runoff that includes complex mixtures of pesticides, fecal coliform bacteria, metals, suspended solids, and pharmaceuticals) may also have had a negative impact on mussel populations downstream of agricultural and urban areas, although the possible effects have not been adequately researched. Other causative factors in the decline of the fat pocketbook include competition of food and habitat resources with the invasive zebra mussel (*Dreissena polymorpha*) in some portions of their range (NPS 2006, Hunter et al. 1996, Scholesser et al. 1996). Zebra mussels were found to be a contributing factor in the decline of unionids located downstream of the Belleville Locks and Dam (EA 2005).

Reasons for listing - pink mucket

The recovery plan for the pink mucket provides reasons for listing this species including: impoundments, siltation, and pollution (USFWS 1985b). Impoundments alter flow, temperature regimes, and water quality and habitat conditions creating conditions unsuitable for riverine mussels and/or their host fish. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. Currently, the vast majority of the pink mucket's historical range has been altered and no longer offers suitable habitat (approximately an 80% loss). Despite the relatively large number of extant populations for a federally listed mussel, the total population size for pink mucket, although undetermined, appears to be relatively small based on significant loss of total range, infrequent occurrence in otherwise suitable habitat, very low relative abundance compared to other mussels, and overall rarity of the species). With few exceptions, its 29 extant populations are: 1) invariably small (rarely are more than one or two individuals found per sample and a third of its populations are known from only one or two animals collected over the past 25 years), 2) characteristically rare (having low relative abundance), 3) sporadically or occasionally distributed (despite the extent of seemingly suitable habitat it is very patchy in distribution and occurrence), 4) generally limited in linear extent (most less than 30 RMs), and typically lacking evidence for recent recruitment (despite considerable quantitative sampling efforts). With many disjunct populations and its overall scarcity, the species is highly susceptible to localized extirpations from the genetic implications of extremely low population size and because of threats that are extremely difficult if not impossible to control. Stochastic events are a real concern for all populations, particularly reach-limited ones and those associated with navigation channels and other major transportation arteries (Bob Butler 2010).

Reasons for listing - orangefoot pimpleback

The recovery plan for the orangefoot pimpleback provides reasons for listing this species including: impoundments, siltation, and pollution. Impoundments alter flow, temperature regimes, and water quality and habitat conditions creating conditions unsuitable for riverine

mussels and/or their host fish. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. The orangefoot pimpleback is an extremely rare mussel. Generally, only one or two individuals are collected, if any, in suitable habitat supporting an abundance of other mussel species. Historically, it had a relatively restricted distribution in that the species was only reported from the Ohio, Tennessee and Cumberland rivers and their larger tributary streams (USFWS 1984). Alteration and destruction of habitat, due to creation of impoundments for flood control, navigation, hydroelectric power production and recreation, and activities resulting in siltation which affected substrate quality (e.g., navigation traffic, sand and gravel mining), led to the listing of the orangefoot pimpleback; these impacts continue to affect the species' habitat (USFWS 1984; James Widlak 2010). The orangefoot pimpleback is not a species that is collected for commercial purposes; however, commercial mussel harvest may have contributed to some decline in populations due to the species being unintentionally collected along with commercially valuable species. However, these impacts are believed to be minor in regards to declining population levels. Due to the rarity of the species and only sporadic finds of one or two individuals, the Service believes that the orangefoot pimpleback should remain an endangered species (Widlak 2010).

Rangewide trend - fat pocketbook

Although the fat pocketbook was historically widespread within much of its original range, populations of this species and its range have declined in the last 50 years. The main reason for decline of the species is channelization, impoundment and dredging of rivers, but contributing factors include siltation and pollution, and possibly range reductions of fish hosts (USFWS 1989, 1997). More recently, infestations of the exotic invasive zebra mussel are contributing to the decline of all native Unionid mussels (Layzer et. al. 1996, Ricciardi et. al. 1998). Because of the severe reduction in range of the species, the fat pocketbook was listed as an endangered species on June 14, 1976. No estimate of the total population was included in the 1985 recovery plan (USFWS 1985).

The historic range of the species includes the upper Mississippi River above St. Louis; the Ohio River; the Wabash and White Rivers in Indiana; the St. Francis, White, and Black Rivers in Arkansas; the Spoon and Illinois Rivers in Illinois; the Des Moines and Iowa Rivers in Iowa; the Cumberland River in Kentucky; and the Neosho River in Kansas. It was also reported in the Des Moines River (Missouri) and the Illinois River. Since 1970, it has been collected from the St. Francis River and Right Hand Chute Little River and drainage ditches associated with these streams in Arkansas and Missouri, the lower Wabash and White Rivers in Indiana, the lower Ohio River, lower Tennessee River and lower Cumberland River in Kentucky, and the upper Mississippi River. Live and fresh-dead fat pocketbook specimens have been found at various locations in the Mississippi River from the mouth of the St. Francis (MRM 669), above Helena, Arkansas, downstream to just below Vicksburg, Mississippi (MRM 427). Additionally, they have been found in abandoned channels within batture lands as far south as Natchez, Mississippi (MRM 385), however, there have been no main channel searches for the species below MRM 427 (Paul Hartfield, 2008). The species is present in low densities at appropriate sites in at least 300 miles of the Lower Mississippi River between Natchez, Mississippi, and Memphis,

Tennessee (Paul Hartfield, 2008). A single fat pocketbook was collected in 2003 from the White River in Arkansas near river mile 11, the first collection in that river since the 1960's (Harris and Christian 2003). The largest viable population currently exists in the St. Francis River system (Arkansas); however, other viable populations likely exist in the Wabash, Ohio, or Cumberland Rivers (USFWS 1989, 1997). In 1987, during a survey of the unionid fauna of the Wabash River drainage, nine live fat pocketbooks were found in the lower part of the river. Subsequent surveys of the Wabash River detected populations of various sizes at sample sites from the confluence with the Ohio River upstream to Knox County, Indiana (Cummings et al. 1990). Based on the results of these surveys, the population of fat pocketbooks in the lower Wabash River appears to be viable and large relative to other sympatric mussels. Fresh dead specimens (e.g., surveyors collected shells from mussels that had recently died) have been found occasionally in the lower Ohio River (e.g., Ohio River miles 848 and 938) since the late 1980s. The fat pocketbook is currently known to occur in several locations in the lower Ohio River from J.T. Myers Lock and Dam (ORM 846) downstream to the mouth of the Ohio River (ORM 981), a reach of approximately 135 miles. However, a recent record of the fat pocketbook has been recorded from the Ohio River near the mouth of the Green River, approximately 65 upstream of the J.T. Myers Lock and Dam (Chad Lewis, 2008). This 2008 record at Ohio River Mile 784 indicates the fat pocketbook also occurs in the J.T. Myers pool. It is not known to what extent this species is distributed in the J.T. Myers pool.

Rangewide trend – pink mucket

The pink mucket is an Ohioan species with possibly the widest range known for a listed mussel. It is a rare larger-stream mussel that was widely distributed historically in at least 48 large rivers in 12 states. Presently, known populations occur in the Barren River, Big River, Black River, Clinch River, Cumberland River, Current River, Gasconade River, Green River, Kanawha River, Little Black River, Meramec River, Ohio River, Osage River, Paint Rock River, and Tennessee River (USFWS 1985; Parmalee and Bogan 1998). Of these extant populations, only a few have shown recent evidence of recruitment. Some taxonomists have recently postulated that the reproducing populations west of the Mississippi River are not *Lampsilis abrupta*, but rather are more closely related to another endangered species, the Higgins eye pearly mussel (*Lampsilis higginsi*). If this is true, then there are fewer known reproducing populations of *L. abrupta* than originally thought. Although it has a relatively wide distribution and is apparently more tolerant of reservoir-type habitat conditions than other listed mussel species, the pink mucket is reported to occur in low numbers where it occurs.

Currently, 29 populations are considered extant. With few exceptions, the 29 extant populations are extremely small and occur in relatively short river reaches despite the extent of seemingly suitable habitat in many streams. Further, over one-third of its populations deemed extant are very sporadic in occurrence and known from only one or two individuals collected over approximately the past 25 years (e.g., Licking, French Broad, Clinch, Paint Rock, Sac, Bourbeuse, St. Francis, Current, Eleven Point Rivers; Bear Creek). A majority of populations are essentially limited to discrete reaches making the species in these streams highly susceptible to elimination from catastrophic stochastic events (Bob Butler 2010).

Rangewide trend – orangefoot pimpleback

The orangefoot pimpleback was historically known from the Ohio River (from western Pennsylvania to southern Indiana), the Wabash River (below Mt. Carmel, Illinois), the Cumberland River (from Cumberland County, Kentucky to near Nashville, Tennessee), the lower Clinch River (Anderson County, Tennessee) and the Tennessee River (near Knoxville to Benton County, Tennessee) and has also been reported from the Caney Fork, Holston, and French Broad Rivers in Tennessee, and the Green and Rough Rivers in Kentucky (NatureServe 2003). The largest known populations remain in the lower, free-flowing reach of the Ohio River downriver from the confluence of the Tennessee River at Paducah, and a short reach of the Tennessee River below Pickwick Landing Dam (USFWS 1984, Miller et al. 1986). The Cumberland River may continue to support individuals of the species, but none have been collected from that system in recent decades. The Service (Code of Federal Regulations 2007) is currently planning future releases of the orangefoot pimpleback into the lower French Broad and lower Holston Rivers Experimental Population Area, under a Nonessential Experimental Population designation to further the recovery and conservation of the species.

Live orangefoot pimplebacks have recently been recovered from commercial mussel harvesters in the vicinity of the lower Ohio River near Lock and Dam 52. Several of these individuals are currently being held by the KDFWR to be used for propagation and reintroduction purposes in the near future. Surveys of mussel beds in the lower Ohio River from July through October 2007 yielded 24 orangefoot pimplebacks (Widlak 2010). The TWRA collected a seven year old individual at TRM 170 in the vicinity of Swallow Bluff Island in 2009 and have collected several seven and eight year old orangefoot pimpleback mussels in the Pickwick Landing Dam tailwater in recent years, indicating that some level of recruitment is occurring in this reach of the Tennessee River. The orangefoot pimpleback also continues to be found in the lower Tennessee River downstream of Kentucky Dam, but no recruitment of the species has been recently noted in Kentucky waters (Lewis 2008). This individual, 3.1 inches in length, was discovered on June 18, 2008 during a pre-project survey of the proposed project area.

New threats

The zebra mussel, an exotic species that colonizes the shells of native mussels, is a relatively new threat to mussels including the fat pocketbook, pink mucket, and orangefoot pimpleback. It is present in the Ohio River and has been observed attached to native mussels, including these three species, and can restrict the ability of a mussel to move, feed, respire, and reproduce, especially if large numbers are present on the shell of the native mussel.

Analysis of the species/critical habitat likely to be affected

The fat pocketbook, pink mucket, and orangefoot pimpleback mussels are the only federally listed species likely to be adversely affected in the action area of this project. No critical habitat has been designated for these mussel species; therefore, none will be affected.

ENVIRONMENTAL BASELINE

Status of the species within the action area

A reconnaissance mussel survey was performed during August 5 – 8, 2008 in two portions of the river from near Ohio River Mile (ORM) 935.7 (Burnett Street Boat Ramp) and 934.7 (Schultz Park Expansion).

Fat pocketbook

The reconnaissance survey recorded a total of 21 live fat pocketbook mussels, six from the Burnett Street Boat Ramp area and 15 from the Schultz Park Expansion area. This species has also been recorded from other survey efforts within two to three miles both upstream and downstream of the action area. In the Ohio River, fat pocketbooks are known to occur primarily from the mouth of the Wabash River (ORM 848) downstream to the mouth of the Ohio River (ORM 981), a reach of approximately 133 miles; however, recent mussel surveys have extended the known distribution of this species in the Ohio River approximately 64 miles upstream of the mouth of the Wabash River (ORM 784) (Chad Lewis, 2008, personal communication). Throughout this portion of the Ohio River, the fat pocketbook is not evenly distributed and is likely to be found only in sites containing suitable habitat conditions. It is not known how much suitable fat pocketbook habitat exists in the lower Ohio River. Mussel surveys that have been conducted in recent years in this 135-mile reach of river occasionally record the fat pocketbook; however, these surveys do not give a complete assessment of the available habitat or the status of the species. Surveys conducted within the last 5-10 years that have recorded this species are usually targeted at specific projects (e.g., fleeting areas, loading/unloading facilities, Corps dredging needs, and sand and gravel dredging operations), or records have been obtained from commercial mussel fishermen working that portion of the lower Ohio River near Paducah, Kentucky, and Metropolis, Illinois. Considering the widespread distribution of fat pocketbooks in the Mississippi River and certain tributaries to the Mississippi River, the Ohio River distribution is in itself a small subset of the overall range of this species.

Pink mucket

A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels such as the pink mucket, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site. The reconnaissance mussel survey did not record any pink muckets; however, it is likely that the pink mucket occurs in the action area. The pink mucket has been recorded in the Ohio River within two to three miles of the action area, the mussel species assemblage in the action area is one in which the pink mucket is often associated, and portions of the action area contain suitable habitat.

Orangefoot pimpleback

A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels such as the orangefoot pimpleback, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site.

The reconnaissance mussel survey did not record any orangefoot pimpleback mussels; however, it is likely that this species occurs in the action area. The orangefoot pimpleback has been recorded in the Ohio River within two to three miles of the action area, the mussel species assemblage in the action area is one in which this species is often associated, and portions of the action area contain suitable habitat.

Factors affecting species environment within the action area

The habitat conditions within the action area consist primarily of sand, soft silt over sand, and small areas of gravel and/ or clay. Other factors possibly affecting the species environment in the action area include runoff from agriculture activities which can increase turbidity and add sediment, including possible contaminants from urban runoff, dams which can affect host fish movement and habitat conditions, sewer outfalls, and industrial complexes located upstream in the Ohio, Cumberland, and Tennessee Rivers. Barge traffic will continue to operate in the river channel riverward of the project footprint; however, barge groundings or 'parking' on the shoreline is expected to cease once the project is constructed.

Previous Incidental Take Authorizations

Fat pocketbook

Fifteen prior formal consultations involving the fat pocketbook have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA) and United States Forest Service (USFS). However, the formal consultation with the USFS did not authorize any incidental take of fat pocketbooks. Of the fourteen biological opinions issued by the Service authorizing incidental take of fat pocketbooks, nine were issued to the USACE primarily for maintenance dredging activities, barge fleeting/loading/unloading facilities, for bank stabilization, levee setback and bridge construction activities. Five biological opinions authorizing incidental take were issued to the FHWA for bridge replacement and construction and for scour repair. These biological opinions were issued between 1999 and 2009. A summary of these formal consultations is discussed below and provided in Appendix A.

The fourteen incidental take statements have authorized the loss of about 602 individuals, an indeterminate number of small individuals, the relocation of more than 3,257 individuals, and the placement of nine gravid female fat pocketbooks into a propagation facility. Seven of the biological opinions authorized take of fat pocketbook from relocation. The largest relocation authorized by these biological opinions allowed the relocation of up to 3,000 individuals prior to the start of maintenance activities on Stateline Outlet Ditch in Arkansas. The actual relocation was performed in 2002 and involved the relocation of 2,042 fat pocketbooks. Results from a 2005 post-relocation survey of this reach found the area re-populated with fat pocketbooks and at densities higher than those found during the pre-impact survey.

Service programmatic biological opinions in Regions 3 and 4 regarding section 10(a)(1)(A) permits for mussel species, including fat pocketbook, anticipate the incidental take of five individuals per year, per permit. There have been two reports of incidental take in the form of injury or death reported by two permittees in Kentucky in recent years; both were for less than five individuals.

The amount of actual take of fat pocketbook associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels in a dredge pile are time-consuming and costly and are, therefore, not routinely recommended.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the fat pocketbook appears to be doing well range-wide and within impacted reaches such as Arkansas' Stateline Outlet Ditch. This coupled with the recent discoveries of previously undocumented populations of fat pocketbook and the Service's internal analysis, the Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the fat pocketbook have not degraded the overall conservation status (i.e., environmental baseline) of the fat pocketbook.

Pink mucket

Thirty-five prior formal consultations involving the pink mucket have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA), Federal Energy Regulatory Commission (FERC), U. S. Fish and Wildlife Service (USFWS), Tennessee Valley Authority (TVA), Nuclear Regulatory Commission (NRC), and Natural Resources Conservation Service (NRCS). A summary of these formal consultations is discussed below and provided in Appendix B.

The incidental take statements from the above mentioned consultations have authorized the loss of about 37 acres of habitat, 246 individuals, an indeterminate number of individuals from several consultations indicating all individuals will be taken within a project area, and the relocation of five individuals. The amount of actual take of pink muckets associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels taken were not always given.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the pink mucket appears to be persisting range-wide. The Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the pink mucket have not degraded the overall conservation status (i.e., environmental baseline) of the pink mucket.

Orangefoot pimpleback

Nineteen prior formal consultations involving the orangefoot pimpleback have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA), U. S. Fish and Wildlife Service (USFWS), and Tennessee Valley Authority (TVA). A summary of these formal consultations is discussed below and provided in Appendix C.

The incidental take statements from the above mentioned consultations have authorized the loss of about seven acres of habitat, 58 individuals, and an indeterminate number of individuals from several consultations indicating an unknown number of individuals will be taken within a project area. The amount of actual take of orangefoot pimpleback mussels associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels taken was not always given.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the orangefoot pimpleback mussel appears to be persisting in the lower Ohio River and selected portions of the Tennessee River in Kentucky and Tennessee. The Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the orangefoot pimpleback have not degraded the overall conservation status (i.e., environmental baseline) of the orangefoot pimpleback.

EFFECTS OF THE ACTION

Factors to be considered

This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat and its interrelated and interdependent activities. While analyzing direct and indirect effects of the proposed action, the Service considered the following factors:

- Proximity of the action – We describe known species locations and designated critical habitat in relation to the action area and proposed action;
- Distribution – We describe where the proposed action will occur and the likely impacts of the activities;
- Timing – We describe the likely effects in relation to sensitive periods of the species' lifecycle;
- Nature of the effects – We describe how the effects of the action may be manifested in elements of a species' lifecycle, population size or variability, or distribution, and how individual animals may be affected;
- Duration – We describe whether the effects are short-term, long-term, or permanent;

- Disturbance frequency – We describe how the proposed action will be implemented in terms of the number of events per unit of time;
- Disturbance intensity – We describe the effect of the disturbance on a population or species; and
- Disturbance severity – We describe how long we expect the adverse effects to persist and how long it would it take a population to recover.

Proximity of the action:
The proposed action will occur upstream of Lock and Dam 52 on the Kentucky side of the river near approximately Ohio River Mile 934.7 to 935.8, extending from the Kentucky shore out to the navigation channel. The proposed action area is known to contain fat pocketbooks and likely to contain pink muckets and orangefoot pimplebacks. Fat pocketbooks are known to be present in the project footprint portion of this reach in which a mussel survey was conducted. The pink mucket and orangefoot pimpleback likely occur within the project footprint and/or larger action area, because of their close proximity to the site, the occurrence of suitable habitat, and the associated mussel assemblage present in the action area.

Distribution:
Direct impacts to the fat pocketbook, pink mucket, and orangefoot pimpleback mussels and their habitats will most likely occur within the project footprint and in other portions of the action area downstream and riverward of the project footprint. It is expected that the greatest impacts will be from the new fill to provide the terrestrial area at the Schultz Park Expansion site. Other potential impacts will be from changes to the surrounding riverine habitat from flow changes due to the fill, the presence and operation of the marina, and boat traffic activity at and near the project sites.

Timing:
The proposed action can be divided into essentially two periods, a construction phase and an operation phase. Depending on when the actual construction occurs, the construction may impact the fat pocketbook, pink mucket, and orangefoot pimpleback mussels during sensitive periods of their life cycle.

The fat pocketbook and pink mucket are thought to become gravid in the late summer or fall and brood glochidia over the winter (long-term brooders), and then release them in the spring. Sensitive periods (late summer-fall) for adults include the release of sperm into the water column and, for females, the fertilization of eggs and brooding of larvae as they transform into glochidia. Another sensitive period for female mussels is the time of release of glochidia and their attachment onto the fish host (spring-early summer). Sensitive periods for the juveniles include their attachment to excystment from the fish host as they drop to the riverbed and establish themselves in the substrate (spring-early summer). All these sensitive periods of the fat pocketbook and pink mucket will certainly occur during the post-construction or operation period and into the foreseeable future. In addition, both the fat pocketbook and pink mucket may be impacted if fish host behavior and presence are affected by the construction and operation phases of the proposed action.

The orangefoot pimpleback is thought to become gravid during spring and/or summer, brood glochidia for a short period of time and release larvae in the late summer (short-term brooder). Sensitive periods in late spring-summer for adults, include the release of sperm into the water column and the fertilization of eggs and brooding of larvae. Another sensitive period for female mussels is the time of release of partially developed larvae or glochidia, and their attachment onto the fish host (summer). Sensitive periods for the juveniles include their attachment to the host fish and excystment from the host fish as they drop to the riverbed and establish themselves in the substrate (summer). All these sensitive periods of the orangefoot pimpleback will certainly occur during the post-construction or operation period and into the foreseeable future. In addition, the orangefoot pimpleback may be impacted if fish host behavior and presence are affected by the construction and operation phases of the proposed action. The fish host for the orangefoot pimpleback is not known.

Nature of the effect:
It is likely that the proposed action will have a variety of effects on the fat pocketbook, pink mucket, and orangefoot pimpleback mussels. Any of the periods of these species life cycle can potentially be disturbed or disrupted by construction and/or operation activities; however, the construction phase of fill deposition and concomitant flow changes will likely be the greatest effect. For instance, any listed mussels remaining within the filled peninsula area will be killed. The operation phase of this project is likely to result in the (a) direct and/or indirect mortality of individual adults and juveniles from boat activity, (b) dislodgement of adults and/or juveniles due to flow alterations and/or navigation activity, (c) reduction or other modification in the availability of fish hosts that is caused by degradation/alteration of habitat and that may harm and/or harass individuals through interference with respiration, feeding, and reproduction, and (d) creation of turbidity and/or deposition of sediment that may directly and/or indirectly affect adults and/or juveniles by harm and/or harassment. In addition, these species may be impacted if fish host behavior and presence is negatively affected by flow alterations, turbidity, or changes in sediment deposition.

Duration:
During the construction phase, potential impacts to the fat pocketbook, pink mucket, and orangefoot pimpleback will be direct and indirect, and remain for the duration of the construction. The effects of the operation phase are indeterminable, but any effects will likely be of a long-term duration. It is possible that the post-construction or operational phase will also result in changes to flows and other habitat conditions; however, the effects of these changes will not be known until sufficient monitoring reveals the extent and magnitude of the changes. The loss of habitat within the filled peninsula area will be permanent.

Disturbance frequency:
The construction phase disturbance will only occur once, but will result in a following unknown period of change. Any disturbances to the fat pocketbook, pink mucket, and orangefoot pimpleback produced during the operation phase are expected to occur on a regular basis with on-going boating activity. These disturbances (i.e., flow changes, increased turbidity, movement of sediment, etc.) are expected to be occur over an unknown period of time as new flow conditions alter the makeup of the river's flow characteristics, sediment removal, and/or sediment transport/deposition patterns.

Disturbance intensity:
The disturbance intensity will likely be dissimilar throughout the action area and is expected to occasionally create habitat conditions that are unfavorable for the fat pocketbook, pink mucket, and orangefoot pimpleback.

Disturbance severity:
The disturbance severity of the fill portion of the construction phase is expected to be severe and permanent. The post-construction or operation phase is expected to primarily impact fat pocketbooks, pink muckets, and orangefoot pimplebacks nearest the fill portion of the project, along the perimeter of the fill area, and in shallow water due to sedimentation. The recovery rate to these mussel species in this part of the action area is unknown. Taken as a whole, the overall disturbance severity is expected to be minor to the population of fat pocketbooks in the lower Ohio River and range-wide; minor to the pink mucket in the lower Ohio River and range-wide; and of unknown severity to the orangefoot pimpleback in the lower Ohio River and range-wide.

Analyses for effects of the action

Beneficial effects:
No wholly beneficial effects have been identified or are expected to occur. The proposed action is expected to result in adverse effects on the fat pocketbook, pink mucket, and orangefoot pimpleback populations within the Shultz Park Expansion action area.

Direct effects:
Direct effects of the proposed action on the fat pocketbook, pink mucket, and orangefoot pimpleback include harassment, harm, and mortality from construction of the fill area, flow alterations resulting from the fill area, construction of the marina, and resultant boating activities within the Shultz Park Expansion action area. In the Shultz Park Expansion action area, approximately 4.9 acres of river bottom will be covered with fill. Within this fill area, approximately three acres is known to be occupied by numerous mussel species including the three federally listed species addressed in this biological opinion. In addition, approximately 0.08 acres will be covered or displaced during the construction of the marina. It is estimated that a total of approximately 7.5 acres of habitat, 546 fat pocketbook, 9 pink mucket, and 18 orangefoot pimpleback mussels will be impacted by these activities.

Other direct effects to the fat pocketbook, pink mucket, and orangefoot pimpleback include, but are not limited to, habitat modifications such as changes in flow and dissolved oxygen concentrations due to increased turbidity, and sediment deposition which could bury mussels, especially juveniles, and cause injury and/or mortality. These effects could also restrict mussel respiration (e.g., suffocation due to inability to purge sediment from gills), limit feeding (e.g., starvation due to inability to eliminate sediment), and interfere with reproduction (e.g., abortion from stress, host fish absence during critical reproductive periods). Direct effects of mussel relocation include harm, harassment and possible mortality due to the stress of being handled, processed, and relocated. These effects can result in premature release of sperm or aborted glochidia negatively impacting reproductive success. A trained biologist that holds a collection permit from either the Service or the Kentucky Department of Fish and Wildlife Resources, and who will accomplish any relocation work, will minimize some of these effects.

In summary, the following direct effects are anticipated:

1. Mortality that is the result of a constructed fill area in occupied habitat. This action could damage, bury or crush fat pocketbook, pink mucket, and orangefoot pimpleback mussels.

2. Harm resulting from the constructed fill area, marina construction and operation, and boating activities in occupied habitat may result in mussel dislodgement, increased turbidity, flow alterations, sediment removal, sediment deposition, and decreased dissolved oxygen levels. This may affect the ability of these mussel species to respire, reproduce, and feed. Direct physical harm (e.g., damaged shell or bruised animal) could result in the death of mussels.

3. Harassment in the form of induced stress including, but not limited to, displacement of mussels during construction activities, potential degradation of remaining/adjacent habitat, and handling of mussels during relocation. This harassment could result in decreased ability of these species to respire, reproduce, and feed.

All of these direct effects can lead to reduced population levels for these mussel species in this portion of the Ohio River, which, in turn, can reduce their reproductive capacity.

Interrelated and interdependent actions:
No interrelated and interdependent actions have been identified for this project.

Indirect effects:
Indirect effects of this project on the fat pocketbook, pink mucket, and orangefoot pimpleback include changes in fish host behavior and/or presence that could impact the ability of glochidia to attach to the fish at the proper time when released from the female mussel, and changes in flow regimes and sediment transport in the action area. In summary, the following indirect effects are anticipated:

1. Mortality of adult and juvenile mussels that results from changes in the flow regime around the constructed fill area and marina, redistributing sediments that smother mussels due to new deposition, and/or that result in sediment loss creating instability and loss of habitat.

2. Harm in the form of decreased ability to respire, reproduce, and feed as a result of the redistribution of sediments resulting from changes in flow regimes and/or boating activities in occupied habitat. These activities may affect turbidity, flows, dissolved oxygen levels, and the presence of host fish during the future reproductive seasons of these mussel species.

3. Harassment in the form of induced stress including, but not limited to, potential degradation of habitat from changes in flow regimes, and handling of mussels during survey and monitoring activity. This harassment could result in the mussels decreased ability to respire, reproduce, and feed.

Species' response to a proposed action

Numbers of individuals/populations in the action area affected:

Fat pocketbook
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely fat pocketbooks occur in suitable habitat throughout the action area; however, they are not expected to be evenly distributed in the action area.

In the Burnett Street Boat Ramp portion of the action area we do not believe fat pocketbooks will be affected by the proposed action. In the Schultz Park Expansion portion of the action area we estimate that about 546 fat pocketbook mussels are present. Fat pocketbook mussels occur in the greatest densities, approximately 134 per acre, within the three acre portion of the 4.9 acre covered fill area. Densities in other portions of the Schultz Park Expansion portion of the action area are estimated at 32 per acre.

The exact number of fat pocketbook mussels in the action area is unknown. However, the total number of fat pocketbooks estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is 546. This estimate was derived from the data collected in the mussel survey. We expect the proposed action to appreciably affect the overall fat pocketbook population in the Schultz Park Expansion portion of the action area, since the three acres within the 4.9 acres of covered fill area is expected to be directly impacted. We expect the aforementioned indirect impacts to adversely affect a portion of the fat pocketbooks in the Schultz Park Expansion action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to fat pocketbooks in this area.

Pink mucket
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely pink muckets occur in suitable habitat throughout the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area; however, they are not expected to be evenly distributed within this area. Since the mussel survey did not record any pink muckets, the exact number of pink mucket mussels in this portion of the action area is currently unknown. We base our estimates below on other mussel surveys that have recently been performed in close proximity to this proposed action.

The total number of pink muckets estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is nine. We do not expect the proposed action to affect the pink mucket population in the Burnett Street Boat Ramp portion of the action area. We do expect the proposed action to affect the overall pink mucket population in the Schultz Park Expansion portion of the action area. The covered fill area is estimated at 4.9 acres, of which three acres consists of known mussel habitat where pink mucket mussels likely occur. We expect the aforementioned indirect impacts to adversely affect pink mucket mussels in the Schultz Park Expansion portion of the action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to pink muckets in this area.

Orangefoot pimpleback:
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely orangefoot pimplebacks occur in suitable habitat throughout the Burnett Street Boat Ramp and Schultz Park Expansion portions of action area; however, they are not expected to be evenly distributed in this portion of the action area. Since the mussel survey did not record any orangefoot pimplebacks, the exact number of orangefoot pimpleback mussels in the action area is currently unknown. We base our estimates below on two other mussel surveys that have recently been performed in close proximity to this project.

The total number of orangefoot pimplebacks estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is 18. We do not expect the proposed action to affect the orangefoot pimpleback population in the Burnett Street Boat Ramp portion of the action area. We do expect the proposed action to affect the overall orangefoot pimpleback population in the Schultz Park Expansion portion of the action area. The covered fill area is estimated at 4.9 acres, of which three acres consists of known mussel habitat where orangefoot pimpleback mussels likely occur. We expect the aforementioned indirect impacts to adversely affect orangefoot pimplebacks in the Schultz Park Expansion action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to orangefoot pimplebacks in this area.

Sensitivity to change:

The degree to which the fat pocketbook, pink mucket, and orangefoot pimpleback are prone to change when disturbed is unknown. These three species are thought to be relatively sedentary within the substrate. As a result, they are likely unable to respond to change by moving great distances; however, it is possible they could move several meters. When disturbed, mussels, in general, tend to close their valves for a period of time; however, this response will vary depending on the disturbance. Mussels exposed to disturbance events will likely close their valves when disturbed and remain closed if continued to be disturbed. They are not likely to move out of the area of disturbance on their own because of their inability to move great distances in a short period of time and because their valves will likely remain closed.

Resilience:

Resilience relates to the characteristics of populations or a species that allow them to recover from different magnitudes of disturbance. Assuming that the flow characteristics and habitat conditions in the action area are not appreciably changed, the magnitude of disturbance is expected to be low and resilience is not expected to change from its current level. However, this can only be determined through monitoring of the population and habitat over time.

Recovery rate:

In this biological opinion, the recovery rate relates to the time required for a fat pocketbook, pink mucket, and orangefoot pimpleback individual or population to return to equilibrium after exposure to a disturbance. Mussel populations are expected to continue to spawn and recruit new individuals into the population; however, the level of successful recruitment to the adult

stage is unknown, especially in areas that may be subjected to repeated degradation (i.e., the shallow, near-shore areas). The recovery rate for these three mussel species is likely to vary within the action area.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future, State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Private actions in the vicinity of the action area are primarily urban and agriculture-related activities. We are reasonably certain these actions will continue and do not expect these activities to change appreciably in the future from current conditions. Effects from urban and agricultural activities on fat pocketbooks, pink muckets, and orangefoot pimplebacks, could include increased sediment deposition, turbidity, and herbicide/pesticide levels in localized portions of the Ohio River. However, these effects, if they are occurring, are indeterminable. Private boating and commercial navigation activities also occur in the Ohio River and are expected to continue, but they are not expected to result in additional adverse effects even though they could potentially result in increased turbidity, physical disruption of habitat, and spills of petroleum products. Essentially, we cannot predict that these specific types of adverse effects will occur.

We are not aware of any other State, tribal or local actions to include under Cumulative effects.

CONCULSION

After reviewing the current status of the fat pocketbook, pink mucket, and orangefoot pimpleback, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of these species, and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to

listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps, so that they become binding conditions of any grant, permits or contracts, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the Corps (and ultimately the Corps Permittee, Shawneetown Harbor Service, Inc.) (1) fails to assume and implement the terms and conditions or (2) fails to require the Permittee to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the grant, permit or contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement. [50 CFR § 402.14 (1)(3)]

AMOUNT OF TAKE EXPECTED

The Service expects that 7.5 acres of habitat could be taken as a result of this proposed action. The 7.5 acres of habitat estimated to be taken includes 3.0 acres from direct fill, and 4.5 from indirect impacts including marina construction and operation, potential long-term sedimentation, and habitat disturbance.

The Service expects that 546 fat pocketbook mussels, nine pink mucket mussels, and 18 orangefoot pimpleback mussels will be taken as a result of this proposed action.

In the "Analyses for effects of the action" section above, the Service determined that the proposed action would result in incidental take through (a) direct mortality as a result of the Schultz Park expansion fill area and relocation of any fat pocketbook, pink mucket, and orangefoot pimpleback mussels; (b) harm from construction activities that will likely result in (1) physical harm (i.e., cracked shell, bruising) to mussels that were not included in the relocation, (2) negative effects of sedimentation that could entomb, starve, and/or suffocate individuals, (3) loss and/or degradation of habitat, (4) relocation efforts, and (5) disruption of host fish availability at key times during the reproductive cycle; and (c) harassment as a result of disruption in reproductive capabilities by, but not limited to, the spontaneous abortion of glochidia during relocation and/or monitoring efforts, individuals being dislodged downriver into unsuitable habitat, and potentially low dissolved oxygen levels.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of expected take is not likely to result in jeopardy to the species or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of fat pocketbooks.

1. The FHWA must ensure that the proposed action will occur as designed, planned, and documented in the BA, all supporting information provided by the City of Paducah, and this biological opinion.

2. The FHWA must ensure that the City of Paducah has a plan to replace fat pocketbooks, pink muckets and orangefoot pimplebacks likely to be taken by the proposed action.

3. The FHWA must ensure that the City of Paducah implements measures to minimize or eliminate impacts of the Burnett Boat Ramp and Schultz Park Expansion sites to fat pocketbooks, pink muckets, and orangefoot pimplebacks.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Act, the FHWA and City of Paducah must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The FHWA and/or City of Paducah must agree to implement the proposed action as described in the BA, including mussel conservation measures listed in this biological opinion that are referred to in the BA, the BA's supporting documentation, and this biological opinion (see "Mussel Conservation Measures" section above). **This Term and Condition supports RPM 1 and 3.**

2. The FHWA and/or City of Paducah shall develop a Mussel Relocation Plan and obtain the Service's prior written approval of the plan, prior to relocating fat pocketbook, pink mucket, orangefoot pimpleback mussels, and other mussel species, before any new construction activity occurs at or below the ordinary high water level. This plan will include a mussel relocation effort from within an area approximately three acres in size at the Schultz Park Expansion action area. We estimate that 8,200 mussels occur in this three acre area. It is not expected that all mussels in the entire area will likely be relocated; however, the Service believes that if approximately 50 percent of mussels in this area are relocated that will be an adequate level of relocation effort. This effort should be targeted at the three federally listed species addressed in this BO and other

species that are similar in appearance to the federally listed species. This Mussel Relocation Plan will also include a baseline 'monitoring' component. Future monitoring efforts are addressed in Terms and Conditions #3 below. All federally listed mussels will be tagged and either relocated to a nearby area of suitable habitat that is protected from navigation and fleeting activity, as indicated in the Mussel Relocation Plan, or as directed by the Service, to the KDFWR to be used in propagation and culture activities at the KDFWR Center for Mollusk Conservation in Frankfort, Kentucky. **This Term and Condition supports RPM 1.**

3. The FHWA and/or City of Paducah shall contribute **$20,000** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF)to be used for monitoring at the Schultz Park Expansion area, and the site relocated mussels will be placed. Monitoring will be done two years and five years after the baseline monitoring described in Terms and Condition #1 is completed. The total contribution of $20,000 shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite 217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. **This Term and Condition supports RPM 1.**

4. The FHWA and/or City of Paducah shall contribute a total of **$94,050** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF) following issuance of this biological opinion and prior to initiating any construction below the ordinary high water level. This contribution will provide mussel habitat impact minimization and includes both direct and indirect impact to habitat. These funds will be used for the preservation, creation, enhancement, and/or protection of federally listed mussel habitat in the lower Ohio River. The total contribution of $94,050 shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite 217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. **This Term and Condition supports RPM 3.**

5. The FHWA and/or City of Paducah shall contribute **$285,000** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF) following issuance of this biological opinion and prior to any construction below the ordinary high water level. These funds will be used in recovery efforts for the three federally listed mussels addressed in this biological opinion, thereby minimizing the take expected to occur on this project. The contribution shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite

217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. The contribution shall be made within 15 weekdays of the completion of the relocation effort. **This Term and Condition supports RPM 2.**

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Law Enforcement Office at 601 W. Broadway, Suite 115A, Gene Snyder Courthouse, Louisville, Kentucky 40202 (phone 502/582-5989 extension 21). Additional notification must be made to the Fish and Wildlife Service Ecological Services Field Office at 330 West Broadway, Room 265, Frankfort, Kentucky 40601 (phone 502/695-0468). Care should be taken in handling sick or injured mussels. All federally listed mussels that are moribund or have died recently are to be preserved according to standard museum practices (preferably kept frozen and/or preserved in 95% ethyl alcohol and then frozen), properly identified or indexed (date of collection, complete scientific and common name, latitude and longitude of collection site, description of collection site), and submitted to the Kentucky Ecological Services Field Office in Frankfort, or to another location if instructed by the KYFO.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than **546 fat pocketbooks, 9 pink muckets, 18 orangefoot pimplebacks**, and **7.5 acres** of occupied federally listed mussel habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. In addition, if any other federally listed mussels are recorded during the mussel relocation activities, re-initiation of consultation and review of the reasonable and prudent measures provided is required. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATION

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The FHWA should consider implementing the following conservation recommendation:

Provide financial assistance to the Kentucky Department of Fish and Wildlife Resources Center for Mollusk Conservation to support programs that work to restore federally listed mussels and other native mussels in the lower Ohio River. Such assistance could take the form of protecting or enhancing similar habitat and/or providing funding to the CMC facility to propagate federally listed mussels and other native mussels.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, please provide notification to the Service's Kentucky Field Office of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the FHWA request. As written in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary FHWA involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the FHWA action that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the FHWA action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease until re-initiation.

For this biological opinion, the incidental take would be exceeded, when the take exceeds 546 fat pocketbooks, nine pink muckets, and 18 orangefoot pimplebacks which is what has been exempted from the prohibitions of section 9 by this biological opinion. The Service appreciates the cooperation of the FHWA during this consultation. We would like to continue working with you and your staff regarding this project. For further coordination, please contact me or Leroy Koch of this office at 502/695-0468.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

cc: Doug Dawson, KDFWR, Frankfort, KY
Joyce Collins, USFWS, Marion, IL

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APPENDIX A

Fat pocketbook biological opinions including amount and form of incidental take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED OR SURROGATE MEASURE TO MONITOR
Effects of scour repair at Arkansas Highway 77 crossings of Right Hand Chute on the endangered fat pocketbook mussel (*Potamilus capax)*	Arkansas ES Office April 27, 1999	Harm, harass or kill	Up to 50 mussels relocated and up to 5 mussels killed due to relocation. Indeterminate amount of small mussels not relocated and buried.
Potential impacts of ditch maintenance activities within Stateline Outlet Ditch, Mississippi County, Arkansas on the fat pocketbook mussel (*Potamilus capax)*	Arkansas ES Office October 3, 2001	Harm, harass or kill	Up to 3,000 individuals relocation and up to 5 killed during the relocation. Up to 30 dead individuals in dredge disposal pile.
Bridge replacement over the St. Francis River	Arkansas ES Office November 8, 2001		2 individuals
Potential impacts of three scour repair areas in the St. Francis Floodway on the fat pocketbook mussel *(Potamilus capax)*	Arkansas ES Office April 2002	Harm, harass or kill	Up to 200 individuals relocation and up to 2 killed during the relocation. Indeterminate amount of small mussels not relocated and buried.
Proposed maintenance dredging of the Ohio River navigation channel at Wabash Island located in Posey County, Indiana, Gallatin County, Illinois and Henderson County, Kentucky and its effects on the fat pocketbook pearly mussel (*Potamilus capax*)	Bloomington, IN ES Office September 2002	Harm, harass, collect or kill	Undefined but discovery of more than 3 live mussels in dredged material from a single event indicates take has been exceeded
Arkansas Highway 14 bridge replacement over Ditch 10 near the city of Harrisburg, AK	Arkansas ES Office October 31, 2002		1 individual

Emergency consultation for a sewage lagoon embankment stabilization near the city of Madison, Arkansas	Arkansas ES Office June 10, 2003		6 individuals relocated, 9 gravid females taken to propagation facility
Potential effects of the construction of a Union Pacific Railroad Bridge across the St. Francis floodway on the fat pocketbook (*Potamilus capax*)	Arkansas ES Office October 29, 2003		3 individuals
Potential impacts of ditch maintenance activities within Ditch 10 on the fat pocketbook mussel (*Potamilus capax)*	Arkansas ES Office April 28, 2004		10 individuals
Potential impacts of constructing a pre-cast concrete bridge across Ditch 61 on the federally endangered fat pocketbook mussel (*Potamilus capax*)	Arkansas ES Office September 2, 2007	Harm, harass or kill	3 individuals: 1 relocated and 2 killed
Potential effects of the removal and replacement of the Route 15 bridge over the Wabash River at Mount Caramel, Indiana on the fat pocketbook (*Potamilus capax*)	Bloomington, IN ES Office October 22, 2007	Injury or direct mortality	4 individuals: 2 during relocation, 2 during construction.
Potential impacts of the proposed setback of Elk Chute Levee in Dunklin County, Missouri on the federally endangered fat pocketbook (*Potamilus capax*)	Missouri ES Office January 10, 2008	Death or injury	5 individuals
Biological Opinion on the USDA Forest Service Application Of Fire Retardants On National Forest System Lands	Washington DC February 2008	No take provided	No take provided
Biological Opinion on the Construction of Smithland Hydroelectric Project, Livingston County, KY	Kentucky ES Office January 9, 2009	Mortality, harm or harassment	486 individuals and 40 acres of habitat
Biological Opinion on fleeting and loading facilities for the River View Coal Company, Union County, KY	Kentucky ES Office September 11, 2009	Harm, harass, or kill	61 individuals and 12.2 acres of habitat

APPENDIX B

Pink mucket (*Lampsilis abrupta*) biological opinions including amount and form of take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED or SURROGATE MEASURE TO MONITOR
USACE – Biological Opinion on the Issuance of Permits for Dixie Cement Co. Barge Terminal Construction and Access Channel Dredging in Tennessee River	May 21, 1982 ES Field Office Asheville, NC	Harm, harass, or kill	All individuals within proposed project area and an undetermined number downstream and adjacent to project area
USACE – Final Biological Opinion on the Effects on Threatened and Endangered Species on the Lower Ohio River Navigation Feasibility Study	June 13, 1985 ES Field Office Asheville, NC	N/A	No take authorized
FERC - Biological Opinion on the Effects of Threatened and Endangered Species from the Construction and Operation of a Hydroelectric Facility at Lock and Dam #5 on the Green River in Warren and Butler counties, KY	June 25, 1985 ES Field Office Asheville, NC	N/A	No take authorized
USFWS – Biological Opinion on the Effects of Conducting Taxonomic Studies	September 3, 1987 SE Regional Office Atlanta, GA	Collect and kill	Ten individuals (Five each from two divergent populations) NO INCIDENTAL TAKE
FERC – Biological Opinion on the FEIS for Hydropower Development in the Upper Ohio River Basin	January 13, 1989 Pennsylvania Field Office State College, PA	Harm, harass or kill	Can not be determined. Level of authorized take measured by community structure.
TVA – Biological Opinion on the Proposed Wood Chipping and Barge-Loading Facilities on the Tennessee River	December 2, 1992 SE Regional Office Atlanta, GA	N/A	No take authorized

USACE – Biological Opinion on the Effects of Work on a Coal Loading Facility on the Kanawha River RM 90.4, Fayette County, WV	July 7, 1993 ES Field Office Elkins, WV	Harm or Harass	Can not be determined
USACE - Biological Opinion for Proposed Channel Maintenance Dredging of the Cumberland River (CRM 304.0 to 307.0) Smith County, TN	October 1993 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project area
USACE – Biological Opinion for the Proposed City of Florence Municipal Treated Sewage Outfall, Tennessee River, Lauderdale County, AL	October 1994 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project area
FHWA - Biological Opinion for the Construction of the Patton Island Bridge	November 23, 1994 ES Field Office Daphne, AL	Harm or harass	One individual
TVA & NRC - Biological Opinion for the Proposed Operation of the Watts Bar Nuclear Plant, Rhea County, TN	March 1995 ES Field Office Cookeville, TN	N/A	No take authorized
Biological Opinion for Endangered Species Permit Approval for the Rescue of Critically Endangered Mussels in KY, AL and TN	October 1996 ES Field Office Cookeville, TN	Collection of live individuals	Up to 30 live individuals, not more than ten individual per population
USACE – Biological Opinion on the Effects of the Joe S. Towing Co., Inc. Barge Fleeting Facility, Wood County, WV	March 18, 1997 ES Field Office Elkins, WV	Harm or harass	Can not be determined. Take has been exceed if there is a decline of up to 25% of the mussel bed density or decline of up to 25% in the live-to-dead ratio or decline of up to 25% in the total number of species encountered
USACE & TVA – Biological Opinion For The Proposed City of Florence Municipal Treated Sewage Outfall Tennessee River Lauderdale County, AL	1998 ES Field Office Daphne, AL	Harm, harass or kill	Can not be determined

FHWA – Biological Opinion for the Proposed Keller Bridge Demolition Project in Limestone and Morgan Counties, AL	June 8, 1998 ES Field Office Daphne, AL	Harm, harass, or kill	One individual within impact area, all individuals within study area
USFWS – Programmatic Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	August 1, 1998 SE Regional Office Atlanta, GA	Harm or kill	Up to five adult mussels per year
USACE – Biological Opinion for Proposed Maintenance Dredging in the Tennessee River at Diamond Island, Hardin County, TN	July 1999 ES Field Office Cookeville, TN	Harm or harass	Approximately seven acres of habitat loss
USACE – Supplement to the 1991 Biological Opinion For The Proposed Bridges and Alignments Modification to the Kentucky Lock Addition Project Livingston and Marshall Counties, Kentucky	January 2000 ES Field Office Cookeville, TN	Harm or kill	All individuals within the 0.04 acre of habitat impacted by drilling and construction activities
FHWA – Biological Opinion for the Proposed US 231 Bridge Replacement Over the Tennessee River in Madison and Morgan Counties, AL	February 18, 2000 ES Field Office Daphne, AL	Harm, harass or kill	17 individuals
FHWA & USACE – Biological Opinion on the Proposed Replacement of the State Route 2 Bridge over the Tennessee River, Loudon County, TN	February 2001 ES Field Office Cookeville, TN	Harm, harass or kill	All individuals within the project corridor
FHWA and TVA – Amended Biological Opinion for the Proposed Replacement of the State Route 2 Bridge Over the Tennessee River, Loudon County, Tennessee	February 2002 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project corridor
USACE – Chickamauga Lock Project Hamilton County, Tennessee	February 2002 ES Field Office Cookeville, TN	Habitat loss and/or degradation	All within disturbed area

USACE – Biological Opinion on the Effects of Navigational Dredging on the White River in Arkansas	March 1, 2002 ES Field Office Conway, AR	Kill	Five individuals per year
USACE – Mussel relocation Experiment on Tennessee River Near Diamond Island, Hardin County, TN	September 9, 2002 ES Field Office Cookeville, TN	Harm or harass	One individual
TVA – Proposed Public Marina Expansion at Ditto Landing on the Tennessee River, Madison County, AL	November 22, 2002 ES Field Office Daphne, AL	Harm, harass or kill	One individual
USACE – Olmsted Lock and Dam Construction Replaces the 1993 BO	July 16, 2003 ES Field Office Cookeville, TN	N/A	No incidental take authorized
FHWA – Biological Opinion on the Construction of the Rockport Bridge Across the Ouachita River	July 29, 2003 ES Field Office Conway, AR	Harm or harass	Can not be determined
USACE – Tennessee River, Pickwick Landing Dam Mussel Relocation Study, Hardin County, Tennessee	November 13, 2003 ES Field Office Cookeville, TN	Harm, harass, or collect	One individual
TVA _ Proposed Wilson Hydro Plan Modernization of Hydroturbine Project, Lauderdale and Colbert counties, AL	2004 ES Field Office Daphne, AL	Harm, harass or kill	20 individuals
TVA – Biological Opinion on the proposed Reservoir Operations Study in the Tennessee River Valley of AL, GA, KY, MS, NC, TN, and VA	February 9, 2004 ES Field Office Cookeville, TN	Harm or harass	Can not be determined. 30 miles of habitat altered or degraded
FHWA – Biological Opinion on the Proposed Construction of the Highway 46 Bridge Across The Saline River Grant County, AR	July 7, 2004 ES Field Office Conway, AR	Harm, harass or kill	Five through relocation and no more than one killed

USFWS – Amendment to Programmatic Section 7 Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	July 16, 2004 ES Field Office Conway, AR	N/A	No change
FHWA – Biological Opinion on the Proposed Construction of the Highway 167 Bridge, Dallas and Grant counties, AR	January 30, 2006 ES Field Office Conway, AR	Harm, harass or kill	No more than two individuals
NRCS - Programmatic Biological Opinion for the Arkansas Healthy Forest Reserve Program	September 25, 2006 ES Field Office Conway, AR	Harm	Can not be determined. Any take would be associated with a return to baseline conditions and would not involve individuals associated with pre- or post-baseline riparian conditions.
TVA – Biological Opinion on the Routine Operation and Maintenance of TVA Dams in AL, GA, KY, MS, NC, TN, and VA	October 17, 2006 ES Field Office Cookeville, TN	Harm or harass	Can not be determined. All in two mile reaches of the river below Douglas, Cherokee, Fort Loudoun, Watts Bar, Nickajack, Guntersville, Wheeler, Wilson, Pickwick Landing, and Kentucky dams
TVA – Biological Opinion on the Dike stabilization at Johnsonville Fossil Plant Ash disposal Area No. 2 (Johnsonville Island) between Tennessee River Mile 99 – 100, Humphreys Co., TN	February 1, 2010 ES Field Office Cookeville, TN	Harass	151 individuals

APPENDIX C

Orangefoot pimpleback (*Plethobasus cooperanius*) biological opinions including amount and form of take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED or SURROGATE MEASURE TO MONITOR
USACE – Biological Opinion on the Consolidated Grain and Barge Co. Proposed Cargo Fleeting Area on the Ohio River. Pulaski County, IL	April 3, 1985 MW Regional Office Ft. Snelling, MN	N/A	Jeopardy Opinion – No take authorized
USACE – Final Biological Opinion on the Effects on Threatened and Endangered Species on the Lower Ohio River Navigation Feasibility Study	June 13, 1985 ES Field Office Asheville, NC	N/A	No take authorized
TVA – Biological Opinion on the Proposed Wood Chipping and Barge-Loading Facilities on the Tennessee River	December 2, 1992 SE Regional Office Atlanta, GA	N/A	No take authorized
USACE –Biological Opinion on the Construction of the Olmstead Lock and Dam Facility Supplemental to 1985 BO	January 15, 1993 ES Field Office Cookeville, TN	Habitat loss	No take authorized
USACE – Biological Opinion for the Proposed Construction of Barge Fleeting Facilities on the Ohio River, Ballard County, KY	September 1993 SE Regional Office Atlanta, GA	N/A	No take authorized
FHWA - Biological Opinion for the Construction of the Patton Island Bridge	November 23, 1994 ES Field Office Daphne, AL	Harm or harass	One individual
USFWS – Rescue of Critically Endangered Mussels in TN, KY and northern AL	October 1996 ES Field Office Cookeville, TN	Collection of live individuals	Up to 30 live individuals, not more than 10 individual per population

USFWS - Programmatic Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels	August 1, 1998 SE Regional Office Atlanta, GA	Harm or kill	Up to five adult mussels per year
USACE - Biological Opinion for Proposed Maintenance Dredging in the Tennessee River at Diamond Island, Hardin County, TN	July 1999 ES Field Office Cookeville, TN	Harm or harass	Approximately seven acres of habitat loss
Supplement to the 1991 Biological Opinion For The Proposed Bridges and Alignments Modification to the Kentucky Lock Addition Project Livingston and Marshall Counties, Kentucky	January 2000 ES Field Office Cookeville, TN	Harm or kill	All individuals within the 0.04 acre of habitat impacted by drilling and construction activities
FHWA & USACE - Biological Opinion on the Proposed Replacement of the State Route 2 Bridge over the Tennessee River, Loudon County, TN	February 2001 ES Field Office Cookeville, TN	Harm, harass or kill	All individuals within the Project corridor
FHWA and TVA - Amended Biological Opinion for the Proposed Replacement of the State Route 2 Bridge Over the Tennessee River, Loudon County, TN	February 2002 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project corridor
USACE - Chickamauga Lock Project Hamilton County, Tennessee	February 2002 ES Field Office Cookeville, TN	Habitat loss and/or degradation	All within disturbed area
USACE -- Mussel relocation Experiment on Tennessee River Near Diamond Island, Hardin County, TN	September 9, 2002 ES Field Office Cookeville, TN	Harm or harass	One individual
USACE -- Olmsted Lock and Dam Construction Replaces the 1993 BO	July 16, 2003 ES Field Office Cookeville, TN	N/A	No incidental take authorized

USACE – Tennessee River, Pickwick Landing Dam Mussel Relocation Study, Hardin County, Tennessee	November 13, 2003 ES Field Office Cookeville, TN	Harm, harass, collect	One individual
TVA _ Proposed Wilson Hydro Plan Modernization of Hydroturbine Project, Lauderdale and Colbert counties, AL	2004 ES Field Office Daphne, AL	Harm, harass or kill	20 individuals
USFWS- Amendment to the 1998 Programmatic Section 7 Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	July 16, 2004 ES Field Office Conway, AR	Harm or mortality	Five individuals per 100 handled
TVA – Biological Opinion on the Routine Operation and Maintenance of TVA Dams in AL, GA, KY, MS, NC, TN, and VA	October 17, 2006 Cookeville, TN ES Field Office	Harm, harass	Can not be determined. All in 2 mile reaches of the TN River below Fort Loudoun, Watts Bar, Guntersville, Pickwick Landing and Kentucky dams.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

December 21, 2010

Mr. John Ballantyne
U.S. Department of Transportation
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Subject: FWS #2010-B-0327; Need for a Reissued Biological Opinion on the Paducah Riverfront Development Project, McCracken County, Kentucky, and its effects on federally listed mussels

Dear Mr. Ballantyne:

In recent discussions with the U.S. Army Corps of Engineers, Louisville District (Corps), and Kentucky Division of Water (KDOW) regarding the pending permits under sections 10, 401, and 404 of the Clean Water Act (CWA) for the proposed Paducah Riverfront Development Project, it became clear to us that the Biological Opinion only makes vague and incomplete reference to the interrelated federal actions that we considered as part of the proposed action for the project. More specifically, we mentioned the boating infrastructure and boating access grants that were funded by the Service through the Kentucky Department of Fish and Wildlife Resources on page 3 of the DESCRIPTION OF THE PROPOSED ACTION section. However, we neglected to specifically identify the Corps as a cooperating agency in this formal consultation, and we only casually mentioned the associated CWA permits from the Corps and KDOW that would be necessary to construct these facilities on page 4 of the Biological Opinion.

On page 32 of the Biological Opinion, we misidentified the project proponent as Shawneetown Harbor Services, and we also incorrectly identified the Corps as the primary agency responsible for ensuring that the Reasonable and Prudent Measures contained in the Biological Opinion are enforced. As the lead federal agency for the proposed project, the Federal Highway Administration would, instead, share those responsibilities with the Corps and Fish and Wildlife Service since all three federal agencies will play a role in funding or authorizing the project. During this consultation, we had always considered the Louisville District as a cooperating agency for the proposed action due to their involvement in permitting the proposed facilities.

As a result of these issues, we felt is was prudent to reissue the Biological Opinion for this project so that the aforementioned errors could be fixed and necessary clarifications related to the CWA permits could be incorporated into the text of the Biological Opinion. We do not believe that additional analysis or the re-initiation of formal consultation is necessary, because the Biological Opinion's analysis adequately addresses the adverse effects that are attributable to the

CWA permits necessary to implement the project. Therefore, please consider the reissued December 21, 2010 Biological Opinion (enclosed) as the final Biological Opinion on the Paducah Riverfront Development Project.

For further coordination, please contact me or Leroy Koch of this office at 502/695-0468.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

copy: Sam Werner, Corps, Louisville, KY
Doug Dawson, KDFWR, Frankfort, KY
Joyce Collins, USFWS, Marion, IL
Rick Murphy, City of Paducah, Paducah, KY
Alan Grant, Kentucky Division of Water

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December 21, 2010

Mr. John Ballantyne
U.S. Department of Transportation
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Subject: FWS #2010-B-0327; Reissued Biological Opinion on the Paducah Riverfront Development Project, McCracken County, Kentucky, and its effects on federally listed mussels

Dear Mr. Ballantyne:

This document supercedes the July 6, 2010 U.S. Fish and Wildlife Service (Service) biological opinion based on our review of the proposed construction of the Paducah Riverfront Development Project at approximately Ohio River Miles 934.7 to 935.8 in McCracken County, Kentucky, and its effects on federally listed mussels under section 7(a)(2) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Federal Highway Administration's (FHWA) letter requesting formal consultation was received on February 12, 2010 and formal consultation was initiated on May 18, 2009, in a letter from the Service to the FHWA. This document also includes the U.S. Army Corps of Engineers (Louisville District) and the Service as cooperating agencies due to their involvement in either funding (Service) or authorizing (Corps) the project.

This biological opinion is based on information provided in a November 2009 Biological Assessment (BA) prepared by Redwing Ecological Services, Inc. (Redwing), meetings (see consultation history), available literature, communications with experts on the federally listed species considered in this biological opinion, and other sources of information available to us and/or in our files. A complete administrative record of this consultation is on file at the Service's Kentucky Field Office in Frankfort, Kentucky (see address above).

Consultation History

19 June 2008 – A Revised Mussel Survey Workplan was submitted to the Service.

20 June 2008 – The Revised Mussel Survey Workplan was approved by the Service via email.

28 August 2008 – A project review meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews (Service), Leroy Koch (Service), Rick

Murphy (City of Paducah), Ron Thomas (Redwing), and Brian O'Neill (Redwing). Discussions included: overall background on the redevelopment project including design considerations, alternatives investigated, and avoidance/minimization efforts; summary of the regulatory process completed to that point; the significance of the mussel bed observed during the field survey; the need for a formal consultation process including preparation of a BA.

25 September 2008 – A Mussel Survey Report was submitted to the Service.

15 October 2008 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews, Leroy Koch, Ryan Evans (KSNPC), Ron Thomas, and Brian O'Neill. Discussions included: verification of relic shells as *Potamilus capax*, and implications of findings regarding consultation process.

19 December 2008 – A draft Biological Assessment Report was submitted to the Service.

30 January 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Phil DeGarmo (USFWS), and Brian O'Neill. Discussions included comments regarding the Draft Biological Assessment Report and requests for additional information to be included in the final BA.

19 March 2009 – A meeting was held at Florence & Hutcheson's office in Paducah, Kentucky. Meeting participants included: Lee Andrews, Rick Murphy, Jason Petersen (Florence & Hutcheson), Kathy Lake (JJR), and Brian O'Neill. Discussions included: updated project design elements; concerns regarding potential construction techniques; extent of relocation efforts that may be required and other potential conservation measures such as a type of conservation fund payment; and additional information requests.

3 November 2009 – The Final Biological Assessment Report was submitted to the Service.

24 November 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Ron Thomas, and Brian O'Neill. The discussion focused on the completeness of the BA; additional information request; and estimated timeframe regarding the remainder of the consultation process.

18 December 2009 – An additional information letter supporting the Biological Assessment was submitted to the Service.

12 February 2010 – The FHWA requested formal consultation for the project in a letter submitted to the Service.

4 March 2010 – The Service responded to FHWA's request for initiation of formal consultation.

19 May 2010 – The Service provided an additional response to FHWA's February 12, 2010 letter, which modified the consultation by reducing the number of mussel species to be considered in the consultation.

4 June 2010 – A meeting was held at the FHWA's office in Frankfort, Kentucky, to discuss the project and discuss conservation and minimization measures regarding the three federally listed mussels considered in the consultation. Meeting participants included: Leroy Koch, Lee Andrews, Derek Adams, David Waldner (Kentucky Transportation Cabinet), Sunni Carr (Kentucky Department of Fish and Wildlife Resources (KDFWR)), Dan Stoelb (KDFWR), Dr. Monte McGregor (KDFWR), Anthony Goodman (FHWA), Ian Chidister (FHWA), Rick Murphy, Ron Thomas, Brian O'Neill, Sue Bruenderman (Kentucky Division of Water (KDOW)), Joyce Fry (KDOW), Alan Grant (KDOW), Jason Peterson (via telephone), and Kathleen Lake (JJR via telephone).

11 June 2010 – A meeting was held at the USFWS's office in Frankfort, Kentucky, to discuss conservation and minimization measures and associated costs. Meeting participants included: Anthony Goodman, Ian Chidister, David Waldner, Lee Andrews, Leroy Koch, Ron Thomas, Rick Murphy, and Jason Peterson.

30 June 2010 – A draft final version of the biological opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE), and comments on the draft final biological opinion were solicited from those agencies.

6 July 2010 – The original biological opinion was issued.

21 December 2010 – The Service provided the FHWA with a letter summarizing the need to reissue the biological opinion and provided a reissued biological opinion to the FHWA, U.S. Army Corps of Engineers – Louisville District, KYTC, and City of Paducah. A reissuance of the biological opinion was necessary to (a) clarify that Clean Water Act permits issued by the Corps were considered as part of the proposed action, (b) specifically state that the Corps is a cooperating agency for this consultation, (b) remove an erroneous reference to Shawneetown Harbor Services as the project proponent, and (d) clarify that the FHWA, Corps, and Service share the responsibility for ensuring the project proponent's compliance with the Reasonable and Prudent Measures and Terms and Conditions of the biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Paducah Riverfront Redevelopment Project is a proactive revitalization effort, resulting from the collaborative effort of a diverse group of constituents including stakeholders, city staff, the general public, and state and federal agencies that began in 2006. The Paducah Riverfront Redevelopment Plan has been in the design and planning phase since 1992. The plan's goal is to reconnect residents and neighbors with the City of Paducah's downtown riverfront as well as provide new tourism, recreation, and economic development opportunities for the city. Improvements to the riverfront outlined in the redevelopment plan include a terraced riverbank with overlooks, a performance plaza, recreational areas along a new Greenway trail, landscaping, renovation of public infrastructure, public education and outreach through interpretative activities, and a five-lane boat launch. The plan's components will link public amenities, recreational facilities, public spaces, and Paducah's downtown to the Ohio River. Due to its long range goals and magnitude of the plan, it will be implemented using a phased approach spanning

several years. More information regarding the Paducah Riverfront Redevelopment Plan can be found on their website: riverfrontpaducah.com. For a detailed description of the proposed action and sites, see the Biological Assessment (O'Neill and Thomas 2009) prepared by Redwing.

The Biological Assessment focuses on the first phase of the plan, which includes the Burnett Street Boat Ramp and the Schultz Park Expansion marina/transient dock. These two components of the plan involve the only proposed direct impacts to the Ohio River. Each of these components would also involve other interrelated federal actions. First, the construction of the Burnett Street Boat Ramp would involve a federal boating access grant from the Service to the KDFWR. KDFWR would then use this funding to pay for the City of Paducah's construction costs for the Burnett Street Boat Ramp. Second, the project also includes a Boating Infrastructure Grant from the Service to KDFWR. KDFWR would then use this funding to pay for the City of Paducah's construction costs associated with the Schultz Park Expansion marina. While the granting of these federal funds do not result in direct impacts to federally listed species (i.e., they are administrative in nature), the use of these federal grant funds will lead to adverse effects on listed freshwater mussels as described below and in the "Effects of the Action" section of this biological opinion. Third, the Corps and Kentucky Division of Water (KDOW) would have to issue the City of Paducah the appropriate permits under section 10 (Corps) of the Rivers and Harbors Act and sections 401 (KDOW) and 404 (Corps) of the Clean Water Act so that the proposed facilities could be constructed within Waters of the United States and Waters of the Commonwealth, respectively.

Burnett Street Boat Ramp

The purpose of the Burnett Street Boat Ramp project, which is located at approximately Ohio River Mile 935.7, is to relocate the existing main boat ramp along the downtown riverfront to a currently undeveloped piece of property approximately one mile downstream so that the existing downtown riverfront can be converted back to its original use as a riverboat landing and community focal point. This component of the redevelopment plan is being undertaken as a partnership with the KDFWR. The proposed boat launch site is located on undeveloped property owned by the City of Paducah and will contain five launch lanes with parking for 100 vehicles and trailers with 24-hour access to the river (O'Neil and Thomas 2009). The property can accommodate an additional 100 parking spaces in the future as needed. The proposed boat launch will be connected to the downtown Riverfront Park via a planned pedestrian and bicycle greenway trail.

Construction of the Burnett Street Boat Ramp and all of the associated parking and access route will result in permanent impacts to wetlands on the proposed project site. Mitigation for these impacts will be provided on site in accordance with the conditions of the approved Section 404/401 permit through a combination of preservation and restoration activities. Mitigation includes permanent preservation of approximately 34.4 acres of high quality forested wetland, restoration of 7.3 acres of forested wetland, preservation of 3.4 acres of forested riparian buffer, and restoration of 765 linear feet of riparian buffer along the Ohio River. These mitigation measures have been designed to ensure the functional components of the impacted wetlands will

be maintained on site as well as enhance the quality of the Ohio River riparian corridor and will be monitored for five years to ensure long-term success. Permanent preservation through a conservation easement or deed restriction will ensure long-term indirect benefits through reduced streambank erosion and nonpoint source runoff into the Ohio River.

Direct impacts to the Ohio River will consist of placing coarse granular material as a base for precast concrete ramp faces. The ramp's footprint will cover approximately 0.3 acre of riverbank and extend no greater than 35 meters riverward from normal pool. The compacted subgrade base material and concrete ramp face will be installed from shore and best management practices will be used to ensure erosion and sedimentation is minimized to the greatest extent possible. As required by the 404/401 approved permit, an erosion and sediment control plan will be designed, implemented, and maintained in effective operating condition at all times during construction to prevent degradation of waters of the Commonwealth. All fill material will consist of less than 5% fines, and silt fences and bank stabilization will be used where necessary and as appropriate to minimize the potential for bank erosion and sedimentation during construction. The proposed boat ramp orientation (i.e., angle in relation to river flow and ramp face slope) was designed to have minimal impact on the prevailing hydraulic conditions of the Ohio River. The slope of the ramp will largely follow the existing contours of the riverbank. The pre-cast ramp faces will be installed over a compacted coarse-granular foundation with a slope of greater than 7:1.

Schultz Park Expansion

Proposed park expansion activities will extend from approximately Ohio River Mile 934.7 to 935.1 and include improvements to the adjacent Schultz Park, construction of a marina/transient dock, associated parking and infrastructure, and connection of park amenities with existing roads, and infrastructure. The Schultz Park Expansion represents the commencement of Paducah's efforts to revitalize its riverfront and will serve as a catalyst for additional riverfront and downtown improvements as outlined in the Riverfront Redevelopment Plan.

Development of the Schultz Park Expansion area will be accomplished in several phases (O'Neill and Thomas 2009). The first phase includes expansion of the existing Schultz Park into the river. Construction will begin by placing appropriately-sized coarse fill material on the riverbed to create a new peninsular landform with a footprint of approximately 4.9 acres. The coarse fill material will meet Kentucky Division of Water Division of Environmental Protection water quality requirements and will not exceed 5% fines. Placement of the fill material may occur from land-side via truck or from river-side via barges depending on the location of source fill material, feasibility and efficiency (i.e., the contract does not limit contractor installation methods). However, if material is transported to and/or unloaded from barges, conditions will be made to ensure disturbance to the existing mussel bed from barge anchoring or propeller wash will be minimized. The landform will be left for approximately one year to settle into the riverbed and stabilize prior to final grading and construction of the transient dock, marina, and other amenities. Once the foundation has settled, the remaining landform will be constructed using no steeper than a 3H:1V ratio slope. The landform will be protected by a combination of

revetment techniques using coarse granular material and other naturalized components where applicable. Bioengineered slope stabilization will supplement stone revetment where applicable and native vegetation will be used extensively throughout the project area.

Construction of the first 400 feet of the transient dock on the downstream side of the Schultz Park landform, which will be accessed via a floating gangway system, will begin once the landform has settled and stabilized. The floating gangway system will provide for 200 boat slips that will be installed incrementally as demand grows. Currently, boaters are required to dock on the riverbank. The closest alternatives for on-water refueling/marina facilities for recreational boaters are located 33 miles upstream at Golconda, Illinois. The transient dock will serve as a river walk for the public and a dock for transient vessels. The transient dock will not provide dockage for excursion vessels such as the 'Delta Queen' steamboat. Impacts to the riverbed associated with the transient dock will be limited to placement of a maximum of 50 eight-foot deadman weight cubes for anchoring the floating dock. The marina will be anchored with 20 five-foot deadman weight cubes. The project will maintain a 300-foot buffer from the USACE Navigation Channel.

The second phase of the Schultz Park Expansion includes installation of park amenities. Park amenities are planned to include public open spaces and scenic overlooks with benches, picnic tables, additional parking, pedestrian/bicycle trails, educational/interpretive resources, and other landscape features. Accommodations for a marina and associated utility systems (e.g. fuel, water, sanitary) that will provide restrooms, showers, and a sundries store will be included. While no specific details are yet available for these facilities, all fuel and wastewater systems will be designed to Kentucky state standards. A spill prevention plan will be developed and maintained by the marina operator. The spill prevention plan will comply with state codes and approved by the appropriate agency prior to marina operation.

ACTION AREA

The Service considers the action area to include the lower Ohio River between J.T. Myers Lock and Dam at Ohio River Mile 846.0 downstream to the mouth of the Ohio River at ORM 981.0. This action area also includes the Cumberland River downstream of Barkley Dam and the Tennessee River downstream of Kentucky Dam. The action area is designated in this way because (a) it contains the entirety of the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action and (b) it contains the areas upstream and downstream of the proposed project where the indirect and cumulative effects of the proposed action are likely to occur. Regarding these upstream and downstream areas, the Service believes that the proposed action is likely to result in (a) hydrologic effects on the listed freshwater mussels addressed in this biological opinion and their habitats within and downstream of areas impacted by the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action, (b) localized population reductions of these freshwater mussels that will have corresponding effects on their populations within the described action area, and (c) a reduced likelihood that fish hosts for these freshwater mussel species will provide the same level of pre-project genetic flow

throughout the described action area due to the anticipated population reductions of these species within the action area.

The action area includes all areas potentially affected directly and indirectly by the proposed project and includes the Burnett Street Boat Ramp and the marina and Schultz Park Expansion locations (O'Neill and Thomas 2009). Hydrodynamic processes were modeled for existing and proposed conditions to determine the extent of modifications anticipated from the proposed Schultz Park Expansion, and are provided in Appendix C of the Biological Assessment. Because a wide range of hydrodynamic conditions were modeled, only the subset of results pertaining to potential mussel impacts was included in the Biological Assessment. River stages and particle sizes considered relevant to potential effects on mussels included a typical annual hydrograph range (based on hydrograph data from 1990 to 2008) and particle sizes corresponding to suitable mussel habitat. These include river stages 304, 310, and 320 for particle sizes 0.1mm (very fine sand), 1mm (very coarse sand), 2mm (very fine gravel), and 5mm (fine gravel). Particle sizes greater than 5mm were not mobile within the project area for existing or proposed conditions. A river stage of 304' is slightly greater than the normal pool elevation of 302' whereas a river stage of 320' corresponds with an approximately 10% exceedance probability. The City of Paducah Action Stage is 318' and Flood Stage is 325'. It should be noted that river stage elevations and actual local reach conditions are complicated by the effects of the Smithland Lock and Dam, Lock and Dam 52 and Kentucky Lake Dam influencing flows and water levels.

Modeling hydrodynamic processes specifically related to the proposed Burnett Street Boat Ramp was cost prohibitive due to the relatively small proposed encroachment into the river and the data-intensive model input requirements. Therefore, the modeling results for the Schultz Park Expansion site were used as a qualitative comparison for relative hydrodynamic changes at the proposed Burnett Street Boat Ramp location. A discussion of the proposed activities within the action area, including cumulative effects on protected species is provided in Section 4 of the Biological Assessment. A more detailed description of portions of the action area including baseline environmental conditions is provided below.

Burnett Street Boat Ramp

Currently, the Burnett Street Boat Ramp location at approximately Ohio River Mile 935.7, consists of undeveloped shoreline with a narrow riparian corridor and the riparian floodplain that is used for agricultural activities. Fill material associated with the boat ramp will cover approximately 0.3 acre of the riverbank and toe of slope and will extend no greater than 35 meters from shore (normal pool elevation of 302 feet). Indirect impacts at the proposed boat ramp site associated with future boating traffic and launching and extracting boats from the river may include increased substrate disturbance from propeller wash, bank erosion from wave action, and spills/debris from increased recreational activity. It was estimated that the most significant increase in boating activity as a result of the proposed boat ramp would occur within a 100 meter radius of the ramp.

The proposed boat ramp lies flush with the existing contours of the riverbank to avoid significant permanent modifications to hydrodynamic processes and ensure long-term stability. Based on a qualitative comparison with the hydrodynamic model results from the Schultz Park Expansion site (presented in Section 1.3.2 of the Biological Assessment), any potential sedimentation as a result of the proposed boat ramp should occur on the downstream side of the ramp and shoreward. If sedimentation were to occur, it would be restricted to the existing riverbank rather than the riverbed. Higher bed shear stress would likely occur on the ramp face itself. Indirect effects anticipated from boat traffic and propeller wash have not been quantitatively assessed. However, it is reasonably clear that the greatest influence on sediment transport potential will be dependent on the magnitude of boat-induced wave action and propeller wash versus the force of river currents. Where river currents are slow, such as in shallow water near shore, the effects of boat wave action/propeller wash on bank erosion and riverbed suspension are likely greater. In the near shore, these effects would likely include entrainment of particles as boats enter/exit the water. To prevent potential riverbank and riverbed erosion, areas immediately upstream and downstream of the ramp along the riverbank will be stabilized with coarse material such as cobble and/or small boulders. In addition, the toe of slope will be protected with cobble material to prevent potential entrainment of fine particles that could occur as a result of propeller wash when boaters are running their motors to load the boat on the trailer.

The influence of boating activity on riverbed particle entrainment decreases further from shore as a result of a boat's wave generating potential relative to river depth and currents. Increased boating activity within this portion of the action area will be associated with recreational vessels approaching and exiting the boat ramp area at relatively slow speeds. Recreational vessels (typically ranging from "bass" boats to pontoon boats) characteristically have small displacement hulls with low wave generating potential (particularly at slow speeds) relative to the large cross section of the river and relatively deep water (>4m deep beyond the extent of the proposed ramp). Therefore, beyond the immediate vicinity of the proposed ramp, boating activity is not expected to influence river sediment transport potential/substrate characteristics or cause any adverse effects on mussel habitat.

Schultz Park Expansion

The Schultz Park Expansion portion of the action area was determined based on the extent of the proposed fill required to construct the park expansion landform, the anticipated extent of hydrodynamic modifications caused by the proposed landform, the pile locations required to construct the transient dock and marina, and the anticipated extent of potential indirect impacts (O'Neill and Thomas 2009). It is estimated this portion of the action area extends riverward approximately 410 feet to the base of the fill area. After the fill activity is completed the new shoreline will be approximately 270 feet riverward from the current shoreline.

The proposed park expansion and marina/transient dock is located at approximately Ohio River Mile 934.7 to 935.1, immediately downstream of the existing downtown boat launch, and consists of a relatively developed shoreline with armored riverbanks and a narrow park setting on the river side of the floodwall, as shown in figures 1 and 3 in the Biological Assessment (O'Neill

and Thomas 2009). The Ohio River within the vicinity of the City of Paducah experiences a high volume of boat and barge traffic due to its proximity to the existing downtown boat ramp and lock system. The City of Paducah and nearby area is also a major hub for commercial barge activity. Barges frequently use the shoreline in the proposed marina/transient dock area for staging purposes because of the high volume of barge activity through the locks. Barge staging consists of beaching the nose of the barge onto the shore at an angle sufficient to maintain position in the river while waiting for lock traffic to clear. Many recreational boaters use the area for fishing, water skiing, cruising, and other activities. The shoreline, along where the proposed park expansion and transient dock is located, receives a considerable volume of foot traffic (e.g., fishing, sight-seeing, etc.) from the existing riverfront park and along the floodwall.

Direct effects of the expansion of Schultz Park as proposed, includes the required placement of fill material over a footprint covering approximately 4.9 acres of riverbed, and the permanent modifications to hydrodynamic processes. The location of the proposed expansion, as well as the orientation of the proposed landform, was designed to infringe as little as possible on the river's hydrodynamics as well as the commercial navigation channel. The results of hydrodynamic modeling provide an estimation of the potential change in deposition and entrainment patterns of sediment particles as a result of the proposed Schultz Park landform. Model results indicate sediment entrainment potential (mobility index > 1) of particles within the location of the proposed landform for existing conditions between river stages 304' and 320' is limited to particle sizes less than 5mm (fine gravel) (Appendix D in the Biological Assessment). Sediment entrainment potential model results, including the proposed landform, includes 5mm particles located on the surface of the landform fill slope at a river stage of 320'. Because the fill slope will be constructed with particles significantly greater than 5mm, the following discussion will be limited to sediment transport potential of particles less than 5mm at river stages 304', 310', and 320'.

The modeled sediment transport potential of all mobile particles between river stages 304' and 320' is summarized in Figure 13 of the Biological Assessment. The figure represents the increased deposition and entrainment potential caused by the proposed landform beyond the existing potential deposition and entrainment. Deposition and entrainment potential for existing conditions is not shown on the figure in order to highlight the changes in sediment transport potential resulting from the project. At river stage 304', potential entrainment of 1mm particles is likely to occur at the furthest extent of the proposed landform from shore. The remaining modifications to the sediment transport potential of the river include an increased potential deposition of 01.mm, 1mm, and 2mm particles primarily downstream and shoreward of the proposed landform.

It is anticipated that approximately 5.8 acres may be indirectly affected by increased boating activity such as wave action and propeller wash from boats accessing the transient dock boat slips and marina. Potential sedimentation or scour from boating activity within the transient dock marina is expected to be minimal due to the slow speed required to maneuver within the dock area. In addition, a wave attenuator was integrated into the transient dock design to buffer

the boat harbor and shoreline from wave action generated from vessels operating within the navigation channel of the river.

Mussel Conservation Measures
Proposed mussel conservation measures were included in the Biological Assessment on pages 24 and 25 (O'Neill and Thomas 2009). The Service recognizes that, individually and/or cumulatively, these mussel conservation measures contribute to the avoidance and minimization of adverse effects to these listed mussels, but that these measures do not necessarily eliminate all adverse effects that may result from the proposed action.

From the Conservation Measures in the Biological Assessment, the Service believes that essentially two general measures are proposed. They are: 1) a mussel relocation effort and 2) a contribution of some amount of funds to mussel research. These conservation measures are included with more detail, along with additional minimization actions, in the Reasonable and Prudent Measures and Terms and Conditions portion of this Biological Opinion.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description
This biological opinion covers the fat pocketbook, *Potamilus capax*; pink mucket, *Lampsilis abrupta*; and orangefoot pimpleback, *Plethobasus cooperianus*. All three species are federally listed as an endangered.

Fat pocketbook mussel
The fat pocketbook was first listed as endangered in 1976, and a recovery plan was written in 1985 and then revised in 1989 (USFWS 1985a, USFWS 1989). This species is currently undergoing a 5-year review to determine its current status by the Service's Mississippi Field Office (USFWS 2007). Critical habitat for this species has not been designated.

The following taxonomic information is gleaned from the recovery plan for this species (USFWS 1989). The fat pocketbook was described twice in 1832 by two authors giving it different names. It was first described by J. Green as *Unio capax* and by I. Lea as *Symphnota globosa*. A few name changes have occurred since 1832, and the current accepted name, which includes the author who first described it, is *Potamilus capax* (Green 1832).

The type locality is the upper Mississippi River at the Falls of St. Anthony in Minnesota. The fat pocketbook has a round to oblong shell that is greatly inflated and has a strong s-shaped hinge line. The beak cavity is very deep (NatureServe 2007, Cummings and Mayer 1992). The shell is thin to moderately thick and the periostracum varies in color from light brown, yellow, or olive, and becoming dark brown in older individuals. The shell is typically rayless, smooth, and very shiny. Both anterior and posterior ends of the shell are rounded. Young fat pocketbook shells may have a few faint ridges on the umbo as well as have a small posterior wing present, but these characteristics are not necessarily visible in older individuals. The umbos are greatly inflated, elevated above the hinge line, and turned inward. The fat pocketbook is known to grow to a length of 5 inches. Internal morphology includes two pseudocardinal teeth in each valve, and

both are thin, compressed, and elevated. There are two lateral teeth in the left valve and one in the right valve. Lateral teeth are thin and greatly curved in both valves. The nacre is bluish white and often iridescent; however, it may include some pink or salmon color in some specimens (Cummings and Mayer 1992).

Pink mucket

The pink mucket (*Lampsilis abrupta*) was listed as an endangered species on June 14, 1976 (Code of Federal Regulations 1976). No critical habitat has been designated for this species.

The pink mucket is a medium-sized mussel, growing to a length of approximately 4.5-5in. The shells are subquadrate or circular in shape and become thick and heavy in mature individuals. Anterior edges of the shells are rounded, with slightly curved dorsal and ventral margins. The posterior margins of the shells in females are slightly rounded to straight; shells of the males are rounded or bluntly pointed. A well-defined posterior ridge is present in the males. Color of the outer shell surface (periostracum) varies from light yellow or yellowish-brown to dark brown, occasionally marked with broken fine to fairly wide dark green rays. The color of the inner shell surface (nacre) varies from white to pink to salmon in color, with the posterior margin being iridescent (Parmalee and Bogan 1998).

Orangefoot pimpleback

The orangefoot pimpleback (*Plethobasus cooperianus*) is an Ohioan species (i.e., Interior Basin) species. Records are only known from the Ohio River basin. It was officially listed as an endangered species on July 14, 1976 (Code of Federal Regulations 1976). No critical habitat has been designated for this species.

The orangefoot pimpleback is a medium-sized mussel, growing to a length of approximately 3.5 inches. The shell is circular or sub-triangular in shape, with prominent beaks that are directed anteriorly. The periostracum is brown to reddish-brown and the surface of the shell is marked by concentric growth lines. The posterior two-thirds of the shell are covered with numerous raised, irregular pustules (Parmalee and Bogan 1998). Nacre color varies from white to pink inside the pallial line, being more intense toward the hinge-teeth (Bogan and Parmalee 1983).

Life History

Fat pocketbook

The fat pocketbook is a filter-feeding species from the Unionidea family. The fat pocketbook occurs primarily in sand and mud substrates, although the species has been found in fine gravel and hard clay occasionally (Parmalee 1967, Bates and Dennis 1983, Clarke 1985). The species occurs at water depths that range from a few inches to several feet (Parmalee 1967). The life cycle of the fat pocketbook is similar to that of other freshwater mussels, in which the glochidia (larvae) require a fish host to transform to the juvenile stage. Larval mussels must attach to a host (usually on a fish gill) where they metamorphose into free-living individuals called juveniles. The fat pocketbook is a long-term brooder, with females becoming gravid in the fall, retaining glochidia over winter, and releasing the progeny during spring and summer. The freshwater drum is the primary host fish for the species (Barnhart 1997, Watters 2007).

The fat pocketbook is a large-river species that is typically found in slow-flowing water with a mud (silt/clay), sand, or gravel substrate, at depths of a few inches to eight or more feet (USFWS 1997, Cummings and Mayer 1992, USFWS 1989, EA 2007, Parmalee 1967). In the St. Francis River in Arkansas and lower Wabash River, fat pocketbooks have been found to utilize sand, mud and fine gravel substrates (Bates and Dennis 1983, Clarke 1985). The fat pocketbook is known to exist in 200 miles of the St. Francis River watershed, which includes man-made ditches, bayous, and sloughs. These habitat types are characterized as depositional areas with slow-moving water, and surveys of the St. Francis River watershed indicate that the fat pocketbook is surviving and reproducing in these conditions (Miller and Payne 2005). The reproductive strategy of the fat pocketbook is not known, but it is suspected to be a long-term brooder (bradytictic), which holds glochidia through the winter and releases them in the spring of the year (USFWS 1989). Several unpublished studies since the species Recovery Plan have reported that fat pocketbook glochidia successfully transformed on the freshwater drum (*Aplodinotus grunniens*) (Watters 1994, Barnhart 1996, Barnhart and Roberts 1996, Barnhart and Riusech 1997). Barnhart (1997) found that fat pocketbook transformed only on freshwater drum among 29 fish species tested.

Pink mucket

The pink mucket inhabits areas in large rivers with swift currents, depths of 1.6 ft to 26.2 ft, and mixed sand/gravel/cobble substrate. Notwithstanding this, the pink mucket appears to have adapted to reservoir-type conditions in the upper reaches of some impoundments. This species is a long term brooder with a life span greater than 20 years. Females become gravid by age three and brood glochidia from August through June of the following year (Hubbs 2010b).

Reproduction is likely similar to other freshwater mussels. Males release sperm into the water column; the sperm are taken in by females during normal siphoning activity. Fertilized eggs are retained in specially modified gills (marsupia) until the larvae (glochidia) are fully developed. Once released, the glochidia must attach to the gills or fins of an appropriate fish host. They encyst and metamorphose into juvenile mussels. Fully developed juveniles drop from the fish host and settle to the river bottom. The glochidia are undescribed. Freshwater mussels feed by siphoning food items that drift in the water column. The pink mucket likely feeds on items similar to other mussel species including algae, zooplankton, diatoms, and detritus.

Host fishes identified through laboratory induced infections include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), and walleye (*Sander vitreus*) (Barnhart et al. 1997) as well as white crappie (*Pomoxis annularis*) and sauger (*Sander canadense*) (J.B. Layzer and L.M. Madison, USGS, from pers. comm., in Williams et al. 2008). The use of large piscivorous fishes for hosts is consistent with the presence of a fish-like mantle lure in the pink mucket (Barnhart et at. 1997). Freshwater drum (*Aplodinotus grunniens*) was erroneously cited as being a host by Fuller (1974).

The pink mucket often inhabits regulated rivers, particularly those navigational waters modified by locks and dams. Although not reservoir tolerant *per se*, it is found in tailwaters having good riverine-quality habitat (generally rocky substrates swept free of excessive fine sediment deposits by adequate currents). Reservoir conditions (characterized by slackwater, low oxygen, and heavy silt deposition) are not conducive for its survival and population sustainability. However,

its host fishes are more habitat generalists, being commonly found in reservoir, tailwater, and riverine habitats.

The mobility of its hosts and/or host fish tolerance for habitats unsuitable for the pink mucket may partially account for sometimes seemingly disjunct records of the mussel in streams like the Paint Rock River in Alabama, the Bourbeuse River in Missouri, and Bear Creek in Mississippi. It is possible that these highly sporadic occurrences in otherwise well-sampled streams do not actually represent populations but are merely occurrences of low-probability events (e.g., having a highly mobile host fish carry juveniles spawned from a nearby source population shed post-metamorphosed pink mucket into suitable habitat). Without a readily accessible source population (Tennessee River, Guntersville Dam tailwaters for Paint Rock River; Tennessee River, Wilson Dam tailwaters for Bear Creek; and Meramec River for Bourbeuse and Big Rivers), the pink mucket could possibly not exist in these streams.

Using the growth ring method, qualitative age estimations from external shell growth-rest ring counts (Neves and Moyer 1988) from 36 individuals collected from Osage River, Missouri suggests that the pink mucket has a lifespan of at least 36 years (Ecological Services Inc. 2003). It is probable the species lives several years longer considering that the growth ring method typically underestimates age compared to quantitative age determinations (thin sectioning shells) and that the older the specimen the greater the underestimate of age (Neves and Moyer 1988). Unfortunately, no empirical age data exists from thin sectioning pink mucket shells.

An experimental pond propagation study took place in early 2006 using pink mucket stock from Pickwick Landing Dam tailwater in the Tennessee River, Tennessee, and sheds light on aspects of its early life history (Don Hubbs 2009). Host fish (largemouth bass) were infested with mature glochidia teased out of a gravid female pink mucket and contained in a small pond enclosure. By late summer 2006, six juvenile individuals that had survived post-metamorphosis were released into an enclosure in their parent tailwaters to monitor survival, growth, and sexual activity. After approximately 20 months, they had all survived and grown from approximately 0.9 in length at the time of translocation to a range of 2.2-2.7 in, and were beginning to develop sexual dimorphic shell characters (apparently four females and two males). A reassessment of the grow-out experiment in March 2009 when the mussels were approaching age 3 found 100% survival and that there were indeed four females and two males. The females all had charged gills (whether with eggs or glochidia was unknown) and had grown to a length range of 2.4-2.8 in, while the males were larger at 3.1 and 3.2 in (Bob Butler 2010). From this age and growth data, it appears that at least female pink mucket reach sexual maturity at age 2+. Growth is rapid for the first few years, especially in males. In general, mussel growth slows considerably after the first few years, presumably when individuals become fully mature, with energy instead going towards gamete production and development (Baird 2000).

Orangefoot pimpleback

The orangefoot pimpleback is found in medium to large rivers with sand and gravel substrates (USFWS 1984). The reproductive cycle of the orangefoot pimpleback is likely similar to that of other native freshwater mussels. Males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The mussel glochidia

are released into the water, and within a few days they must attach to the appropriate species of fish, which they parasitize for a short time while they develop into juvenile mussels. The orangefoot pimpleback is likely a short term brooder with spawning occurring in the spring and release of glochidia during summer months (USFWS 1984). Wilson and Clark (1914) collected two gravid females in early June. Utterback (1915) reported the orangefoot pimpleback to be a summer breeder and Yokley (1972a) observed one specimen with gills charged in August.

The glochidia of the orangefoot pimpleback have not been described, but the sexual glands and soft parts are usually pinkish in color and also grayish or brown (Service 1984). The glochidia have been observed to be pale orange in June (Hubbs 2010b). It is probable that the glochidia are semi-oval, and hookless, similar to those in the closely related species, sheepnose (*Plethobasus cyphyus*) (Ortmann 1912, 1919).

Specific glochidial hosts for this species are unknown; however, the sauger (*Stizostedion canadense*) is reported by Surber (1913) and Wilson (1916) to be the fish host for the orangefoot pimpleback. The Kentucky Department of Fish and Wildlife Resources, under the direction of Dr. Monte McGregor is planning studies to identify the species' fish host(s) and other life history aspects, and is maintaining captive individuals at their Center for Mollusk Conservation in Frankfort, Kentucky.

Population dynamics

Population size - fat pocketbook

Little is known on the population dynamics of the fat pocketbook; however, relatively dense populations do occur in portions of the St. Francis River drainage in Arkansas and Missouri, and sporadically elsewhere, but extensive surveys have not been conducted. Surveys conducted within the last 5-10 years in the lower Ohio River that have recorded this species, are usually targeted at specific projects (e.g., fleeting areas, loading/unloading facilities, Corps dredging needs, and sand and gravel dredging operations), or records have been obtained from commercial mussel fishermen working that portion of the lower Ohio River near Paducah, Kentucky, and Metropolis, Illinois. Based on these more recent records, it appears the fat pocketbook may be somewhat more common than previously believed in this reach of river, but no quantitative assessment is available. Many of these records are of young individuals (i.e., <5 years), so it is apparent the species has been able to successfully recruit in recent years.

Population size - pink mucket

Despite its wide range in historical times, the pink mucket has apparently always been an uncommon species (Ortmann 1919, Johnson 1980, Service 1985b). Most literature records report very low population numbers. In addition, only 11 of 232 Ohio State University Museum of Zoology (OSUM) pink mucket records rangewide, over several decades, contained more than 10 specimens. All 11 of these OSUM lots represented collections made ca. 1980 from commercial sheller's cull piles in lower Tennessee and middle Cumberland Rivers, meaning the records represented protracted spatial and temporal collections from harvesting along several mile river reaches over extended collecting periods (L.M. Koch 2009).

Pink muckets collected during surveys tend to be large, old adult animals. Smaller juveniles or subadults are rarely if ever found in the vast majority of populations, despite recent quantitative quadrat sampling in several streams. If the species' rate of recruitment is characteristically very low (which there is no empirical data to support), this would at least partially explain the typical lack of evidence for recruitment that most populations exhibit. It is entirely possible that many of the populations now considered extant have recruitment rates that are below population maintenance levels if they don't suffer from outright recruitment failure. Below population maintenance levels indicate that a population is below the threshold of sustainability and that the population is in decline. Unless this downward population trend is arrested or reversed, the ultimate result will be extirpation. Considering the advanced age the pink mucket attains (36+ years), non-recruiting populations may take decades to become extirpated. Therefore, it may not be known whether most populations are viable or not for many years to come (Bob Butler 2010).

The tendency of pink mucket to inhabit larger streams and oftentimes deeper water habitats may partially account for apparent rareness, since most collectors historically were unable to sample these habitats effectively. But recruitment rates may play a significant role in dictating relative population size. Current pink mucket recruitment rates would appear to be very low given the scant evidence we have for the presence of juveniles in many populations and despite considerable effort expended conducting quantitative sampling. Considering the species longevity and the fact that it has always appeared to be an uncommon species, it is possible that recruitment rates are naturally low for pink mucket. If true, having a low rate of recruitment would make populations inherently more susceptible to extirpation when factors act in concert to further compromise the already low recruitment level (Bob Butler 2010).

A contributing factor to the pink mucket being a rare species, is the fact that its inhabited range is a fraction of what it was historically (over a 100 years ago), having lost several thousand miles of large river habitat to habitat degradation. Considering the huge loss of range, it is likely the current total population size of pink mucket represents a small proportion of its historical numbers. Unfortunately, very little quantifiable information is available for estimating population size for this species either historically or currently (Bob Butler 2010).

Population size - orangefoot pimpleback

Historical records for the orangefoot pimpleback indicate this species is strictly an Ohioan or Interior Basin species (i.e., Ohio, Cumberland and Tennessee river drainages) (Ortmann, 1919). Populations of the orangefoot pimpleback continue to occur in the lower Ohio River and in the Tennessee River, while the best remaining population of the species occurs in the lower, free-flowing reach of the Ohio River, and in the riverine portion of Kentucky Lake downstream of Pickwick Landing Dam in Tennessee.

Hubbs (2010b) recently collected two individuals from the Pickwick Landing Dam tailwater that were approximately seven years in age, demonstrating recruitment in this Tennessee River population of the orangefoot pimpleback. It is not known if any genetic interchange is occurring between the two populations in the Ohio and Tennessee Rivers. The Cumberland River does not currently contain a known viable population of the species, but individuals may still exist there in low numbers (Widlak 2010).

No new populations of orangefoot pimpleback have been discovered and populations have not yet been reestablished in historic habitat. The lower French Broad River and lower Holston River have, however, been recently designated for establishment of nonessential experimental populations of the species. When the orangefoot pimpleback is collected during surveys, older, often eroded, adult specimens of this species are sampled (Widlak 2010).

Population variability - fat pocketbook

Little is known on the population variability of the fat pocketbook; however, in recent years in the lower Ohio River, young individuals may comprise the majority of a population. Densities are often so low that only a few individuals of various age groups comprise the population.

Population variability - pink mucket

Little is known on the population variability of the pink mucket. Few individuals are observed during survey efforts, making it difficult to accurately assess populations. Densities are often so low that only a few individuals may comprise a population.

Population variability - orangefoot pimpleback

This species is considered extremely rare wherever it is found. Little is known on the population variability of the orangefoot pimpleback. Few individuals are observed during survey efforts, making it difficult to accurately assess populations. In the Tennessee River, the Pickwick Landing Dam tailwater supports the only known population in which recent recruitment has been observed. The Tennessee Wildlife Resources Agency collected a seven year old individual at TRM 170 in the vicinity of Swallow Bluff Island in 2009. Finding mussels of this early age indicates that some level of recruitment is occurring in this reach of the Tennessee River (Don Hubbs 2010a). During a June 17-21, 2008 pre-project survey at TRM 160.7, one orangefoot pimpleback was collected and comprised <0.001 percent of the total species composition (11,090 native mussels, representing 17 species) (Shaw 2010).

Population stability - fat pocketbook

The stability of fat pocketbook populations is not well known; however, there have been examples of this species recolonizing areas that have been dredged in ditches in Arkansas. In most locations, the presence of fat pocketbooks is evident from occasional individuals or a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Population stability – pink mucket

The stability of pink mucket populations is not well known. In most locations where this species appears to be present, the presence of pink muckets is evident from occasional individuals or only a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Population stability – orangefoot pimpleback

The stability of orangefoot pimpleback populations is not well known. In most locations where this species appears to be present, the presence of orangefoot pimplebacks is evident from

occasional individuals or only a few individuals recorded. In the Ohio River, the low numbers typically encountered during mussel surveys, is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Status and distribution

Reasons for listing - fat pocketbook

The primary causes for the decline of the fat pocketbook in its historic range are from navigation (e.g., maintenance dredging) and flood control activities on the rivers where it was once found (USFWS 1989). Channel dredging is a direct impact that physically removes fat pocketbooks from their habitat. Dredging activities can affect aquatic systems both physically (e.g., accelerated erosion, decreased habitat diversity, increased bedload, and increased habitat instability) and biologically (e.g., altered behavior of host fish from changing flow patterns, decreased biomass, and altered species composition and abundance) (USEPA 2007). Construction of impoundments for flood control in the river basins in which fat pocketbook had been collected has caused a loss of fat pocketbook habitat from inundation, changes in flow distributions, and sedimentation. Reductions in water quality (metals, pesticides, and other pollutants) from point sources discharges also have likely affected mussel populations. However, with the implementation of the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System in 1972, industrial discharges have been regulated, and point source pollutants have significantly declined in the large river systems, in which the fat pocketbook is reported. Non-point source pollution (stormwater runoff that includes complex mixtures of pesticides, fecal coliform bacteria, metals, suspended solids, and pharmaceuticals) may also have had a negative impact on mussel populations downstream of agricultural and urban areas, although the possible effects have not been adequately researched. Other causative factors in the decline of the fat pocketbook include competition of food and habitat resources with the invasive zebra mussel (*Dreissena polymorpha*) in some portions of their range (NPS 2006, Hunter et al. 1996, Scholesser et al. 1996). Zebra mussels were found to be a contributing factor in the decline of unionids downstream of the Belleville Locks and Dam (EA 2005).

Reasons for listing – pink mucket

The recovery plan for the pink mucket provides reasons for listing this species including: impoundments, siltation, and pollution (USFWS 1985b). Impoundments alter flow, temperature regimes, and water quality and habitat conditions creating conditions unsuitable for riverine mussels and/or their host fish. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. Currently, the vast majority of the pink mucket's historical range has been altered and no longer offers suitable habitat (approximately an 80% loss). Despite the relatively large number of extant populations for a federally listed mussel, the total population size for pink mucket, although undetermined, appears to be relatively small based on significant loss of total range, infrequent occurrence in otherwise suitable habitat, very low relative abundance compared to other mussels, and overall rarity of the species). With few exceptions, its 29 extant populations are: 1) invariably small (rarely are more than one or two individuals found per sample and a third of its populations are

known from only one or two animals collected over the past 25 years), 2) characteristically rare (having low relative abundance), 3) sporadically or occasionally distributed (despite the extent of seemingly suitable habitat it is very patchy in distribution and occurrence), 4) generally limited in linear extent (most less than 30 RMs), and typically lacking evidence for recent recruitment (despite considerable quantitative sampling efforts). With many disjunct populations and its overall scarcity, the species is highly susceptible to localized extirpations from the genetic implications of extremely low population size and because of threats that are extremely difficult if not impossible to control. Stochastic events are a real concern for all populations, particularly reach-limited ones and those associated with navigation channels and other major transportation arteries (Bob Butler 2010).

Reasons for listing - orangefoot pimpleback

The recovery plan for the orangefoot pimpleback provides reasons for listing this species including: impoundments, siltation, and pollution. Impoundments alter flow, temperature regimes, and water quality and habitat conditions creating conditions unsuitable for riverine mussels and/or their host fish. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. The orangefoot pimpleback is an extremely rare mussel. Generally, only one or two individuals are collected, if any, in suitable habitat supporting an abundance of other mussel species. Historically, it had a relatively restricted distribution in that the species was only reported from the Ohio, Tennessee and Cumberland rivers and their larger tributary streams (USFWS 1984). Alteration and destruction of habitat, due to creation of impoundments for flood control, navigation, hydroelectric power production and recreation, and activities resulting in siltation which affected substrate quality (e.g., navigation traffic, sand and gravel mining), led to the listing of the orangefoot pimpleback; these impacts continue to affect the species' habitat (USFWS 1984; James Widlak 2010). The orangefoot pimpleback is not a species that is collected for commercial purposes; however, commercial mussel harvest may have contributed to some decline in populations due to the species being unintentionally collected along with commercially valuable species. However, these impacts are believed to be minor in regards to declining population levels. Due to the rarity of the species and only sporadic finds of one or two individuals, the Service believes that the orangefoot pimpleback should remain an endangered species (Widlak 2010).

Rangewide trend – fat pocketbook

Although the fat pocketbook was historically widespread within much of its original range, populations of this species and its range have declined in the last 50 years. The main reason for decline of the species is channelization, impoundment and dredging of rivers, but contributing factors include siltation and pollution, and possibly range reductions of fish hosts (USFWS 1989, 1997). More recently, infestations of the exotic invasive zebra mussel are contributing to the decline of all native Unionid mussels (Layzer et. al. 1996, Ricciardi et. al. 1998). Because of the severe reduction in range of the species, the fat pocketbook was listed as an endangered species on June 14, 1976. No estimate of the total population was included in the 1985 recovery plan (USFWS 1985).

The historic range of the species includes the upper Mississippi River above St. Louis; the Ohio River; the Wabash and White Rivers in Indiana; the St. Francis, White, and Black Rivers in Arkansas; the Spoon and Illinois Rivers in Illinois; the Des Moines and Iowa Rivers in Iowa; the Cumberland River in Kentucky; and the Neosho River in Kansas. It was also reported in the Des Moines River (Missouri) and the Illinois River. Since 1970, it has been collected from the St. Francis River and Right Hand Chute Little River and drainage ditches associated with these streams in Arkansas and Missouri, the lower Wabash and White Rivers in Indiana, the lower Ohio River, lower Tennessee River and lower Cumberland River in Kentucky, and the upper Mississippi River. Live and fresh-dead fat pocketbook specimens have been found at various locations in the Mississippi River from the mouth of the St. Francis (MRM 669), above Helena, Arkansas, downstream to just below Vicksburg, Mississippi (MRM 427). Additionally, they have been found in abandoned channels within batture lands as far south as Natchez, Mississippi (MRM 385), however, there have been no main channel searches for the species below MRM 427 (Paul Hartfield, 2008). The species is present in low densities at appropriate sites in at least 300 miles of the Lower Mississippi River between Natchez, Mississippi, and Memphis, Tennessee (Paul Hartfield, 2008). A single fat pocketbook was collected in 2003 from the White River in Arkansas near river mile 11, the first collection in that river since the 1960's (Harris and Christian 2003). The largest viable population currently exists in the St. Francis River system (Arkansas); however, other viable populations likely exist in the Wabash, Ohio, or Cumberland Rivers (USFWS 1989, 1997). In 1987, during a survey of the unionid fauna of the Wabash River drainage, nine live fat pocketbooks were found in the lower part of the river. Subsequent surveys of the Wabash River detected populations of various sizes at sample sites from the confluence with the Ohio River upstream to Knox County, Indiana (Cummings et al. 1990). Based on the results of these surveys, the population of fat pocketbooks in the lower Wabash River appears to be viable and large relative to other sympatric mussels. Fresh dead specimens (e.g., surveyors collected shells from mussels that had recently died) have been found occasionally in the lower Ohio River (e.g., Ohio River miles 848 and 938) since the late 1980s. The fat pocketbook is currently known to occur in several locations in the lower Ohio River from J.T. Myers Lock and Dam (ORM 846) downstream to the mouth of the Ohio River (ORM 981), a reach of approximately 135 miles. However, a recent record of the fat pocketbook has been recorded from the Ohio River near the mouth of the Green River, approximately 65 upstream of the J.T. Myers Lock and Dam (Chad Lewis, 2008). This 2008 record at Ohio River Mile 784 indicates the fat pocketbook also occurs in the J.T. Myers pool. It is not known to what extent this species is distributed in the J.T. Myers pool.

Rangewide trend – pink mucket

The pink mucket is an Ohioan species with possibly the widest range known for a listed mussel. It is a rare larger-stream mussel that was widely distributed historically in at least 48 large rivers in 12 states. Presently, known populations occur in the Barren River, Big River, Black River, Clinch River, Cumberland River, Current River, Gasconade River, Green River, Kanawha River, Little Black River, Meramec River, Ohio River, Osage River, Paint Rock River, and Tennessee River (USFWS 1985; Parmalee and Bogan 1998). Of these extant populations, only a few have shown recent evidence of recruitment. Some taxonomists have recently postulated that the reproducing populations west of the Mississippi River are not *Lampsilis abrupta*, but rather are more closely related to another endangered species, the Higgins eye pearly mussel (*Lampsilis higginsi*). If this is true, then there are fewer known reproducing populations of *L. abrupta* than

originally thought. Although it has a relatively wide distribution and is apparently more tolerant of reservoir-type habitat conditions than other listed mussel species, the pink mucket is reported to occur in low numbers where it occurs.

Currently, 29 populations are considered extant. With few exceptions, the 29 extant populations are extremely small and occur in relatively short river reaches despite the extent of seemingly suitable habitat in many streams. Further, over one-third of its populations deemed extant are very sporadic in occurrence and known from only one or two individuals collected over approximately the past 25 years (e.g., Licking, French Broad, Clinch, Paint Rock, Sac, Bourbeuse, St. Francis, Current, Eleven Point Rivers; Bear Creek). A majority of populations are essentially limited to discrete reaches making the species in these streams highly susceptible to elimination from catastrophic stochastic events (Bob Butler 2010).

Rangewide trend – orangefoot pimpleback

The orangefoot pimpleback was historically known from the Ohio River (from western Pennsylvania to southern Indiana), the Wabash River (below Mt. Carmel, Illinois), the Cumberland River (from Cumberland County, Kentucky to near Nashville, Tennessee), the lower Clinch River (Anderson County, Tennessee) and the Tennessee River (near Knoxville to Benton County, Tennessee) and has also been reported from the Caney Fork, Holston, and French Broad Rivers in Tennessee, and the Green and Rough Rivers in Kentucky (NatureServe 2003). The largest known populations remain in the lower, free-flowing reach of the Ohio River downriver from the confluence of the Tennessee River at Paducah, and a short reach of the Tennessee River below Pickwick Landing Dam (USFWS 1984, Miller et al. 1986). The Cumberland River may continue to support individuals of the species, but none have been collected from that system in recent decades. The Service (Code of Federal Regulations 2007) is currently planning future releases of the orangefoot pimpleback into the lower French Broad and lower Holston Rivers Experimental Population Area, under a Nonessential Experimental Population designation to further the recovery and conservation of the species.

Live orangefoot pimplebacks have recently been recovered from commercial mussel harvesters in the vicinity of the lower Ohio River near Lock and Dam 52. Several of these individuals are currently being held by the KDFWR to be used for propagation and reintroduction purposes in the near future. Surveys of mussel beds in the lower Ohio River from July through October 2007 yielded 24 orangefoot pimplebacks (Widlak 2010). The TWRA collected a seven year old individual at TRM 170 in the vicinity of Swallow Bluff Island in 2009 and have collected several seven and eight year old orangefoot pimpleback mussels in the Pickwick Landing Dam tailwater in recent years, indicating that some level of recruitment is occurring in this reach of the Tennessee River. The orangefoot pimpleback also continues to be found in the lower Tennessee River downstream of Kentucky Dam, but no recruitment of the species has been recently noted in Kentucky waters (Lewis 2008). This individual, 3.1 inches in length, was discovered on June 18, 2008 during a pre-project survey of the proposed project area.

New threats

The zebra mussel, an exotic species that colonizes the shells of native mussels, is a relatively new threat to mussels including the fat pocketbook, pink mucket, and orangefoot pimpleback. It is present in the Ohio River and has been observed attached to native mussels, including these

three species, and can restrict the ability of a mussel to move, feed, respire, and reproduce, especially if large numbers are present on the shell of the native mussel.

Analysis of the species/critical habitat likely to be affected

The fat pocketbook, pink mucket, and orangefoot pimpleback mussels are the only federally listed species likely to be adversely affected in the action area of this project. No critical habitat has been designated for these mussel species; therefore, none will be affected.

ENVIRONMENTAL BASELINE

Status of the species within the action area

A reconnaissance mussel survey was performed during August 5 – 8, 2008 in two portions of the river from near Ohio River Mile (ORM) 935.7 (Burnett Street Boat Ramp) and 934.7 (Schultz Park Expansion).

Fat pocketbook

The reconnaissance survey recorded a total of 21 live fat pocketbook mussels, six from the Burnett Street Boat Ramp area and 15 from the Schultz Park Expansion area. This species has also been recorded from other survey efforts within two to three miles both upstream and downstream of the action area. In the Ohio River, fat pocketbooks are known to occur primarily from the mouth of the Wabash River (ORM 848) downstream to the mouth of the Ohio River (ORM 981), a reach of approximately 133 miles; however, recent mussel surveys have extended the known distribution of this species in the Ohio River approximately 64 miles upstream of the mouth of the Wabash River (ORM 784) (Chad Lewis, 2008, personal communication). Throughout this portion of the Ohio River, the fat pocketbook is not evenly distributed and is likely to be found only in sites containing suitable habitat conditions. It is not known how much suitable fat pocketbook habitat exists in the lower Ohio River. Mussel surveys that have been conducted in recent years in this 135-mile reach of river occasionally record the fat pocketbook; however, these surveys do not give a complete assessment of the available habitat or the status of the species. Surveys conducted within the last 5-10 years that have recorded this species are usually targeted at specific projects (e.g., fleeting areas, loading/unloading facilities, Corps dredging needs, and sand and gravel dredging operations), or records have been obtained from commercial mussel fishermen working that portion of the lower Ohio River near Paducah, Kentucky, and Metropolis, Illinois. Considering the widespread distribution of fat pocketbooks in the Mississippi River and certain tributaries to the Mississippi River, the Ohio River distribution is in itself a small subset of the overall range of this species.

Pink mucket

A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels such as the pink mucket, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site. The reconnaissance mussel survey did not record any pink muckets; however, it is likely that the pink mucket occurs in the action area. The pink mucket has been recorded in the Ohio River within

two to three miles of the action area, the mussel species assemblage in the action area is one in which the pink mucket is often associated, and portions of the action area contain suitable habitat.

Orangefoot pimpleback

A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels such as the orangefoot pimpleback, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site. The reconnaissance mussel survey did not record any orangefoot pimpleback mussels; however, it is likely that this species occurs in the action area. The orangefoot pimpleback has been recorded in the Ohio River within two to three miles of the action area, the mussel species assemblage in the action area is one in which this species is often associated, and portions of the action area contain suitable habitat.

Factors affecting species environment within the action area

The habitat conditions within the action area consist primarily of sand, soft silt over sand, and small areas of gravel and/ or clay. Other factors possibly affecting the species environment in the action area include runoff from agriculture activities which can increase turbidity and add sediment, including possible contaminants from urban runoff, dams which can affect host fish movement and habitat conditions, sewer outfalls, and industrial complexes located upstream in the Ohio, Cumberland, and Tennessee Rivers. Barge traffic will continue to operate in the river channel riverward of the project footprint; however, barge groundings or 'parking' on the shoreline is expected to cease once the project is constructed.

Previous Incidental Take Authorizations

Fat pocketbook

Fifteen prior formal consultations involving the fat pocketbook have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA) and United States Forest Service (USFS). However, the formal consultation with the USFS did not authorize any incidental take of fat pocketbooks. Of the fourteen biological opinions issued by the Service authorizing incidental take of fat pocketbooks, nine were issued to the USACE primarily for maintenance dredging activities, barge fleeting/loading/unloading facilities, for bank stabilization, levee setback and bridge construction activities. Five biological opinions authorizing incidental take were issued to the FHWA for bridge replacement and construction and for scour repair. These biological opinions were issued between 1999 and 2009. A summary of these formal consultations is discussed below and provided in Appendix A.

The fourteen incidental take statements have authorized the loss of about 602 individuals, an indeterminate number of small individuals, the relocation of more than 3,257 individuals, and the placement of nine gravid female fat pocketbooks into a propagation facility. Seven of the biological opinions authorized take of fat pocketbook from relocation. The largest relocation authorized by these biological opinions allowed the relocation of up to 3,000 individuals prior to the start of maintenance activities on Stateline Outlet Ditch in Arkansas. The actual relocation was performed in 2002 and involved the relocation of 2,042 fat pocketbooks. Results from a

2005 post-relocation survey of this reach found the area re-populated with fat pocketbooks and at densities higher than those found during the pre-impact survey.

Service programmatic biological opinions in Regions 3 and 4 regarding section 10(a)(1)(A) permits for mussel species, including fat pocketbook, anticipate the incidental take of five individuals per year, per permit. There have been two reports of incidental take in the form of injury or death reported by two permittees in Kentucky in recent years; both were for less than five individuals.
The amount of actual take of fat pocketbook associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels in a dredge pile are time-consuming and costly and are, therefore, not routinely recommended.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the fat pocketbook appears to be doing well range-wide and within impacted reaches such as Arkansas' Stateline Outlet Ditch. This coupled with the recent discoveries of previously undocumented populations of fat pocketbook and the Service's internal analysis, the Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the fat pocketbook have not degraded the overall conservation status (i.e., environmental baseline) of the fat pocketbook.

Pink mucket
Thirty-five prior formal consultations involving the pink mucket have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA), Federal Energy Regulatory Commission (FERC), U. S. Fish and Wildlife Service (USFWS), Tennessee Valley Authority (TVA), Nuclear Regulatory Commission (NRC), and Natural Resources Conservation Service (NRCS). A summary of these formal consultations is discussed below and provided in Appendix B.

The incidental take statements from the above mentioned consultations have authorized the loss of about 37 acres of habitat, 246 individuals, an indeterminate number of individuals from several consultations indicating all individuals will be taken within a project area, and the relocation of five individuals. The amount of actual take of pink muckets associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels taken were not always given.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the pink mucket appears to be persisting range-wide. The Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the pink mucket have not degraded the overall conservation status (i.e., environmental baseline) of the pink mucket.

Orangefoot pimpleback

Nineteen prior formal consultations involving the orangefoot pimpleback have involved the United States Army Corps of Engineers (USACE), Federal Highway Administration (FHWA), U. S. Fish and Wildlife Service (USFWS), and Tennessee Valley Authority (TVA). A summary of these formal consultations is discussed below and provided in Appendix C.

The incidental take statements from the above mentioned consultations have authorized the loss of about seven acres of habitat, 58 individuals, and an indeterminate number of individuals from several consultations indicating an unknown number of individuals will be taken within a project area. The amount of actual take of orangefoot pimpleback mussels associated with these biological opinions is difficult to determine for several reasons:

1. Young mussels are small and may be difficult to detect.
2. Quantitative assessments of the number of mussels taken was not always given.
3. Mussels are long-lived and have a complex life-cycle making assessment of indirect effects difficult (e.g. effects of water quality changes, long-term relocation effects, impacts to host species, etc.).

Despite the inherent difficulties associated with assessing the actual amount of take associated with projects impacting mussels and the uncertainties associated with the long-term impacts, the orangefoot pimpleback mussel appears to be persisting in the lower Ohio River and selected portions of the Tennessee River in Kentucky and Tennessee. The Service concludes that the aggregate effects of the activities and incidental take covered in previous biological opinions on the orangefoot pimpleback have not degraded the overall conservation status (i.e., environmental baseline) of the orangefoot pimpleback.

EFFECTS OF THE ACTION

Factors to be considered

This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat and its interrelated and interdependent activities. While analyzing direct and indirect effects of the proposed action, the Service considered the following factors:

- Proximity of the action – We describe known species locations and designated critical habitat in relation to the action area and proposed action;
- Distribution – We describe where the proposed action will occur and the likely impacts of the activities;

- Timing – We describe the likely effects in relation to sensitive periods of the species' lifecycle;
- Nature of the effects – We describe how the effects of the action may be manifested in elements of a species' lifecycle, population size or variability, or distribution, and how individual animals may be affected;
- Duration – We describe whether the effects are short-term, long-term, or permanent;
- Disturbance frequency – We describe how the proposed action will be implemented in terms of the number of events per unit of time;
- Disturbance intensity – We describe the effect of the disturbance on a population or species; and
- Disturbance severity – We describe how long we expect the adverse effects to persist and how long it would it take a population to recover.

Proximity of the action:
The proposed action will occur upstream of Lock and Dam 52 on the Kentucky side of the river near approximately Ohio River Mile 934.7 to 935.8, extending from the Kentucky shore out to the navigation channel. The proposed action area is known to contain fat pocketbooks and likely to contain pink muckets and orangefoot pimplebacks. Fat pocketbooks are known to be present in the project footprint portion of this reach in which a mussel survey was conducted. The pink mucket and orangefoot pimpleback likely occur within the project footprint and/or larger action area, because of their close proximity to the site, the occurrence of suitable habitat, and the associated mussel assemblage present in the action area.

Distribution:
Direct impacts to the fat pocketbook, pink mucket, and orangefoot pimpleback mussels and their habitats will most likely occur within the project footprint and in other portions of the action area downstream and riverward of the project footprint. It is expected that the greatest impacts will be from the new fill to provide the terrestrial area at the Schultz Park Expansion site. Other potential impacts will be from changes to the surrounding riverine habitat from flow changes due to the fill, the presence and operation of the marina, and boat traffic activity at and near the project sites.

Timing:
The proposed action can be divided into essentially two periods, a construction phase and an operation phase. Depending on when the actual construction occurs, the construction may impact the fat pocketbook, pink mucket, and orangefoot pimpleback mussels during sensitive periods of their life cycle.

The fat pocketbook and pink mucket are thought to become gravid in the late summer or fall and brood glochidia over the winter (long-term brooders), and then release them in the spring. Sensitive periods (late summer-fall) for adults include the release of sperm into the water column and, for females, the fertilization of eggs and brooding of larvae as they transform into glochidia. Another sensitive period for female mussels is the time of release of glochidia and their attachment onto the fish host (spring-early summer). Sensitive periods for the juveniles include their attachment to excystment from the fish host as they drop to the riverbed and establish themselves in the substrate (spring-early summer). All these sensitive periods of the fat

pocketbook and pink mucket will certainly occur during the post-construction or operation period and into the foreseeable future. In addition, both the fat pocketbook and pink mucket may be impacted if fish host behavior and presence are affected by the construction and operation phases of the proposed action.

The orangefoot pimpleback is thought to become gravid during spring and/or summer, brood glochidia for a short period of time and release larvae in the late summer (short-term brooder). Sensitive periods in late spring-summer for adults, include the release of sperm into the water column and the fertilization of eggs and brooding of larvae. Another sensitive period for female mussels is the time of release of partially developed larvae or glochidia, and their attachment onto the fish host (summer). Sensitive periods for the juveniles include their attachment to the host fish and excystment from the host fish as they drop to the riverbed and establish themselves in the substrate (summer). All these sensitive periods of the orangefoot pimpleback will certainly occur during the post-construction or operation period and into the foreseeable future. In addition, the orangefoot pimpleback may be impacted if fish host behavior and presence are affected by the construction and operation phases of the proposed action. The fish host for the orangefoot pimpleback is not known.

Nature of the effect:
It is likely that the proposed action will have a variety of effects on the fat pocketbook, pink mucket, and orangefoot pimpleback mussels. Any of the periods of these species life cycle can potentially be disturbed or disrupted by construction and/or operation activities; however, the construction phase of fill deposition and concomitant flow changes will likely be the greatest effect. For instance, any listed mussels remaining within the filled peninsula area will be killed. The operation phase of this project is likely to result in the (a) direct and/or indirect mortality of individual adults and juveniles from boat activity, (b) dislodgement of adults and/or juveniles due to flow alterations and/or navigation activity, (c) reduction or other modification in the availability of fish hosts that is caused by degradation/alteration of habitat and that may harm and/or harass individuals through interference with respiration, feeding, and reproduction, and (d) creation of turbidity and/or deposition of sediment that may directly and/or indirectly affect adults and/or juveniles by harm and/or harassment. In addition, these species may be impacted if fish host behavior and presence is negatively affected by flow alterations, turbidity, or changes in sediment deposition.

Duration:
During the construction phase, potential impacts to the fat pocketbook, pink mucket, and orangefoot pimpleback will be direct and indirect, and remain for the duration of the construction. The effects of the operation phase are indeterminable, but any effects will likely be of a long-term duration. It is possible that the post-construction or operational phase will also result in changes to flows and other habitat conditions; however, the effects of these changes will not be known until sufficient monitoring reveals the extent and magnitude of the changes. The loss of habitat within the filled peninsula area will be permanent.

Disturbance frequency:
The construction phase disturbance will only occur once, but will result in a following unknown period of change. Any disturbances to the fat pocketbook, pink mucket, and orangefoot

pimpleback produced during the operation phase are expected to occur on a regular basis with on-going boating activity. These disturbances (i.e., flow changes, increased turbidity, movement of sediment, etc.) are expected to be occur over an unknown period of time as new flow conditions alter the makeup of the river's flow characteristics, sediment removal, and/or sediment transport/deposition patterns.

Disturbance intensity:
The disturbance intensity will likely be dissimilar throughout the action area and is expected to occasionally create habitat conditions that are unfavorable for the fat pocketbook, pink mucket, and orangefoot pimpleback.

Disturbance severity:
The disturbance severity of the fill portion of the construction phase is expected to be severe and permanent. The post-construction or operation phase is expected to primarily impact fat pocketbooks, pink muckets, and orangefoot pimplebacks nearest the fill portion of the project, along the perimeter of the fill area, and in shallow water due to sedimentation. The recovery rate to these mussel species in this part of the action area is unknown. Taken as a whole, the overall disturbance severity is expected to be minor to the population of fat pocketbooks in the lower Ohio River and range-wide; minor to the pink mucket in the lower Ohio River and range-wide; and of unknown severity to the orangefoot pimpleback in the lower Ohio River and range-wide.

Analyses for effects of the action
Beneficial effects:
No wholly beneficial effects have been identified or are expected to occur. The proposed action is expected to result in adverse effects on the fat pocketbook, pink mucket, and orangefoot pimpleback populations within the Shultz Park Expansion action area.

Direct effects:
Direct effects of the proposed action on the fat pocketbook, pink mucket, and orangefoot pimpleback include harassment, harm, and mortality from construction of the fill area, flow alterations resulting from the fill area, construction of the marina, and resultant boating activities within the Shultz Park Expansion action area. In the Shultz Park Expansion action area, approximately 4.9 acres of river bottom will be covered with fill. Within this fill area, approximately three acres is known to be occupied by numerous mussel species including the three federally listed species addressed in this biological opinion. In addition, approximately 0.08 acres will be covered or displaced during the construction of the marina. It is estimated that a total of approximately 7.5 acres of habitat, 546 fat pocketbook, 9 pink mucket, and 18 orangefoot pimpleback mussels will be impacted by these activities.

Other direct effects to the fat pocketbook, pink mucket, and orangefoot pimpleback include, but are not limited to, habitat modifications such as changes in flow and dissolved oxygen concentrations due to increased turbidity, and sediment deposition which could bury mussels, especially juveniles, and cause injury and/or mortality. These effects could also restrict mussel respiration (e.g., suffocation due to inability to purge sediment from gills), limit feeding (e.g., starvation due to inability to eliminate sediment), and interfere with reproduction (e.g., abortion from stress, host fish absence during critical reproductive periods). Direct effects of mussel

relocation include harm, harassment and possible mortality due to the stress of being handled, processed, and relocated. These effects can result in premature release of sperm or aborted glochidia negatively impacting reproductive success. A trained biologist that holds a collection permit from either the Service or the Kentucky Department of Fish and Wildlife Resources, and who will accomplish any relocation work, will minimize some of these effects.
In summary, the following direct effects are anticipated:

1. Mortality that is the result of a constructed fill area in occupied habitat. This action could damage, bury or crush fat pocketbook, pink mucket, and orangefoot pimpleback mussels.

2. Harm resulting from the constructed fill area, marina construction and operation, and boating activities in occupied habitat may result in mussel dislodgement, increased turbidity, flow alterations, sediment removal, sediment deposition, and decreased dissolved oxygen levels. This may affect the ability of these mussel species to respire, reproduce, and feed. Direct physical harm (e.g., damaged shell or bruised animal) could result in the death of mussels.

3. Harassment in the form of induced stress including, but not limited to, displacement of mussels during construction activities, potential degradation of remaining/adjacent habitat, and handling of mussels during relocation. This harassment could result in decreased ability of these species to respire, reproduce, and feed.

All of these direct effects can lead to reduced population levels for these mussel species in this portion of the Ohio River, which, in turn, can reduce their reproductive capacity.

Interrelated and interdependent actions:
No interrelated and interdependent actions have been identified for this project.

Indirect effects:
Indirect effects of this project on the fat pocketbook, pink mucket, and orangefoot pimpleback include changes in fish host behavior and/or presence that could impact the ability of glochidia to attach to the fish at the proper time when released from the female mussel, and changes in flow regimes and sediment transport in the action area. In summary, the following indirect effects are anticipated:

1. Mortality of adult and juvenile mussels that results from changes in the flow regime around the constructed fill area and marina, redistributing sediments that smother mussels due to new deposition, and/or that result in sediment loss creating instability and loss of habitat.

2. Harm in the form of decreased ability to respire, reproduce, and feed as a result of the redistribution of sediments resulting from changes in flow regimes and/or boating activities in occupied habitat. These activities may affect turbidity, flows, dissolved oxygen levels, and the presence of host fish during the future reproductive seasons of these mussel species.

3. Harassment in the form of induced stress including, but not limited to, potential degradation of habitat from changes in flow regimes, and handling of mussels during survey and monitoring activity. This harassment could result in the mussels decreased ability to respire, reproduce, and feed.

Species' response to a proposed action

Numbers of individuals/populations in the action area affected:

Fat pocketbook
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely fat pocketbooks occur in suitable habitat throughout the action area; however, they are not expected to be evenly distributed in the action area.

In the Burnett Street Boat Ramp portion of the action area we do not believe fat pocketbooks will be affected by the proposed action. In the Schultz Park Expansion portion of the action area we estimate that about 546 fat pocketbook mussels are present. Fat pocketbook mussels occur in the greatest densities, approximately 134 per acre, within the three acre portion of the 4.9 acre covered fill area. Densities in other portions of the Schultz Park Expansion portion of the action area are estimated at 32 per acre.

The exact number of fat pocketbook mussels in the action area is unknown. However, the total number of fat pocketbooks estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is 546. This estimate was derived from the data collected in the mussel survey. We expect the proposed action to appreciably affect the overall fat pocketbook population in the Schultz Park Expansion portion of the action area, since the three acres within the 4.9 acres of covered fill area is expected to be directly impacted. We expect the aforementioned indirect impacts to adversely affect a portion of the fat pocketbooks in the Schultz Park Expansion action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to fat pocketbooks in this area.

Pink mucket
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely pink muckets occur in suitable habitat throughout the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area; however, they are not expected to be evenly distributed within this area. Since the mussel survey did not record any pink muckets, the exact number of pink mucket mussels in this portion of the action area is currently unknown. We base our estimates below on other mussel surveys that have recently been performed in close proximity to this proposed action.

The total number of pink muckets estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is nine. We do not expect the proposed action to affect the pink mucket population in the Burnett Street Boat Ramp portion of the action area. We do expect the proposed action to affect the overall pink mucket population in the Schultz Park Expansion portion of the action area. The covered fill area is estimated at 4.9 acres, of which three acres consists of known mussel habitat where pink mucket mussels likely occur. We

expect the aforementioned indirect impacts to adversely affect pink mucket mussels in the Schultz Park Expansion portion of the action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to pink muckets in this area.

Orangefoot pimpleback

Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely orangefoot pimplebacks occur in suitable habitat throughout the Burnett Street Boat Ramp and Schultz Park Expansion portions of action area; however, they are not expected to be evenly distributed in this portion of the action area. Since the mussel survey did not record any orangefoot pimplebacks, the exact number of orangefoot pimpleback mussels in the action area is currently unknown. We base our estimates below on two other mussel surveys that have recently been performed in close proximity to this project.

The total number of orangefoot pimplebacks estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is 18. We do not expect the proposed action to affect the orangefoot pimpleback population in the Burnett Street Boat Ramp portion of the action area. We do expect the proposed action to affect the overall orangefoot pimpleback population in the Schultz Park Expansion portion of the action area. The covered fill area is estimated at 4.9 acres, of which three acres consists of known mussel habitat where orangefoot pimpleback mussels likely occur. We expect the aforementioned indirect impacts to adversely affect orangefoot pimplebacks in the Schultz Park Expansion action area to an unknown extent; however, it is not possible to accurately determine (or quantify) the indirect effects to orangefoot pimplebacks in this area.

Sensitivity to change:

The degree to which the fat pocketbook, pink mucket, and orangefoot pimpleback are prone to change when disturbed is unknown. These three species are thought to be relatively sedentary within the substrate. As a result, they are likely unable to respond to change by moving great distances; however, it is possible they could move several meters. When disturbed, mussels, in general, tend to close their valves for a period of time; however, this response will vary depending on the disturbance. Mussels exposed to disturbance events will likely close their valves when disturbed and remain closed if continued to be disturbed. They are not likely to move out of the area of disturbance on their own because of their inability to move great distances in a short period of time and because their valves will likely remain closed.

Resilience:

Resilience relates to the characteristics of populations or a species that allow them to recover from different magnitudes of disturbance. Assuming that the flow characteristics and habitat conditions in the action area are not appreciably changed, the magnitude of disturbance is expected to be low and resilience is not expected to change from its current level. However, this can only be determined through monitoring of the population and habitat over time.

Recovery rate:

In this biological opinion, the recovery rate relates to the time required for a fat pocketbook, pink mucket, and orangefoot pimpleback individual or population to return to equilibrium after exposure to a disturbance. Mussel populations are expected to continue to spawn and recruit new individuals into the population; however, the level of successful recruitment to the adult stage is unknown, especially in areas that may be subjected to repeated degradation (i.e., the shallow, near-shore areas). The recovery rate for these three mussel species is likely to vary within the action area.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future, State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Private actions in the vicinity of the action area are primarily urban and agriculture-related activities. We are reasonably certain these actions will continue and do not expect these activities to change appreciably in the future from current conditions. Effects from urban and agricultural activities on fat pocketbooks, pink muckets, and orangefoot pimplebacks, could include increased sediment deposition, turbidity, and herbicide/pesticide levels in localized portions of the Ohio River. However, these effects, if they are occurring, are indeterminable. Private boating and commercial navigation activities also occur in the Ohio River and are expected to continue, but they are not expected to result in additional adverse effects even though they could potentially result in increased turbidity, physical disruption of habitat, and spills of petroleum products. Essentially, we cannot predict that these specific types of adverse effects will occur.

We are not aware of any other State, tribal or local actions to include under Cumulative effects.

CONCULSION

After reviewing the current status of the fat pocketbook, pink mucket, and orangefoot pimpleback, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of these species, and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the FHWA, Corps, and Service, so that they become binding conditions of any grant, permits or contracts, as appropriate, for the exemption in section 7(o)(2) to apply. The FHWA, Corps, and Service have a continuing duty to regulate the activity covered by this Incidental Take Statement. If the FHWA, Corps, and/or Service (1) fail to assume and implement the terms and conditions or (2) fail to require the Permittee to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the grant, permit or contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA, Corps, and Service must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement. [50 CFR § 402.14 (1)(3)]

AMOUNT OF TAKE EXPECTED

The Service expects that 7.5 acres of habitat could be taken as a result of this proposed action. The 7.5 acres of habitat estimated to be taken includes 3.0 acres from direct fill, and 4.5 from indirect impacts including marina construction and operation, potential long-term sedimentation, and habitat disturbance.

The Service expects that 546 fat pocketbook mussels, nine pink mucket mussels, and 18 orangefoot pimpleback mussels will be taken as a result of this proposed action.

In the "Analyses for effects of the action" section above, the Service determined that the proposed action would result in incidental take through (a) direct mortality as a result of the Schultz Park expansion fill area and relocation of any fat pocketbook, pink mucket, and orangefoot pimpleback mussels; (b) harm from construction activities that will likely result in (1) physical harm (i.e., cracked shell, bruising) to mussels that were not included in the relocation, (2) negative effects of sedimentation that could entomb, starve, and/or suffocate individuals, (3) loss and/or degradation of habitat, (4) relocation efforts, and (5) disruption of host fish

availability at key times during the reproductive cycle; and (c) harassment as a result of disruption in reproductive capabilities by, but not limited to, the spontaneous abortion of glochidia during relocation and/or monitoring efforts, individuals being dislodged downriver into unsuitable habitat, and potentially low dissolved oxygen levels.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of expected take is not likely to result in jeopardy to the species or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of fat pocketbooks.

1. The FHWA, Corps, and Service must ensure that the proposed action will occur as designed, planned, and documented in the BA, all supporting information provided by the City of Paducah, and this biological opinion.

2. The FHWA, Corps, and Service must ensure that the City of Paducah has a plan to replace fat pocketbooks, pink muckets and orangefoot pimplebacks likely to be taken by the proposed action.

3. The FHWA, Corps, and Service must ensure that the City of Paducah implements measures to minimize or eliminate impacts of the Burnett Boat Ramp and Schultz Park Expansion sites to fat pocketbooks, pink muckets, and orangefoot pimplebacks.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Act, the FHWA and City of Paducah must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The FHWA, Corps, Service, and/or City of Paducah must agree to implement the proposed action as described in the BA, including mussel conservation measures listed in this biological opinion that are referred to in the BA, the BA's supporting documentation, and this biological opinion (see "Mussel Conservation Measures" section above). **This Term and Condition supports RPM 1 and 3.**

2. The FHWA, Corps, Service, and/or City of Paducah shall develop a Mussel Relocation Plan and obtain the Service's prior written approval of the plan, prior to relocating fat pocketbook, pink mucket, orangefoot pimpleback mussels, and other mussel species,

before any new construction activity occurs at or below the ordinary high water level. This plan will include a mussel relocation effort from within an area approximately three acres in size at the Schultz Park Expansion action area. We estimate that 8,200 mussels occur in this three acre area. It is not expected that all mussels in the entire area will likely be relocated; however, the Service believes that if approximately 50 percent of mussels in this area are relocated that will be an adequate level of relocation effort. This effort should be targeted at the three federally listed species addressed in this BO and other species that are similar in appearance to the federally listed species. This Mussel Relocation Plan will also include a baseline 'monitoring' component. Future monitoring efforts are addressed in Terms and Conditions #3 below. All federally listed mussels will be tagged and either relocated to a nearby area of suitable habitat that is protected from navigation and fleeting activity, as indicated in the Mussel Relocation Plan, or as directed by the Service, to the KDFWR to be used in propagation and culture activities at the KDFWR Center for Mollusk Conservation in Frankfort, Kentucky. **This Term and Condition supports RPM 1.**

3. The FHWA, Corps, Service, and/or City of Paducah shall contribute **$20,000** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF)to be used for monitoring at the Schultz Park Expansion area, and the site relocated mussels will be placed. Monitoring will be done two years and five years after the baseline monitoring described in Terms and Condition #1 is completed. The total contribution of $20,000 shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite 217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. **This Term and Condition supports RPM 1.**

4. The FHWA, Corps, Service, and/or City of Paducah shall contribute a total of **$94,050** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF) following issuance of this biological opinion and prior to initiating any construction below the ordinary high water level. This contribution will provide mussel habitat impact minimization and includes both direct and indirect impact to habitat. These funds will be used for the preservation, creation, enhancement, and/or protection of federally listed mussel habitat in the lower Ohio River. The total contribution of $94,050 shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite 217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. **This Term and Condition supports RPM 3.**

5. The FHWA, Corps, Service, and/or City of Paducah shall contribute **$285,000** to the Kentucky Waterways Alliance (KWA) Kentucky Aquatic Resources Fund (KARF)

following issuance of this biological opinion and prior to any construction below the ordinary high water level. These funds will be used in recovery efforts for the three federally listed mussels addressed in this biological opinion, thereby minimizing the take expected to occur on this project. The contribution shall be made using certified funds and should be made out to – "Kentucky Waterways Alliance" – with KARF and any other appropriate details in the memo section. The contribution shall be mailed to: Attention: Judith Petersen, Executive Director, Kentucky Waterways Alliance, 120 Webster Street, Suite 217, Louisville, Kentucky 40206. The Kentucky Waterways Alliance's office telephone number is 270-524-1774. Contact Ms. Petersen if the contribution will be made by direct deposit or a wire transfer. The contribution shall be made within 15 weekdays of the completion of the relocation effort. **This Term and Condition supports RPM 2.**

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Law Enforcement Office at 601 W. Broadway, Suite 115A, Gene Snyder Courthouse, Louisville, Kentucky 40202 (phone 502/582-5989 extension 21). Additional notification must be made to the Fish and Wildlife Service Ecological Services Field Office at 330 West Broadway, Room 265, Frankfort, Kentucky 40601 (phone 502/695-0468). Care should be taken in handling sick or injured mussels. All federally listed mussels that are moribund or have died recently are to be preserved according to standard museum practices (preferably kept frozen and/or preserved in 95% ethyl alcohol and then frozen), properly identified or indexed (date of collection, complete scientific and common name, latitude and longitude of collection site, description of collection site), and submitted to the Kentucky Ecological Services Field Office in Frankfort, or to another location if instructed by the KYFO.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than **546 fat pocketbooks, 9 pink muckets, 18 orangefoot pimplebacks**, and **7.5 acres** of occupied federally listed mussel habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. In addition, if any other federally listed mussels are recorded during the mussel relocation activities, re-initiation of consultation and review of the reasonable and prudent measures provided is required. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATION

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The FHWA, Corps, and Service should consider implementing the following conservation recommendation:

Provide financial assistance to the Kentucky Department of Fish and Wildlife Resources Center for Mollusk Conservation to support programs that work to restore federally listed mussels and other native mussels in the lower Ohio River. Such assistance could take the form of protecting or enhancing similar habitat and/or providing funding to the CMC facility to propagate federally listed mussels and other native mussels.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, please provide notification to the Service's Kentucky Field Office of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the FHWA request. As written in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary FHWA, Corps, and Service involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the FHWA, Corps, and Service actions that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the FHWA, Corps, and Service action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease until re-initiation.

For this biological opinion, the incidental take would be exceeded, when the take exceeds 546 fat pocketbooks, nine pink muckets, and 18 orangefoot pimplebacks which is what has been exempted from the prohibitions of section 9 by this biological opinion. The Service appreciates the cooperation of the FHWA and Corps during this consultation. We would like to continue working with you and your staff regarding this project. For further coordination, please contact me or Leroy Koch of this office at 502/695-0468.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

cc: Doug Dawson, KDFWR, Frankfort, KY
Joyce Collins, USFWS, Marion, IL
Sam Werner, USACE, Louisville District

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APPENDIX A

Fat pocketbook biological opinions including amount and form of incidental take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED OR SURROGATE MEASURE TO MONITOR
Effects of scour repair at Arkansas Highway 77 crossings of Right Hand Chute on the endangered fat pocketbook mussel (*Potamilus capax)*	Arkansas ES Office April 27, 1999	Harm, harass or kill	Up to 50 mussels relocated and up to 5 mussels killed due to relocation. Indeterminate amount of small mussels not relocated and buried.
Potential impacts of ditch maintenance activities within Stateline Outlet Ditch, Mississippi County, Arkansas on the fat pocketbook mussel (*Potamilus capax)*	Arkansas ES Office October 3, 2001	Harm, harass or kill	Up to 3,000 individuals relocation and up to 5 killed during the relocation. Up to 30 dead individuals in dredge disposal pile.
Bridge replacement over the St. Francis River	Arkansas ES Office November 8, 2001		2 individuals
Potential impacts of three scour repair areas in the St. Francis Floodway on the fat pocketbook mussel *(Potamilus capax)*	Arkansas ES Office April 2002	Harm, harass or kill	Up to 200 individuals relocation and up to 2 killed during the relocation. Indeterminate amount of small mussels not relocated and buried.
Proposed maintenance dredging of the Ohio River navigation channel at Wabash Island located in Posey County, Indiana, Gallatin County, Illinois and Henderson County, Kentucky and its effects on the fat pocketbook pearly mussel (*Potamilus capax*)	Bloomington, IN ES Office September 2002	Harm, harass, collect or kill	Undefined but discovery of more than 3 live mussels in dredged material from a single event indicates take has been exceeded
Arkansas Highway 14 bridge replacement over Ditch 10 near the city of Harrisburg, AK	Arkansas ES Office October 31, 2002		1 individual

Emergency consultation for a sewage lagoon embankment stabilization near the city of Madison, Arkansas	Arkansas ES Office June 10, 2003		6 individuals relocated, 9 gravid females taken to propagation facility
Potential effects of the construction of a Union Pacific Railroad Bridge across the St. Francis floodway on the fat pocketbook (*Potamilus capax*)	Arkansas ES Office October 29, 2003		3 individuals
Potential impacts of ditch maintenance activities within Ditch 10 on the fat pocketbook mussel (*Potamilus capax*)	Arkansas ES Office April 28, 2004		10 individuals
Potential impacts of constructing a pre-cast concrete bridge across Ditch 61 on the federally endangered fat pocketbook mussel (*Potamilus capax*)	Arkansas ES Office September 2, 2007	Harm, harass or kill	3 individuals: 1 relocated and 2 killed
Potential effects of the removal and replacement of the Route 15 bridge over the Wabash River at Mount Caramel, Indiana on the fat pocketbook (*Potamilus capax*)	Bloomington, IN ES Office October 22, 2007	Injury or direct mortality	4 individuals: 2 during relocation, 2 during construction.
Potential impacts of the proposed setback of Elk Chute Levee in Dunklin County, Missouri on the federally endangered fat pocketbook (*Potamilus capax*)	Missouri ES Office January 10, 2008	Death or injury	5 individuals
Biological Opinion on the USDA Forest Service Application Of Fire Retardants On National Forest System Lands	Washington DC February 2008	No take provided	No take provided
Biological Opinion on the Construction of Smithland Hydroelectric Project, Livingston County, KY	Kentucky ES Office January 9, 2009	Mortality, harm or harassment	486 individuals and 40 acres of habitat
Biological Opinion on fleeting and loading facilities for the River View Coal Company, Union County, KY	Kentucky ES Office September 11, 2009	Harm, harass, or kill	61 individuals and 12.2 acres of habitat

APPENDIX B

Pink mucket (*Lampsilis abrupta*) biological opinions including amount and form of take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED or SURROGATE MEASURE TO MONITOR
USACE – Biological Opinion on the Issuance of Permits for Dixie Cement Co. Barge Terminal Construction and Access Channel Dredging in Tennessee River	May 21, 1982 ES Field Office Asheville, NC	Harm, harass, or kill	All individuals within proposed project area and an undetermined number downstream and adjacent to project area
USACE – Final Biological Opinion on the Effects on Threatened and Endangered Species on the Lower Ohio River Navigation Feasibility Study	June 13, 1985 ES Field Office Asheville, NC	N/A	No take authorized
FERC - Biological Opinion on the Effects of Threatened and Endangered Species from the Construction and Operation of a Hydroelectric Facility at Lock and Dam #5 on the Green River in Warren and Butler counties, KY	June 25, 1985 ES Field Office Asheville, NC	N/A	No take authorized
USFWS – Biological Opinion on the Effects of Conducting Taxonomic Studies	September 3, 1987 SE Regional Office Atlanta, GA	Collect and kill	Ten individuals (Five each from two divergent populations) NO INCIDENTAL TAKE
FERC – Biological Opinion on the FEIS for Hydropower Development in the Upper Ohio River Basin	January 13, 1989 Pennsylvania Field Office State College, PA	Harm, harass or kill	Can not be determined. Level of authorized take measured by community structure.
TVA – Biological Opinion on the Proposed Wood Chipping and Barge-Loading Facilities on the Tennessee River	December 2, 1992 SE Regional Office Atlanta, GA	N/A	No take authorized

USACE – Biological Opinion on the Effects of Work on a Coal Loading Facility on the Kanawha River RM 90.4, Fayette County, WV	July 7, 1993 ES Field Office Elkins, WV	Harm or Harass	Can not be determined
USACE - Biological Opinion for Proposed Channel Maintenance Dredging of the Cumberland River (CRM 304.0 to 307.0) Smith County, TN	October 1993 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project area
USACE – Biological Opinion for the Proposed City of Florence Municipal Treated Sewage Outfall, Tennessee River, Lauderdale County, AL	October 1994 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project area
FHWA - Biological Opinion for the Construction of the Patton Island Bridge	November 23, 1994 ES Field Office Daphne, AL	Harm or harass	One individual
TVA & NRC - Biological Opinion for the Proposed Operation of the Watts Bar Nuclear Plant, Rhea County, TN	March 1995 ES Field Office Cookeville, TN	N/A	No take authorized
Biological Opinion for Endangered Species Permit Approval for the Rescue of Critically Endangered Mussels in KY, AL and TN	October 1996 ES Field Office Cookeville, TN	Collection of live individuals	Up to 30 live individuals, not more than ten individual per population
USACE – Biological Opinion on the Effects of the Joe S. Towing Co., Inc. Barge Fleeting Facility, Wood County, WV	March 18, 1997 ES Field Office Elkins, WV	Harm or harass	Can not be determined. Take has been exceed if there is a decline of up to 25% of the mussel bed density or decline of up to 25% in the live-to-dead ratio or decline of up to 25% in the total number of species encountered
USACE & TVA – Biological Opinion For The Proposed City of Florence Municipal Treated Sewage Outfall Tennessee River Lauderdale County, AL	1998 ES Field Office Daphne, AL	Harm, harass or kill	Can not be determined

FHWA – Biological Opinion for the Proposed Keller Bridge Demolition Project in Limestone and Morgan Counties, AL	June 8, 1998 ES Field Office Daphne, AL	Harm, harass, or kill	One individual within impact area, all individuals within study area
USFWS – Programmatic Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	August 1, 1998 SE Regional Office Atlanta, GA	Harm or kill	Up to five adult mussels per year
USACE – Biological Opinion for Proposed Maintenance Dredging in the Tennessee River at Diamond Island, Hardin County, TN	July 1999 ES Field Office Cookeville, TN	Harm or harass	Approximately seven acres of habitat loss
USACE – Supplement to the 1991 Biological Opinion For The Proposed Bridges and Alignments Modification to the Kentucky Lock Addition Project Livingston and Marshall Counties, Kentucky	January 2000 ES Field Office Cookeville, TN	Harm or kill	All individuals within the 0.04 acre of habitat impacted by drilling and construction activities
FHWA – Biological Opinion for the Proposed US 231 Bridge Replacement Over the Tennessee River in Madison and Morgan Counties, AL	February 18, 2000 ES Field Office Daphne, AL	Harm, harass or kill	17 individuals
FHWA & USACE – Biological Opinion on the Proposed Replacement of the State Route 2 Bridge over the Tennessee River, Loudon County, TN	February 2001 ES Field Office Cookeville, TN	Harm, harass or kill	All individuals within the project corridor
FHWA and TVA – Amended Biological Opinion for the Proposed Replacement of the State Route 2 Bridge Over the Tennessee River, Loudon County, Tennessee	February 2002 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project corridor
USACE – Chickamauga Lock Project Hamilton County, Tennessee	February 2002 ES Field Office Cookeville, TN	Habitat loss and/or degradation	All within disturbed area

USACE – Biological Opinion on the Effects of Navigational Dredging on the White River in Arkansas	March 1, 2002 ES Field Office Conway, AR	Kill	Five individuals per year
USACE – Mussel relocation Experiment on Tennessee River Near Diamond Island, Hardin County, TN	September 9, 2002 ES Field Office Cookeville, TN	Harm or harass	One individual
TVA – Proposed Public Marina Expansion at Ditto Landing on the Tennessee River, Madison County, AL	November 22, 2002 ES Field Office Daphne, AL	Harm, harass or kill	One individual
USACE – Olmsted Lock and Dam Construction Replaces the 1993 BO	July 16, 2003 ES Field Office Cookeville, TN	N/A	No incidental take authorized
FHWA – Biological Opinion on the Construction of the Rockport Bridge Across the Ouachita River	July 29, 2003 ES Field Office Conway, AR	Harm or harass	Can not be determined
USACE – Tennessee River, Pickwick Landing Dam Mussel Relocation Study, Hardin County, Tennessee	November 13, 2003 ES Field Office Cookeville, TN	Harm, harass, or collect	One individual
TVA _ Proposed Wilson Hydro Plan Modernization of Hydroturbine Project, Lauderdale and Colbert counties, AL	2004 ES Field Office Daphne, AL	Harm, harass or kill	20 individuals
TVA – Biological Opinion on the proposed Reservoir Operations Study in the Tennessee River Valley of AL, GA, KY, MS, NC, TN, and VA	February 9, 2004 ES Field Office Cookeville, TN	Harm or harass	Can not be determined. 30 miles of habitat altered or degraded
FHWA – Biological Opinion on the Proposed Construction of the Highway 46 Bridge Across The Saline River Grant County, AR	July 7, 2004 ES Field Office Conway, AR	Harm, harass or kill	Five through relocation and no more than one killed

USFWS – Amendment to Programmatic Section 7 Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	July 16, 2004 ES Field Office Conway, AR	N/A	No change
FHWA – Biological Opinion on the Proposed Construction of the Highway 167 Bridge, Dallas and Grant counties, AR	January 30, 2006 ES Field Office Conway, AR	Harm, harass or kill	No more than two individuals
NRCS - Programmatic Biological Opinion for the Arkansas Healthy Forest Reserve Program	September 25, 2006 ES Field Office Conway, AR	Harm	Can not be determined. Any take would be associated with a return to baseline conditions and would not involve individuals associated with pre- or post-baseline riparian conditions.
TVA – Biological Opinion on the Routine Operation and Maintenance of TVA Dams in AL, GA, KY, MS, NC, TN, and VA	October 17, 2006 ES Field Office Cookeville, TN	Harm or harass	Can not be determined. All in two mile reaches of the river below Douglas, Cherokee, Fort Loudoun, Watts Bar, Nickajack, Guntersville, Wheeler, Wilson, Pickwick Landing, and Kentucky dams
TVA – Biological Opinion on the Dike stabilization at Johnsonville Fossil Plant Ash disposal Area No. 2 (Johnsonville Island) between Tennessee River Mile 99 – 100, Humphreys Co., TN	February 1, 2010 ES Field Office Cookeville, TN	Harass	151 individuals

APPENDIX C

Orangefoot pimpleback (*Plethobasus cooperanius*) biological opinions including amount and form of take exempted.

PROJECTS	SERVICE OFFICE AND DATE BO ISSUED	INCIDENTAL TAKE (IT) FORM	TAKE EXEMPTED or SURROGATE MEASURE TO MONITOR
USACE – Biological Opinion on the Consolidated Grain and Barge Co. Proposed Cargo Fleeting Area on the Ohio River. Pulaski County, IL	April 3, 1985 MW Regional Office Ft. Snelling, MN	N/A	Jeopardy Opinion – No take authorized
USACE – Final Biological Opinion on the Effects on Threatened and Endangered Species on the Lower Ohio River Navigation Feasibility Study	June 13, 1985 ES Field Office Asheville, NC	N/A	No take authorized
TVA – Biological Opinion on the Proposed Wood Chipping and Barge-Loading Facilities on the Tennessee River	December 2, 1992 SE Regional Office Atlanta, GA	N/A	No take authorized
USACE –Biological Opinion on the Construction of the Olmstead Lock and Dam Facility Supplemental to 1985 BO	January 15, 1993 ES Field Office Cookeville, TN	Habitat loss	No take authorized
USACE – Biological Opinion for the Proposed Construction of Barge Fleeting Facilities on the Ohio River, Ballard County, KY	September 1993 SE Regional Office Atlanta, GA	N/A	No take authorized
FHWA - Biological Opinion for the Construction of the Patton Island Bridge	November 23, 1994 ES Field Office Daphne, AL	Harm or harass	One individual
USFWS – Rescue of Critically Endangered Mussels in TN, KY and northern AL	October 1996 ES Field Office Cookeville, TN	Collection of live individuals	Up to 30 live individuals, not more than 10 individual per population

USFWS – Programmatic Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels	August 1, 1998 SE Regional Office Atlanta, GA	Harm or kill	Up to five adult mussels per year
USACE – Biological Opinion for Proposed Maintenance Dredging in the Tennessee River at Diamond Island, Hardin County, TN	July 1999 ES Field Office Cookeville, TN	Harm or harass	Approximately seven acres of habitat loss
Supplement to the 1991 Biological Opinion For The Proposed Bridges and Alignments Modification to the Kentucky Lock Addition Project Livingston and Marshall Counties, Kentucky	January 2000 ES Field Office Cookeville, TN	Harm or kill	All individuals within the 0.04 acre of habitat impacted by drilling and construction activities
FHWA & USACE – Biological Opinion on the Proposed Replacement of the State Route 2 Bridge over the Tennessee River, Loudon County, TN	February 2001 ES Field Office Cookeville, TN	Harm, harass or kill	All individuals within the Project corridor
FHWA and TVA – Amended Biological Opinion for the Proposed Replacement of the State Route 2 Bridge Over the Tennessee River, Loudon County, TN	February 2002 ES Field Office Cookeville, TN	Harm or harass	All individuals within the project corridor
USACE – Chickamauga Lock Project Hamilton County, Tennessee	February 2002 ES Field Office Cookeville, TN	Habitat loss and/or degradation	All within disturbed area
USACE – Mussel relocation Experiment on Tennessee River Near Diamond Island, Hardin County, TN	September 9, 2002 ES Field Office Cookeville, TN	Harm or harass	One individual
USACE – Olmsted Lock and Dam Construction Replaces the 1993 BO	July 16, 2003 ES Field Office Cookeville, TN	N/A	No incidental take authorized

USACE – Tennessee River, Pickwick Landing Dam Mussel Relocation Study, Hardin County, Tennessee	November 13, 2003 ES Field Office Cookeville, TN	Harm, harass, collect	One individual
TVA _ Proposed Wilson Hydro Plan Modernization of Hydroturbine Project, Lauderdale and Colbert counties, AL	2004 ES Field Office Daphne, AL	Harm, harass or kill	20 individuals
USFWS- Amendment to the 1998 Programmatic Section 7 Biological Opinion Addressing Effects of Section 10(a)(1)(A) Permitting on Freshwater Mussels in Region 4	July 16, 2004 ES Field Office Conway, AR	Harm or mortality	Five individuals per 100 handled
TVA – Biological Opinion on the Routine Operation and Maintenance of TVA Dams in AL, GA, KY, MS, NC, TN, and VA	October 17, 2006 Cookeville, TN ES Field Office	Harm, harass	Can not be determined. All in 2 mile reaches of the TN River below Fort Loudoun, Watts Bar, Guntersville, Pickwick Landing and Kentucky dams.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

March 2, 2011

Mr. Anthony Goodman
U.S. Department of Transportation
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Subject: FWS #2010-B-0327; Paducah Riverfront Development Project, McCracken County, Kentucky; Rabbitsfoot Proposed Listing and Critical Habitat Rule

Mr. Goodman:

The Service anticipates that the rabbitsfoot mussel, Quadrula cylindrica cylindrica, will likely become a federally listed species in the foreseeable future. The Service's Arkansas Field Office in Region 4, is currently preparing a proposed listing and critical habitat rule for this species. They anticipate publishing the proposed rule in the Federal Register in late 2011.

Please contact us if you have any questions regarding this information.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

U.S. Department
of Transportation
Federal Highway Administration

Kentucky Division Office
José M. Sepúlveda, Division Administrator

330 West Broadway
Frankfort, KY 40601
PH. (502) 223-6720
FAX (502) 223-6735

March 4, 2011

Mr. Lee Andrews
Field Supervisor
U.S. Fish and Wildlife Services
3761 Georgetown Road
Frankfort, Kentucky 40601

Dear Mr. Andrews:

Subject: Request for formal Conference Opinion for Three (3) Endangered Species likely to be listed prior to the completion of the Paducah Riverfront Development Project, McCracken County, Kentucky,
KYTC Project Item No. 1-122.00

The Kentucky Division of the Federal Highway Administration (FHWA) has reviewed the attached information provided by the United States Department of Interior (Service) and are requesting that a conference occur so that we are able to take into account the effects on the following species.

Species	Recommended Findings
rabbitsfoot mussel	Likely to Adverse Effect
sheepnose mussel	Likely to Adverse Effect
spectaclecase mussel	Not Likely to Adversely Effect

FHWA is requesting to enter into a formal conference on the above mentioned species. We are aware that these species are not yet listed on the Threatened and Endangered Species list however; FHWA is required to take into consideration the effects of these species in our NEPA process prior to the final alternative decision. FHWA is recommending that the rabbitsfoot and sheepnose mussel be evaluated on this project due to the presence of habitat being impacted within the project area. Even though mussel surveys have not found these specific mussel species, their presence in this stretch of the Ohio River is known. FHWA is recommending a Not Likely to Adversely Effect determination on the spectaclecase mussel due to the lack of habitat in the project area.

If you have any further questions or need additional information, please contact me at (502) 223 6745.

Sincerely yours,

Anthony Goodman
Environmental Specialist

Enclosure

cc: David Waldner/Dale Noe, KYTC-DEA
Phil DeGarmo, USFWS

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FEDERAL REGISTER

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Part IV

Department of the Interior

Fish and Wildlife Service

50 CFR Part 17
Endangered and Threatened Wildlife and Plants; Endangered Status for the Sheepnose and Spectaclecase Mussels; Proposed Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R3–ES–2010–0050; MO 92210–0–0008–B2]

RIN 1018–AV93

Endangered and Threatened Wildlife and Plants; Endangered Status for the Sheepnose and Spectaclecase Mussels

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list two freshwater mussels, the spectaclecase mussel (*Cumberlandia monodonta*) and sheepnose (*Plethobasus cyphyus*) as endangered under the Endangered Species Act of 1973, as amended (Act). If we finalize this rule as proposed, it would extend the Act's protections to these species throughout their ranges, including sheepnose in Alabama, Illinois, Indiana, Iowa, Kentucky, Minnesota, Mississippi, Missouri, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin, and spectaclecase in Alabama, Arkansas, Illinois, Indiana, Iowa, Kentucky, Kansas, Minnesota, Missouri, Nebraska, Ohio, Tennessee, Virginia, West Virginia, and Wisconsin. We determined that critical habitat for these species is prudent, but not determinable at this time. The Service seeks data and comments from the public on this proposed listing rule.

DATES: We will consider comments and information we receive from all interested parties by March 21, 2011. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by March 7, 2011.

ADDRESSES: You may submit comments by one of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments on docket number FWS–R3–ES–2010–0050.
- *U.S. mail or hand-delivery:* Public Comments Processing, Attn: FWS–R3–2010–0050; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 North Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (*see* Public Comments section below for more information).

FOR FURTHER INFORMATION CONTACT: Richard Nelson, Field Supervisor, at the U.S. Fish and Wildlife Service, Rock Island, Illinois Ecological Services Field Office, 1511 47th Avenue, Moline, IL 61265 (telephone 309–757–5800).

SUPPLEMENTARY INFORMATION:

Public Comments

Our intent is to use the best available commercial and scientific data as the foundation for all endangered and threatened species classification decisions. We request comments or suggestions from other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule to list the spectaclecase and sheepnose mussels as endangered. We particularly seek comments concerning:

(1) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to the species and regulations that may be addressing those threats.

(2) Additional information concerning the ranges, distributions, and population sizes of the species, including the locations of any additional populations of these species.

(3) Any additional information on the biological or ecological requirements of these species.

(4) Current or planned activities in the areas occupied by these species and possible impacts of these activities on the species and their habitats.

(5) Potential effects of climate change on these species and their habitats.

(6) The reasons why areas should or should not be designated as critical habitat as provided by section 4 of the Act (16 U.S.C. 1531 *et seq.*), including whether the benefits of designation would outweigh threats to the species that designation could cause (*e.g.*, exacerbation of existing threats, such as overcollection), such that the designation of critical habitat is prudent.

(7) Specific information on:

- What areas contain physical and biological features essential for the conservation of these species;
- What areas are essential to the conservation of these species and
- Special management considerations or protection that proposed critical habitat may require.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not accept comments sent by e-mail or fax or to an address not listed in the **ADDRESSES** section. Comments must be submitted to *http://www.regulations.gov* before 11:59 (Eastern Time) on the date specified in the **DATES** section. We will not consider hand-delivered comments that we do not receive, or mailed comments that are not postmarked, by the date specified in the **DATES** section.

We will post your entire comment—including your personal identifying information—on *http://www.regulations.gov.* If you provide personal identifying information in your comment, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov,* or by appointment, during normal business hours at the Rock Island, Illinois Ecological Services Field Office (*see* the **FOR FURTHER INFORMATION CONTACT** section).

Public Hearing

The Act provides for one or more public hearings on this proposal, if requested. Requests must be received by March 7, 2011. Such requests must be made in writing and be addressed to the Field Supervisor at the address provided in the **FOR FURTHER INFORMATION CONTACT** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Persons needing reasonable accommodations to attend and participate in a public hearing should contact the Rock Island, Illinois Ecological Services Field Office by telephone at 309–757–5800, as soon as possible. To allow sufficient time to process requests, please call no later than one week before the hearing date. Information regarding this proposed rule is available in alternative formats upon request.

Jose Steve John Anthony File

U.S. Department of Transportation
Federal Highway Administration

Kentucky Division Office

330 West Broadway
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FAX (502) 223-6735

March 7, 2011

Mr. Lee Andrews
Field Supervisor
U.S. Fish and Wildlife Services
3761 Georgetown Road
Frankfort, Kentucky 40601

Dear Mr. Andrews:

The Kentucky Division of the Federal Highway Administration (FHWA) has reviewed the request for formal Conference Opinion for three (3) endangered species likely to be listed prior to the completion of the Paducah Riverfront Development Project in McCracken County, Kentucky, KYTC Project Item No. 1-122.00. Please find the enclosed information provided by the United States Department of Interior (Service) and the request that a conference occur so that we are able to take into account the effects on the following species.

Species	**Recommended Findings**
Rabbitsfoot mussel	Likely to Adverse Effect
Sheepnose mussel	Likely to Adverse Effect
Spectaclecase mussel	Not Likely to Adversely Effect

The FHWA is requesting to enter into a formal conference on the above mentioned species. We are aware that these species are not yet listed on the Threatened and Endangered Species list; however; the FHWA is required to take into consideration the effects of these species in our NEPA process prior to the final alternative decision. The FHWA is recommending that the rabbitsfoot and sheepnose mussel be evaluated on this project due to the presence of habitat being impacted within the project area. Even though mussel surveys have not found these specific mussel species, their presence in this stretch of the Ohio River is known. The FHWA is recommending a "Not Likely to Adversely Effect" determination on the spectaclecase mussel due to the lack of habitat in the project area.

If you have any further questions or need additional information, please contact me at (502) 223-6745.

Sincerely yours,

Anthony Goodman
Environmental Specialist

Enclosure

cc: David Waldner/Dale Noe, KYTC-DEA
Phil DeGarmo, USFWS

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United States Department of the Interior
FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

July 13, 2011

Mr. John Ballantyne
U.S. Department of Transportation
Federal Highway Administration
330 West Broadway
Frankfort, Kentucky 40601

Subject: FWS #2010-B-0327; Final Conference Opinion on the Paducah Riverfront Development Project, McCracken County, Kentucky, and its effects on rabbitsfoot and sheepnose mussels (1-122)

Dear Mr. Ballantyne:

This correspondence is the formal conference opinion in response to a request from the Federal Highway Administration (FHWA) for a formal Conference Opinion for three mussel species likely to become federally listed prior to the completion of the Paducah Riverfront Development Project. The three species are the rabbitsfoot, *Quadrula cylindrica cylindrica*; sheepnose, *Plethobasus cyphyus*; and spectaclecase, *Cumberlandia monodonta*. The FHWA determined that the project will likely adversely effect the rabbitsfoot and sheepnose, and is not likely to adversely effect the spectaclecase.

The letter requesting a formal conference opinion was received on March 4, 2011 and formal conference was initiated on April 4, 2011, in a letter from the Service to the FHWA. In the letter the Service sent to FHWA on April 4, 2011, the Service agreed with the FHWA's determination on no adverse effect for the spectaclecase mussel; therefore, this conference opinion only addresses the rabbitsfoot and sheepnose mussel species. This conference also includes the U.S. Army Corps of Engineers (Louisville District), and the Service as cooperating agencies. It is based on information provided in a November 2009 Biological Assessment (BA) prepared by Redwing Ecological Services, Inc. (Redwing), meetings (see consultation history), available literature, communications with experts on the species considered in this conference opinion, and other sources of information available to us and/or in our files. A complete administrative record of this consultation is on file at the Service's Kentucky Field Office in Frankfort, Kentucky (see address above).

Background

This conference opinion is preceded by a reissued biological opinion dated December 21, 2010 which was superceded by a July 6, 2010 U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed construction of the Paducah Riverfront Development Project at approximately Ohio River Miles 934.7 to 935.8 in McCracken County, Kentucky, and its effects on federally listed mussels under section 7(a)(2) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Federal Highway Administration's (FHWA) letter requesting formal consultation for a biological opinion on these federally listed mussels was received on February 12, 2010 and consultation was initiated on May 18, 2009 via a letter from the Service. The consultation history which follows includes the biological opinion and conference opinion history.

Consultation and Conference History

19 June 2008 – A Revised Mussel Survey Workplan was submitted to the Service.

20 June 2008 – The Revised Mussel Survey Workplan was approved by the Service via email.

28 August 2008 – A project review meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews (Service), Leroy Koch (Service), Rick Murphy (City of Paducah), Ron Thomas (Redwing), and Brian O'Neill (Redwing). Discussions included: overall background on the redevelopment project including design considerations, alternatives investigated, and avoidance/minimization efforts; summary of the regulatory process completed to that point; the significance of the mussel bed observed during the field survey; the need for a formal consultation process including preparation of a BA.

25 September 2008 – A Mussel Survey Report was submitted to the Service.

15 October 2008 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Lee Andrews, Leroy Koch, Ryan Evans (KSNPC), Ron Thomas, and Brian O'Neill. Discussions included: verification of relic shells as *Potamilus capax*, and implications of findings regarding consultation process.

19 December 2008 – A draft Biological Assessment Report was submitted to the Service.

30 January 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Phil DeGarmo (USFWS), and Brian O'Neill. Discussions included comments regarding the Draft Biological Assessment Report and requests for additional information to be included in the final BA.

19 March 2009 – A meeting was held at Florence & Hutcheson's office in Paducah, Kentucky. Meeting participants included: Lee Andrews, Rick Murphy, Jason Petersen (Florence & Hutcheson), Kathy Lake (JJR), and Brian O'Neill. Discussions included: updated project design elements; concerns regarding potential construction techniques; extent of relocation efforts that may be required and other potential conservation measures such as a type of conservation fund payment; and additional information requests.

3 November 2009 – The Final Biological Assessment Report was submitted to the Service.

24 November 2009 – A meeting was held at the Service's office in Frankfort, Kentucky. Meeting participants included Leroy Koch, Ron Thomas, and Brian O'Neill. The discussion focused on the completeness of the BA; additional information request; and estimated timeframe regarding the remainder of the consultation process.

18 December 2009 – An additional information letter supporting the Biological Assessment was submitted to the Service.

12 February 2010 – The FHWA requested formal consultation for the project in a letter submitted to the Service.

4 March 2010 – The Service responded to FHWA's request for initiation of formal consultation.

19 May 2010 – The Service provided an additional response to FHWA's February 12, 2010 letter, which modified the consultation by reducing the number of mussel species to be considered in the consultation.

4 June 2010 – A meeting was held at the FHWA's office in Frankfort, Kentucky, to discuss the project and discuss conservation and minimization measures regarding the three federally listed mussels considered in the consultation. Meeting participants included: Leroy Koch, Lee Andrews, Derek Adams, David Waldner (Kentucky Transportation Cabinet), Sunni Carr (Kentucky Department of Fish and Wildlife Resources (KDFWR)), Dan Stoelb (KDFWR), Dr. Monte McGregor (KDFWR), Anthony Goodman (FHWA), Ian Chidister (FHWA), Rick Murphy, Ron Thomas, Brian O'Neill, Sue Bruenderman (Kentucky Division of Water (KDOW)), Joyce Fry (KDOW), Alan Grant (KDOW), Jason Peterson (via telephone), and Kathleen Lake (JJR via telephone).

11 June 2010 – A meeting was held at the USFWS's office in Frankfort, Kentucky, to discuss conservation and minimization measures and associated costs. Meeting participants included: Anthony Goodman, Ian Chidister, David Waldner, Lee Andrews, Leroy Koch, Ron Thomas, Rick Murphy, and Jason Peterson.

30 June 2010 – A draft final version of the biological opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE), and comments on the draft final biological opinion were solicited from those agencies.

21 December 2010 – A final 'reissued' version of the biological opinion was provided to the FHWA, U.S. Army Corps of Engineers – Louisville District, and KYTC.

4 March 2011 – The Service received a letter from FHWA requested a conference opinion on three mussels, the rabbitsfoot, sheepnose and spectaclecase.

4 April 2011 – The Service sent a letter to the FHWA initiating the conference opinion. In that letter the Service agreed with the assessment of the FHWA in its March 4, 2011 letter, of no

adverse effect for the spectaclecase mussel and indicted that the conference opinion would address only the rabbitsfoot and sheepnose mussels.

15 June 2011 – A draft final version of the conference opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE), and comments on the draft final conference opinion were solicited from those agencies.

5 July 2011 – A draft final version of the conference opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE).

13 July 2011 – A final version of the conference opinion was provided to the FHWA, KYTC, and U.S. Army Corps of Engineers – Louisville District (COE).

CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Paducah Riverfront Redevelopment Project is a proactive revitalization effort, resulting from the collaborative effort of a diverse group of constituents including stakeholders, city staff, the general public, and state and federal agencies that began in 2006. The Paducah Riverfront Redevelopment Plan has been in the design and planning phase since 1992. The plan's goal is to reconnect residents and neighbors with the City of Paducah's downtown riverfront as well as provide new tourism, recreation, and economic development opportunities for the city. Improvements to the riverfront outlined in the redevelopment plan include a terraced riverbank with overlooks, a performance plaza, recreational areas along a new Greenway trail, landscaping, renovation of public infrastructure, public education and outreach through interpretative activities, and a five-lane boat launch. The plan's components will link public amenities, recreational facilities, public spaces, and Paducah's downtown to the Ohio River. Due to its long range goals and magnitude of the plan, it will be implemented using a phased approach spanning several years. More information regarding the Paducah Riverfront Redevelopment Plan can be found on their website: riverfrontpaducah.com. For a detailed description of the proposed action and sites, see the Biological Assessment (O'Neill and Thomas 2009) prepared by Redwing.

The Biological Assessment focuses on the first phase of the plan, which includes the Burnett Street Boat Ramp and the Schultz Park Expansion marina/transient dock. These two components of the plan involve the only proposed direct impacts to the Ohio River. Each of these components would also involve other interrelated federal actions. More specifically, the construction of the Burnett Street Boat Ramp would involve a federal boating access grant from the Service to the KDFWR. KDFWR would then use this funding to pay for the City of Paducah's construction costs for the Burnett Street Boat Ramp. The project also includes a Boating Infrastructure Grant from the Service to KDFWR. KDFWR would then use this funding to pay for the City of Paducah's construction costs associated with the Schultz Park Expansion marina. While the granting of these federal funds do not result in direct impacts to federally listed species (i.e., they are administrative in nature), the use of these federal grant funds will

lead to adverse effects on listed freshwater mussels as described below and in the "Effects of the Action" section of this conference opinion.

This conference opinion also is intended to address the interrelated federal actions and permits under sections 10, 401, and 404 of the Clean Water Act (CWA) for the proposed project.

Burnett Street Boat Ramp

The purpose of the Burnett Street Boat Ramp project, which is located at approximately Ohio River Mile 935.7, is to relocate the existing main boat ramp along the downtown riverfront to a currently undeveloped piece of property approximately one mile downstream so that the existing downtown riverfront can be converted back to its original use as a riverboat landing and community focal point. This component of the redevelopment plan is being undertaken as a partnership with the KDFWR. The proposed boat launch site is located on undeveloped property owned by the City of Paducah and will contain five launch lanes with parking for 100 vehicles and trailers with 24-hour access to the river (O'Neil and Thomas 2009). The property can accommodate an additional 100 parking spaces in the future as needed. The proposed boat launch will be connected to the downtown Riverfront Park via a planned pedestrian and bicycle greenway trail.

Construction of the Burnett Street Boat Ramp and all of the associated parking and access route will result in permanent impacts to wetlands on the proposed project site. Mitigation for these impacts will be provided on site in accordance with the conditions of the approved Section 404/401 permit through a combination of preservation and restoration activities. Mitigation includes permanent preservation of approximately 34.4 acres of high quality forested wetland, restoration of 7.3 acres of forested wetland, preservation of 3.4 acres of forested riparian buffer, and restoration of 765 linear feet of riparian buffer along the Ohio River. These mitigation measures have been designed to ensure the functional components of the impacted wetlands will be maintained on site as well as enhance the quality of the Ohio River riparian corridor and will be monitored for five years to ensure long-term success. Permanent preservation through a conservation easement or deed restriction will ensure long-term indirect benefits through reduced streambank erosion and nonpoint source runoff into the Ohio River.

Direct impacts to the Ohio River will consist of placing coarse granular material as a base for precast concrete ramp faces. The ramp's footprint will cover approximately 0.3 acre of riverbank and extend no greater than 35 meters riverward from normal pool. The compacted subgrade base material and concrete ramp face will be installed from shore and best management practices will be used to ensure erosion and sedimentation is minimized to the greatest extent possible. As required by the 404/401 approved permit, an erosion and sediment control plan will be designed, implemented, and maintained in effective operating condition at all times during construction to prevent degradation of waters of the Commonwealth. All fill material will consist of less than 5% fines, and silt fences and bank stabilization will be used where necessary and as appropriate to minimize the potential for bank erosion and sedimentation during construction. The proposed boat ramp orientation (i.e., angle in relation to river flow and ramp

face slope) was designed to have minimal impact on the prevailing hydraulic conditions of the Ohio River. The slope of the ramp will largely follow the existing contours of the riverbank. The pre-cast ramp faces will be installed over a compacted coarse-granular foundation with a slope of greater than 7:1.

Schultz Park Expansion

Proposed park expansion activities will extend from approximately Ohio River Mile 934.7 to 935.1 and include improvements to the adjacent Schultz Park, construction of a marina/transient dock, associated parking and infrastructure, and connection of park amenities with existing roads, and infrastructure. The Schultz Park Expansion represents the commencement of Paducah's efforts to revitalize its riverfront and will serve as a catalyst for additional riverfront and downtown improvements as outlined in the Riverfront Redevelopment Plan.

Development of the Schultz Park Expansion area will be accomplished in several phases (O'Neill and Thomas 2009). The first phase includes expansion of the existing Schultz Park into the river. Construction will begin by placing appropriately-sized coarse fill material on the riverbed to create a new peninsular landform with a footprint of approximately 4.9 acres. The coarse fill material will meet Kentucky Division of Water Division of Environmental Protection water quality requirements and will not exceed 5% fines. Placement of the fill material may occur from land-side via truck or from river-side via barges depending on the location of source fill material, feasibility and efficiency (i.e., the contract does not limit contractor installation methods). However, if material is transported to and/or unloaded from barges, conditions will be made to ensure disturbance to the existing mussel bed from barge anchoring or propeller wash will be minimized. The landform will be left for approximately one year to settle into the riverbed and stabilize prior to final grading and construction of the transient dock, marina, and other amenities. Once the foundation has settled, the remaining landform will be constructed using no steeper than a 3H:1V ratio slope. The landform will be protected by a combination of revetment techniques using coarse granular material and other naturalized components where applicable. Bioengineered slope stabilization will supplement stone revetment where applicable and native vegetation will be used extensively throughout the project area.

Construction of the first 400 feet of the transient dock on the downstream side of the Schultz Park landform, which will be accessed via a floating gangway system, will begin once the landform has settled and stabilized. The floating gangway system will provide for 200 boat slips that will be installed incrementally as demand grows. Currently, boaters are required to dock on the riverbank. The closest alternatives for on-water refueling/marina facilities for recreational boaters are located 33 miles upstream at Golconda, Illinois. The transient dock will serve as a river walk for the public and a dock for transient vessels. The transient dock will not provide dockage for excursion vessels such as the 'Delta Queen' steamboat. Impacts to the riverbed associated with the transient dock will be limited to placement of a maximum of 50 eight-foot deadman weight cubes for anchoring the floating dock. The marina will be anchored with 20 five-foot deadman weight cubes. The project will maintain a 300-foot buffer from the USACE Navigation Channel.

The second phase of the Schultz Park Expansion includes installation of park amenities. Park amenities are planned to include public open spaces and scenic overlooks with benches, picnic tables, additional parking, pedestrian/bicycle trails, educational/interpretive resources, and other landscape features. Accommodations for a marina and associated utility systems (e.g. fuel, water, sanitary) that will provide restrooms, showers, and a sundries store will be included. While no specific details are yet available for these facilities, all fuel and wastewater systems will be designed to Kentucky state standards. A spill prevention plan will be developed and maintained by the marina operator. The spill prevention plan will comply with state codes and approved by the appropriate agency prior to marina operation.

ACTION AREA

The Service considers the action area to include the lower Ohio River between J.T. Myers Lock and Dam at Ohio River Mile 846.0 downstream to the mouth of the Ohio River at ORM 981.0. This action area also includes the Cumberland River downstream of Barkley Dam and the Tennessee River downstream of Kentucky Dam. The action area is designated in this way because (a) it contains the entirety of the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action and (b) it contains the areas upstream and downstream of the proposed project where the indirect and cumulative effects of the proposed action are likely to occur. Regarding these upstream and downstream areas, the Service believes that the proposed action is likely to result in (a) hydrologic effects on the freshwater mussels addressed in this conference opinion and their habitats within and downstream of areas impacted by the Burnett Street Boat Ramp and Schultz Park Expansion portions of the proposed action, (b) localized population reductions of these freshwater mussels that will have corresponding effects on their populations within the described action area, and (c) a reduced likelihood that fish hosts for these freshwater mussel species will provide the same level of pre-project genetic flow throughout the described action area due to the anticipated population reductions of these species within the action area.

The action area includes all areas potentially affected directly and indirectly by the proposed project and includes the Burnett Street Boat Ramp and the marina and Schultz Park Expansion locations (O'Neill and Thomas 2009). Hydrodynamic processes were modeled for existing and proposed conditions to determine the extent of modifications anticipated from the proposed Schultz Park Expansion, and are provided in Appendix C of the Biological Assessment. Because a wide range of hydrodynamic conditions were modeled, only the subset of results pertaining to potential mussel impacts was included in the Biological Assessment. River stages and particle sizes considered relevant to potential effects on mussels included a typical annual hydrograph range (based on hydrograph data from 1990 to 2008) and particle sizes corresponding to suitable mussel habitat. These include river stages 304, 310, and 320 for particle sizes 0.1mm (very fine sand), 1mm (very coarse sand), 2mm (very fine gravel), and 5mm (fine gravel). Particle sizes greater than 5mm were not mobile within the project area for existing or proposed conditions. A river stage of 304' is slightly greater than the normal pool elevation of 302' whereas a river stage

of 320' corresponds with an approximately 10% exceedance probability. The City of Paducah Action Stage is 318' and Flood Stage is 325'. It should be noted that river stage elevations and actual local reach conditions are complicated by the effects of the Smithland Lock and Dam, Lock and Dam 52 and Kentucky Lake Dam influencing flows and water levels.

Modeling hydrodynamic processes specifically related to the proposed Burnett Street Boat Ramp was cost prohibitive due to the relatively small proposed encroachment into the river and the data-intensive model input requirements. Therefore, the modeling results for the Schultz Park Expansion site were used as a qualitative comparison for relative hydrodynamic changes at the proposed Burnett Street Boat Ramp location. A discussion of the proposed activities within the action area, including cumulative effects on protected species is provided in Section 4 of the Biological Assessment. A more detailed description of portions of the action area including baseline environmental conditions is provided below.

Burnett Street Boat Ramp

Currently, the Burnett Street Boat Ramp location at approximately Ohio River Mile 935.7 consists of undeveloped shoreline with a narrow riparian corridor and the riparian floodplain that is used for agricultural activities. Fill material associated with the boat ramp will cover approximately 0.3 acre of the riverbank and toe of slope and will extend no greater than 35 meters from shore (normal pool elevation of 302 feet). Indirect impacts at the proposed boat ramp site associated with future boating traffic and launching and extracting boats from the river may include increased substrate disturbance from propeller wash, bank erosion from wave action, and spills/debris from increased recreational activity. It was estimated that the most significant increase in boating activity as a result of the proposed boat ramp would occur within a 100 meter radius of the ramp.

The proposed boat ramp lies flush with the existing contours of the riverbank to avoid significant permanent modifications to hydrodynamic processes and ensure long-term stability. Based on a qualitative comparison with the hydrodynamic model results from the Schultz Park Expansion site (presented in Section 1.3.2 of the Biological Assessment), any potential sedimentation as a result of the proposed boat ramp should occur on the downstream side of the ramp and shoreward. If sedimentation were to occur, it would be restricted to the existing riverbank rather than the riverbed. Higher bed shear stress would likely occur on the ramp face itself. Indirect effects anticipated from boat traffic and propeller wash have not been quantitatively assessed. However, it is reasonably clear that the greatest influence on sediment transport potential will be dependent on the magnitude of boat-induced wave action and propeller wash versus the force of river currents. Where river currents are slow, such as in shallow water near shore, the effects of boat wave action/propeller wash on bank erosion and riverbed suspension are likely greater. In the near shore, these effects would likely include entrainment of particles as boats enter/exit the water. To prevent potential riverbank and riverbed erosion, areas immediately upstream and downstream of the ramp along the riverbank will be stabilized with coarse material such as cobble and/or small boulders. In addition, the toe of slope will be protected with cobble material

to prevent potential entrainment of fine particles that could occur as a result of propeller wash when boaters are running their motors to load the boat on the trailer.

The influence of boating activity on riverbed particle entrainment decreases further from shore as a result of a boat's wave generating potential relative to river depth and currents. Increased boating activity within this portion of the action area will be associated with recreational vessels approaching and exiting the boat ramp area at relatively slow speeds. Recreational vessels (typically ranging from "bass" boats to pontoon boats) characteristically have small displacement hulls with low wave generating potential (particularly at slow speeds) relative to the large cross section of the river and relatively deep water (>4m deep beyond the extent of the proposed ramp). Therefore, beyond the immediate vicinity of the proposed ramp, boating activity is not expected to influence river sediment transport potential/substrate characteristics or cause any adverse effects on mussel habitat.

Schultz Park Expansion

The Schultz Park Expansion portion of the action area was determined based on the extent of the proposed fill required to construct the park expansion landform, the anticipated extent of hydrodynamic modifications caused by the proposed landform, the pile locations required to construct the transient dock and marina, and the anticipated extent of potential indirect impacts (O'Neill and Thomas 2009). It is estimated this portion of the action area extends riverward approximately 410 feet to the base of the fill area. After the fill activity is completed the new shoreline will be approximately 270 feet riverward from the current shoreline.

The proposed park expansion and marina/transient dock is located at approximately Ohio River Mile 934.7 to 935.1, immediately downstream of the existing downtown boat launch, and consists of a relatively developed shoreline with armored riverbanks and a narrow park setting on the river side of the floodwall, as shown in figures 1 and 3 in the Biological Assessment (O'Neill and Thomas 2009). The Ohio River within the vicinity of the City of Paducah experiences a high volume of boat and barge traffic due to its proximity to the existing downtown boat ramp and lock system. The City of Paducah and nearby area is also a major hub for commercial barge activity. Barges frequently use the shoreline in the proposed marina/transient dock area for staging purposes because of the high volume of barge activity through the locks. Barge staging consists of beaching the nose of the barge onto the shore at an angle sufficient to maintain position in the river while waiting for lock traffic to clear. Many recreational boaters use the area for fishing, water skiing, cruising, and other activities. The shoreline, along where the proposed park expansion and transient dock is located, receives a considerable volume of foot traffic (e.g., fishing, sight-seeing, etc.) from the existing riverfront park and along the floodwall.

Direct effects of the expansion of Schultz Park as proposed, includes the required placement of fill material over a footprint covering approximately 4.9 acres of riverbed, and the permanent modifications to hydrodynamic processes. The location of the proposed expansion, as well as the orientation of the proposed landform, was designed to infringe as little as possible on the river's hydrodynamics as well as the commercial navigation channel. The results of

hydrodynamic modeling provide an estimation of the potential change in deposition and entrainment patterns of sediment particles as a result of the proposed Schultz Park landform. Model results indicate sediment entrainment potential (mobility index > 1) of particles within the location of the proposed landform for existing conditions between river stages 304' and 320' is limited to particle sizes less than 5mm (fine gravel) (Appendix D in the Biological Assessment). Sediment entrainment potential model results, including the proposed landform, includes 5mm particles located on the surface of the landform fill slope at a river stage of 320'. Because the fill slope will be constructed with particles significantly greater than 5mm, the following discussion will be limited to sediment transport potential of particles less than 5mm at river stages 304', 310', and 320'.

The modeled sediment transport potential of all mobile particles between river stages 304' and 320' is summarized in Figure 13 of the Biological Assessment. The figure represents the increased deposition and entrainment potential caused by the proposed landform beyond the existing potential deposition and entrainment. Deposition and entrainment potential for existing conditions is not shown on the figure in order to highlight the changes in sediment transport potential resulting from the project. At river stage 304', potential entrainment of 1mm particles is likely to occur at the furthest extent of the proposed landform from shore. The remaining modifications to the sediment transport potential of the river include an increased potential deposition of 01.mm, 1mm, and 2mm particles primarily downstream and shoreward of the proposed landform.

It is anticipated that approximately 5.8 acres may be indirectly affected by increased boating activity such as wave action and propeller wash from boats accessing the transient dock boat slips and marina. Potential sedimentation or scour from boating activity within the transient dock marina is expected to be minimal due to the slow speed required to maneuver within the dock area. In addition, a wave attenuator was integrated into the transient dock design to buffer the boat harbor and shoreline from wave action generated from vessels operating within the navigation channel of the river.

Mussel Conservation Measures

Proposed mussel conservation measures were included in the Biological Assessment on pages 24 and 25 (O'Neill and Thomas 2009). The Service recognizes that, individually and/or cumulatively, these mussel conservation measures contribute to the avoidance and minimization of adverse effects to these listed mussels, but that these measures do not necessarily eliminate all adverse effects that may result from the proposed action. These conservation measures are included with more detail, along with additional minimization actions, in the Reasonable and Prudent Measures and Terms and Conditions portion of this Conference Opinion.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

This conference opinion covers the rabbitsfoot mussel, *Quadrula cylindrica cylindrica* and the sheepnose mussel, *Plethobasus cyphyus*.

Rabbitsfoot mussel

The rabbitsfoot is currently a candidate for listing (USFWS 2011), and is currently undergoing further assessment by the Service's Arkansas Field Office. Critical habitat for this species has not been designated but will likely be designated when and if the species becomes federally listed.

The following taxonomic and descriptive information is gleaned from the status review for this species (Butler, 2005). The rabbitsfoot was described by Thomas Say in 1817, and the type locality is the Wabash River, probably in the vicinity of New Harmony, Posey County, Indiana.

The following description is summarized from Parmelee and Bogan (1998) and Oesch (1984). The rabbitsfoot is a medium-sized to large mussel reaching about six inches in length with an elongate rectangular and moderately inflated shell. The beaks barely extend above the hinge line on the anterior portion of the mussel. Externally, a posterior ridge extends diagonally from the umbo to the posterior ventral margin. Shell sculpture generally consists of a few large, rounded, low tubercles on the posterior slope, and occasional elongated pustules anteriorly. The periostracum is generally smooth, yellowish, greenish, or olive in color and covered with dark green or black chevrons and triangles. As with many mussel species, growth rest periods appear as grooves in the shell surface. Internally, the right valve contains a single low and straight to slightly wavy lateral tooth. The left valve has two low, triangular, grooved pseudocardinal teeth and two lateral teeth. The beak cavity is deep and the interdentum is narrow. Nacre color is white and iridescent, often with gray-green tinges of color in the cavity of the umbo. Soft parts are generally orangish in color.

Sheepnose mussel

The sheepnose is currently a proposed listed species (USFWS 2011). It is expected the sheepnose will become officially listed as endangered within about a year. It is our understanding that critical habitat for this species will be determined within a year after it becomes listed, but no critical habitat is currently proposed.

The following taxonomic and descriptive information is summarized from the status review of this species (Butler, 2003). The sheepnose was described by Constantine Rafinesque in 1820. The type locality is the Falls of the Ohio River near Louisville, Kentucky and adjacent Indiana.

The following description is generally summarized from Oesch (1984) and Parmalee and Bogan (1998). This medium sized mussel reaches nearly 5.5 inches in length, and the shape of the shell is elongate ovate, moderately inflated, with the valves thick and solid. The anterior end of the shell is rounded and the posterior is truncate to bluntly pointed. The posterior ridge is gently rounded and flattened ventrally, and there is generally a row of large, broad tubercular swelling on the center of the shell extending from the beak to the ventral margin. A shallow sulcus lies

between the posterior ridge and central swellings. Beaks are high and located near the anterior margin. In young individuals the periostracum is often light yellow to yellowish brown, becoming darker with age. The beak cavity is shallow to moderately deep and generally white in color. The right valve contains a large triangular pseudocardinal tooth and the lateral teeth are heavy, long and slightly curved.

Life History

Rabbitsfoot

The following life history information is gleaned from the status review for this species (Butler 2005). The rabbitsfoot is a filter-feeding species from the Unionidea family with a diet likely consisting of a mixture of algae, detritus, bacteria, and microscopic zooplankton. Most mussels, including the rabbitsfoot, generally have separate sexes. Age at sexual maturity for the rabbitsfoot is unknown. Fertilization success is apparently influenced by mussel density and flow conditions. The female rabbitsfoot utilizes all four gills as a marsupium for its glochidia and is considered to be a short-term brooder with an inferred brooding period from May to July. Fish hosts for the rabbitsfoot mussel are thought to be shiners (e.g., spotfin shiner, *Cyprinella spiloptera*; rosyface shiner, *Notropis rubellus*; blacktail shiner, *Cyprinella venusta*; etc).

The following habitat requirements are summarized from Parmalee and Bogan (1998). The rabbitsfoot primarily inhabits small to medium-sized streams and some large rivers. It usually occurs in shallow areas along the bank and adjacent runs and shoals where the water velocity is reduced. Specimens may also occupy deep water runs, having been reported in 9 to 12 feet of water. Bottom substrates generally include sand and gravel. In the Tennessee River in western Tennessee, it is most abundant on marginal shelves of sandy clay in 6 to 10 feet of water. The rabbitsfoot is often found lying on its side.

The rabbitsfoot is regarded as primarily a species of the Mississippi drainage, principally the Ohio, Cumberland, and Tennessee River systems, but is also found in portions of the Lower Great Lakes Basin. Historically it was known from 137 streams in 15 states. In the Ohio River system, it historically had populations in 63 streams, but today it is thought to be extant in only 16 Ohio River streams. In the Ohio River main stem, it historically occurred in the entire length of the Ohio River, but, currently, only a few populations are known from the lower Ohio River. By far the largest and probably only significant Ohio River main stem population is from near Paducah, Kentucky downstream to the Mound City, Illinois area, a reach of about 39 miles. This population and a population in the lower Tennessee River downstream of Kentucky Dam, may be considered a single metapopulation due to the absence of a significant barrier separating them. This metapopulation is considered viable with indications of multiple age and size classes.

Sheepnose

The life history information is summarized from the status review of this species (Butler 2003). Thick shelled, larger river mussels such as the sheepnose are thought to live longer than other species. The life span of the sheepnose is thought to be about 21 to 25 years. The reproductive cycle of the sheepnose is likely similar to that of other native freshwater mussels. As with most mussel species the sheepnose has separate sexes. Age at sexual maturity is unknown but is estimated at about 3 years. Female sheepnose utilize only the outer pair of gills as marsupium

for its glochidia, and is considered to be a short-term brooder with most reproduction taking place in early summer (Parmalee and Bogan 1998). Glochidia are released in the form of conglutinates, which are narrow and lanceolate in outline, solid and red in color, and discharged in unbroken form (Oesch 1984). Several score to a few hundred glochidia probably occur in each conglutinate. Total fecundity per female sheepnose is probably in the tens of thousands.

Glochidia must come into contact with a specific host fish (es) to survive and develop further. Little is known regarding the host fish for the sheepnose but one known host is the sauger, *Stizostediaon canadense*. It is possible that other fish species may also serve as a suitable host. Newly metamorphosed juveniles drop off the host and begin a free living existence on the stream bottom.

The following habitat requirements of the sheepnose are summarized from Oesch (1984) and Parmalee and Bogan (1998). The sheepnose is primarily a larger stream species, usually occurring in shallow shoal habitats with moderate to swift currents over coarse sand and gravel. Habitats also may have mud, cobble, and boulders, and it may occur in deep runs.

Historical and current distribution information on the sheepnose is summarized from Butler (2003). The sheepnose historically occurred throughout much of the Mississippi River system with the exception of the upper Missouri River system and most lowland tributaries in the lower Mississippi River system. This species is known from the Mississippi, Ohio, Cumberland, Tennessee River main stems, and scores of tributary streams rangewide. It historically occurred in at least 77 streams in 15 states. The current distribution includes 26 streams in 14 states. The sheepnose has been eliminated from about two-thirds of the total number of streams from which it was historically known (26 streams currently compared to 77 streams historically), and has been eliminated from long reaches in streams in which it currently occurs. The sheepnose was historically known from 28 streams in the Ohio River system. Currently, only 11 streams are thought to have extant populations. The sheepnose was historically documented from the entire length of the Ohio River. Recent observations of this species from current populations in the main stem Ohio River result in relative abundance numbers of about 0.01 percent to 1.85 percent. The sheepnose has been recently recorded from the main stem Ohio River downstream of Paducah, and in several locations in the Tennessee River downstream of Kentucky Dam.

Population dynamics

Population size – rabbitsfoot

Information on rabbitsfoot population size is summarized from Butler (2005). The rabbitsfoot was widespread and locally common in many Mississippi River Basin streams. Quantitative historical abundance data is rare, but relative abundance information can be gathered from the size and number of museum lots. The historical museum data (pre-1980) indicates that good rabbitsfoot population occurred in many rivers, including the Ohio and Tennessee Rivers. Based on the historical data, an argument can be made that in many locations the rabbitsfoot was locally abundant. When experts started attempts to compile lists of imperiled mussels, the rabbitsfoot was considered to be a rare species as early as 1970. Many studies in recent history have indicated the rabbitsfoot is rare, sporadic, or extirpated throughout most of its range. The American Malacological Union and American Fisheries Society consider the rabbitsfoot to be

threatened (Williams et al. 1993). Populations of the rabbitsfoot were last reported decades ago from about one-third of streams where it historically occurred. The compilation of distributional information in the status review by Butler (2005) indicates a severe reduction in range over the past 40 years. About 66 percent of the historical streams of occurrence have lost their populations of this species. Populations in 91 streams of known historical populations are now considered extirpated. It is very likely that other poorly sampled or totally unsampled stream populations of this species have experienced similar declines. The amount of habitat loss and the extirpation of this species from thousands of miles of habitat within its range indicate catastrophic population losses as well. Total range reduction and overall population loss for the rabbitsfoot realistically approaches, if not exceeds, 90 percent.

Population size – sheepnose
The information below is summarized from the status review of this species by Butler (2003). The sheepnose, although widespread in many Mississippi River system streams was rarely very common. Archaeological evidence on relative abundance indicates that it has been an uncommon or even rare species in many streams for centuries. Museum collections of this species, with few exceptions, are almost always small. Fair numbers were recorded historically from the upper Muskingum River system in Ohio, and the lower Wabash River. Cummings and Mayer (1992) considered it 'rare throughout its range'. The sheepnose has experienced a significant reduction in range and most of its populations are disjunct, isolated, and appear to be declining rangewide. The extirpation of the sheepnose from over 50 streams within its historical range indicates substantial population losses have occurred. In the vast majority of streams with extant populations, it appears to be uncommon at best. Small population size and/or restricted stream reaches of current occurrence are currently the norm. No new populations of sheepnose have been discovered and populations have not yet been reestablished in historic habitat.

Population variability - rabbitsfoot
Little is known on the population variability of the rabbitsfoot. Few individuals are observed during survey efforts, making it difficult to accurately assess populations. Densities are often so low that only a few individuals may comprise a population.

Population variability - sheepnose
This species is considered extremely rare wherever it is found. Little is known on the population variability of the sheepnose. Few individuals are observed during survey efforts, making it difficult to accurately assess populations.

Population stability – rabbitsfoot
The stability of rabbitsfoot populations is not well known. In most locations where this species appears to be present, the presence of rabbitsfoot is evident from occasional individuals or only a few individuals recorded. In the lower Ohio River and lower Tennessee River downstream of Kentucky Dam, the low numbers encountered during mussel surveys is of little value other than indicating the species may be existing in a certain area over a relatively long period of time.

Population stability – sheepnose
The stability of sheepnose populations is not well known. In most locations where this species appears to be present, the presence of sheepnose is evident from occasional individuals or only a

few individuals recorded. In the lower Ohio River and lower Tennessee River downstream of Kentucky Dam, the low numbers typically encountered during mussel surveys is of little value other than indicating the species may exist in a certain area over a relatively long period of time.

Status and distribution

Reasons for listing – rabbitsfoot

The following summary is primarily from Butler (2003). The decline of the rabbbitsfoot is primarily the result of habitat loss and degradation from impoundments, sedimentation, and pollution. Chief among the causes of decline are impoundments, channelization, chemical contaminants, mining, and sedimentation (Neves, 1993; Neves et al. 1997; Watters, 2000). Impoundments result in the modification of riffle and shoal habitats and the resulting loss of mussel resources, especially in larger rivers. Dams interrupt most of a river's ecological processes by modifying flood pulses; controlling impounded water elevations; altering water flow, sediments, nutrients, and energy inputs and outputs; increasing depth; decreasing habitat heterogeneity; decreasing stability due to subsequent sedimentation; blocking host fish passage; and isolating mussel populations from fish hosts. Even small low-head dams can have some of these effects on mussels. In addition, dams can alter downstream water quality and habitat. Population losses due to impoundments have probably contributed more to the decline and imperilment of the rabbitsfoot than any other single factor. Channelization and dredging activities have also altered riverine habitats nationwide. Chemical contaminants contained in point and non-point discharges can degrade water and substrate quality impacting mussel populations and may be most profound on juvenile mussels. Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Currently, the vast majority of the historical range of the rabbitsfoot has been altered and no longer offers suitable habitat. With few exceptions, extant populations are: 1) invariably small (rarely are more than one or two individuals found per sample), 2) characteristically rare (having low relative abundance), 3) sporadically or occasionally distributed (despite the extent of seemingly suitable habitat it is very patchy in distribution and occurrence), and 4) generally limited in linear extent, and typically lacking evidence for recent recruitment. With many disjunct populations and its overall scarcity, the species is highly susceptible to localized extirpations from the genetic implications of extremely low population size and because of threats that are extremely difficult if not impossible to control. Stochastic events are a real concern for all populations, particularly reach-limited populations and those associated with navigation channels and other major transportation arteries. Other threats include exotic species, such as Asian clams, zebra mussels, and Asian carp.

Reasons for listing – sheepnose

The following summary is primarily from Butler (2005). The sheepnose has experienced a significant reduction in range and most of its populations are disjunct, isolated, and appear to be declining rangewide. The extirpation of the sheepnose from over 50 streams within its historical range indicates substantial population losses have occurred. The decline of the sheepnose is primarily the result of habitat loss and degradation from impoundments, sedimentation, and

pollution. Chief among the causes of decline are impoundments, channelization, chemical contaminants, mining, and sedimentation (Neves, 1993; Neves et al. 1997; Watters, 2000). Impoundments result in the modification of riffle and shoal habitats and the resulting loss of mussel resources, especially in larger rivers. Dams interrupt most of a river's ecological processes by modifying flood pulses; controlling impounded water elevations; altering water flow, sediments, nutrients, and energy inputs and outputs; increasing depth; decreasing habitat heterogeneity; decreasing stability due to subsequent sedimentation; blocking host fish passage; and isolating mussel populations from fish hosts. Even small low-head dams can have some of these effects on mussels. In addition, dams can alter downstream water quality and habitat. Population losses due to impoundments have probably contributed more to the decline and imperilment of the sheepnose than any other single factor. Channelization and dredging activities have also altered riverine habitats nationwide. Gravel mining activities may be a localized threat in some streams with extant sheepnose populations. Chemical contaminants contained in point and non-point discharges can degrade water and substrate quality impacting mussel populations and may be most profound on juvenile mussels. Various forms of pollution from municipal, agricultural, and industrial sources can impact mussels in a variety of ways. Siltation can increase turbidity which irritates or clogs the gills of mussels and can even physically smother the animal. Mussel life cycles can be affected indirectly from siltation by impacting host fish populations (e.g., smothering fish eggs or larvae, reducing food availability, etc.). Currently, the vast majority of the historical range of the sheepnose has been altered and no longer offers suitable habitat. With few exceptions, extant populations are: 1) invariably small (rarely are more than one or two individuals found per sample), 2) characteristically rare (having low relative abundance), 3) sporadically or occasionally distributed (despite the extent of seemingly suitable habitat it is very patchy in distribution and occurrence), and 4) generally limited in linear extent, and typically lacking evidence for recent recruitment. With many disjunct populations and its overall scarcity, the species is highly susceptible to localized extirpations from the genetic implications of extremely low population size and because of threats that are extremely difficult if not impossible to control. Stochastic events are a real concern for all populations, particularly reach-limited populations and those associated with navigation channels and other major transportation arteries. Other threats include exotic species, such as Asian clams, zebra mussels, and Asian carp.

Rangewide trend – rabbitsfoot

Based on rabbitsfoot status information in Butler (2005), about 66 percent of the historical streams of occurrence have lost their populations of this species. Much more than 66 percent of the species' historically available habitat no longer supports populations. Populations in 91 streams having known historical populations are considered extirpated. Habitat losses measured in the thousands of miles have occurred in large streams from which the rabbitsfoot is now considered extirpated, and thousands of additional miles in scores of smaller streams. Total range reduction and overall population loss for the rabbitsfoot likely meets or exceeds 90 percent. With few exceptions, the extant populations are extremely small and occur in relatively short river reaches despite the extent of seemingly suitable habitat in many streams. A majority of populations are essentially limited to discrete reaches making the species in these streams highly susceptible to elimination from catastrophic stochastic events.

Rangewide trend – sheepnose
The sheepnose has experienced a significant reduction in range and most of its population are disjunct, isolated, and appear to be declining rangewide. It is extirpated from over 50 streams in its historical range. In the majority of streams with extant populations, the sheepnose appears to be uncommon at best. Several extant populations are thought to exhibit some level of population viability; however, given its current distribution, abundance, and trend information, the sheepnose appears to exhibit a high level of imperilment.

New threats
The zebra mussel, *Dreissena polymorpha*, an exotic species that colonizes the shells of native mussels, is a relatively new threat. It is present in the Ohio River and has been observed attached to native mussels. It can restrict the ability of a mussel to move, feed, respire, and reproduce, especially if large numbers are present on the shell of the native mussel. An additional new potential threat to both the rabbitsfoot and sheepnose is a molluscivore (mollusk predator) fish, the black carp, *Mylopharyngodon piceus*. It has recently been recorded in the Mississippi River near the mouth of the Ohio River.

Analysis of the species/critical habitat likely to be affected
The rabbitsfoot, a candidate species, and sheepnose, a proposed species, are not yet federally listed but are likely to be adversely affected in the action area of this project. No critical habitat has been designated for these species at this time; however, it is expected that critical habitat will be included when these species are listed.

ENVIRONMENTAL BASELINE

Status of the species within the action area
A reconnaissance mussel survey was performed during August 5 – 8, 2008 in two portions of the river from near Ohio River Mile (ORM) 935.7 (Burnett Street Boat Ramp) and 934.7 (Schultz Park Expansion).

Rabbitsfoot
A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels, such as the rabbitsfoot, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site. The reconnaissance mussel survey did not record any rabbitsfoot; however, it is likely that the rabbitsfoot may occur at the project site. The rabbitsfoot has been recorded in the Ohio River downstream of the project site and in the Tennessee River upstream of the project site within the action area as defined in this conference opinion.

Sheepnose
A reconnaissance mussel survey, such as was performed for the project, is not specifically intended or designed to detect extremely rare mussels such as the sheepnose, but it will usually provide sufficient information on the overall mussel assemblage and habitat that a determination can be made as to the likelihood such rare species could occur at the survey site. The

reconnaissance mussel survey did not record any sheepnose mussels; however, it is likely that this species occurs in the action area. The sheepnose has been recorded in the Ohio River downstream of the project site and occurs in the Tennessee River upstream of the project site within the action area as defined in this conference opinion.

Factors affecting species environment within the action area
The habitat conditions within the action area consist primarily of sand, soft silt over sand, and small areas of gravel and/ or clay. Other factors possibly affecting the species environment in the action area include (a) runoff from agriculture activities which can increase turbidity and add sediment, including possible contaminants from urban runoff, (b) dams which can affect host fish movement and habitat conditions, (c) commercial sand and gravel dredging, (d) sewer outfalls, and (e) industrial complexes located upstream in the Ohio, Cumberland, and Tennessee Rivers. Barge traffic will continue to operate in the river channel riverward of the project footprint; however, barge groundings or 'parking' on the shoreline at the City of Paducah is expected to cease once the project is constructed.

Previous Incidental Take Authorizations
The species are not federally listed. Therefore, the take of these two species currently is not prohibited.

EFFECTS OF THE ACTION

Factors to be considered
This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat and its interrelated and interdependent activities. While analyzing direct and indirect effects of the proposed action, the Service considered the following factors:

- Proximity of the action – We describe known species locations and designated critical habitat in relation to the action area and proposed action;
- Distribution – We describe where the proposed action will occur and the likely impacts of the activities;
- Timing – We describe the likely effects in relation to sensitive periods of the species' lifecycle;
- Nature of the effects – We describe how the effects of the action may be manifested in elements of a species' lifecycle, population size or variability, or distribution, and how individual animals may be affected;
- Duration – We describe whether the effects are short-term, long-term, or permanent;
- Disturbance frequency – We describe how the proposed action will be implemented in terms of the number of events per unit of time;
- Disturbance intensity – We describe the effect of the disturbance on a population or species; and
- Disturbance severity – We describe how long we expect the adverse effects to persist and how long it would it take a population to recover.

Proximity of the action:
The proposed action will occur upstream of Lock and Dam 52 on the Kentucky side of the Ohio River near approximately Ohio River Mile 934.7 to 935.8, extending from the Kentucky shore out to the navigation channel. The proposed action area is likely to contain rabbitsfoot and sheepnose due to their close proximity to the site, the occurrence of suitable habitat, and the associated mussel assemblage present in the action area.

Distribution:
Direct impacts to the rabbitsfoot and sheepnose mussels and their habitats will most likely occur within the project footprint and in other portions of the action area downstream and riverward of the project footprint. It is expected that the greatest impacts will be from the new fill to provide the terrestrial area at the Schultz Park Expansion site. Other potential impacts will be from changes to the surrounding riverine habitat from flow changes due to the fill, the presence and operation of the marina, and boat traffic activity at and near the project sites.

Timing:
The proposed action can be divided into essentially two periods, a construction phase and an operation phase. Depending on when the actual construction occurs, the construction may impact the rabbitsfoot and sheepnose mussels during sensitive periods of their life cycle.

Both the rabbitsfoot and sheepnose mussels are thought to become gravid during spring and/or summer, brood glochidia for a short period of time, and release larvae in the late summer (i.e., a short-term brooder). Sensitive periods in late spring-summer for adults, include the release of sperm into the water column and the fertilization of eggs and brooding of larvae. Another sensitive period for female mussels is the time of release of partially developed larvae or glochidia and their attachment onto the fish host (summer). Sensitive periods for the juveniles include their attachment to the host fish and excystment from the host fish as they drop to the riverbed and establish themselves in the substrate (summer). All these sensitive periods will certainly occur during the post-construction or operation period and into the foreseeable future. In addition, these species may be impacted if fish host behavior and presence are affected by the construction and operation phases of the proposed action.

Nature of the effect:
It is likely that the proposed action will have a variety of effects on the rabbitsfoot and sheepnose mussels. The life cycle of these species can potentially be disturbed or disrupted by construction and/or operation activities; however, the construction phase where fill deposition and concomitant flow changes will occur will likely be the greatest effect. For instance, any mussels remaining within the filled peninsula area will be killed. The operation phase of this project is likely to result in the (a) direct and/or indirect mortality of individual adults and juveniles from boat activity, (b) dislodgement of adults and/or juveniles due to flow alterations and/or navigation activity, (c) reduction or other modification in the availability of fish hosts that is caused by degradation/alteration of habitat and that may harm and/or harass individuals through interference with respiration, feeding, and reproduction, and (d) creation of turbidity and/or deposition of sediment that may directly and/or indirectly affect adults and/or juveniles by harm and/or harassment. In addition, these species may be impacted if fish host behavior and presence is negatively affected by flow alterations, turbidity, or changes in sediment deposition.

Duration:
During the construction phase, potential impacts to the rabbitsfoot and sheepnose mussels will be direct and indirect, and remain for the duration of the construction. The effects of the operation phase are indeterminable, but any effects will likely be of a long-term duration. It is possible that the post-construction or operational phase will also result in changes to flows and other habitat conditions; however, the effects of these changes will not be known until sufficient monitoring reveals the extent and magnitude of the changes. The loss of habitat within the filled peninsula area will be permanent.

Disturbance frequency:
The construction phase disturbance will only occur once but will result in an unknown period of change that will follow the construction. Any disturbances to the rabbitsfoot and sheepnose mussels produced during the operation phase are expected to occur on a regular basis and will be directly related to the amount of on-going boating activity. These disturbances (i.e., flow changes, increased turbidity, movement of sediment, etc.) are expected to be occurring over an unknown period of time as new flow conditions alter the makeup of the river's flow characteristics, sediment removal, and/or sediment transport/deposition patterns.

Disturbance intensity:
The disturbance intensity will likely be dissimilar throughout the action area and is expected to occasionally create habitat conditions that are unfavorable for the rabbitsfoot and sheepnose mussels. Further, the intensity of the disturbance is expected to be greatest in association with the construction phase of the project.

Disturbance severity:
The disturbance severity of the fill portion of the construction phase is expected to be severe and permanent. The post-construction or operation phase is expected to primarily impact rabbitsfoot and sheepnose mussels nearest the fill portion of the project, along the perimeter of the fill area, and in shallow water due to sedimentation. The recovery rate to these mussel species in this part of the action area is unknown. Taken as a whole, the overall disturbance severity is expected to be minor to the population of these mussel species in the lower Ohio River and range-wide.

Analyses for effects of the action
Beneficial effects:
No wholly beneficial effects have been identified or are expected to occur. The proposed action is expected to result in adverse effects on the rabbitsfoot and sheepnose mussel populations within the Shultz Park Expansion action area.

Direct effects:
Direct effects of the proposed action on the rabbitsfoot and sheepnose include harassment, harm, and mortality from construction of the fill area, flow alterations resulting from the fill area, construction of the marina, and resultant boating activities within the Shultz Park Expansion action area. In the Shultz Park Expansion action area, approximately 4.9 acres of river bottom will be covered with fill, and an additional 0.08 acres will be altered during construction of the

marina. Within these areas, approximately three acres is known to contain the highest densities of mussels within the project area, which is the area where rabbitsfoot and sheepnose mussels are most likely to occur. Therefore, we considered this 3-acre area to be the habitat where direct effects to rabbitsfoot and sheepnose mussels could occur.

It is estimated that a total of approximately 7.5 acres of habitat (i.e., 3.0 acres from direct effects and 4.5 acres from indirect effects) and that five rabbitsfoot and five sheepnose mussel will be taken by these activities. We anticipate this amount of take is not likely to be exceeded during project construction and maintenance; and, as stated in the Conclusion of this Conference Opinion, we do not believe this amount of take will jeopardize the continued existence of either the rabbitsfoot or sheepnose mussel. Since the rabbitsfoot and sheepnose mussels were not recorded in the survey at this site, the number of individuals provided above is considered, at best, an estimated number based on other mussel surveys conducted in the Tennessee River downstream of Kentucky Lock and Dam and in the lower Ohio River. Some of these surveys recorded the species, while others did not record these species (See section below titled: **Species' response to proposed action**).

Other direct effects to the rabbitsfoot and sheepnose include, but are not limited to, habitat modifications such as changes in flow and dissolved oxygen concentrations due to increased turbidity and sediment deposition which could bury mussels, especially juveniles, and cause injury and/or mortality. These effects could also restrict mussel respiration (e.g., suffocation due to inability to purge sediment from gills), limit feeding (e.g., starvation due to inability to eliminate sediment), and interfere with reproduction (e.g., abortion from stress, host fish absence during critical reproductive periods). Direct effects of mussel relocation include harm, harassment and possible mortality due to the stress of being handled, processed, and relocated. These effects can result in premature release of sperm or aborted glochidia negatively impacting reproductive success. A trained biologist that holds a collection permit from either the Service or the Kentucky Department of Fish and Wildlife Resources, and who will accomplish any relocation work, will minimize some of these effects.

In summary, the following direct effects are anticipated:

1. Mortality that is the result of a constructed fill area in occupied habitat. This action could damage, bury, or crush rabbitsfoot and/or sheepnose mussels.

2. Harm resulting from the constructed fill area, marina construction and operation, and boating activities in occupied habitat may result in mussel dislodgement, increased turbidity, flow alterations, sediment removal, sediment deposition, and decreased dissolved oxygen levels. This may affect the ability of these mussel species to respire, reproduce, and feed. Direct physical harm (e.g., damaged shell or bruised animal) could result in the death of rabbitsfoot and sheepnose mussels.

3. Harassment in the form of induced stress including, but not limited to, displacement of mussels during construction activities, potential degradation of remaining/adjacent habitat, and handling of mussels during relocation. This harassment could result in decreased ability of rabbitsfoot and sheepnose mussels to respire, reproduce, and feed.

All of these direct effects can lead to reduced population levels for these mussel species in this portion of the Ohio River, which, in turn, can reduce their reproductive capacity.

Interrelated and interdependent actions:
No interrelated and interdependent actions have been identified for this project.

Indirect effects:
Indirect effects of this project on the rabbitsfoot and sheepnose include changes in fish host behavior and/or presence that could impact the ability of glochidia to attach to the fish at the proper time when released from the female mussel, and changes in flow regimes and sediment transport in the action area. In summary, the following indirect effects are anticipated:

1. Mortality of adult and juvenile mussels that results from changes in the flow regime around the constructed fill area and marina, redistributing sediments that smother mussels due to new deposition, and/or that result in sediment loss creating instability and loss of habitat.

2. Harm in the form of decreased ability to respire, reproduce, and feed as a result of the redistribution of sediments resulting from changes in flow regimes and/or boating activities in occupied habitat. These activities may affect turbidity, flows, dissolved oxygen levels, and the presence of host fish during the future reproductive seasons of rabbitsfoot and sheepnose mussels.

3. Harassment in the form of induced stress including, but not limited to, potential degradation of approximately 4.5 acres of habitat from changes in flow regimes, and handling of rabbitsfoot and sheepnose mussels during survey and monitoring activity. This harassment could result in decreased ability of rabbitsfoot and sheepnose mussels to respire, reproduce, and feed.

Species' response to a proposed action
Numbers of individuals/populations in the action area affected:
Based on the mussel assemblage and habitat conditions recorded during the survey, it is likely rabbitfoot and sheepnose mussels could occur in suitable habitat throughout the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area; however, if they occur, they are not expected to be evenly distributed within this area. Since the mussel survey did not record any rabbitsfoot or sheepnose mussels, the exact number of rabbitsfoot or sheepnose mussels in this portion of the action area is currently unknown. We based our assessment on other mussel surveys that have recently been performed in close proximity to this proposed action. Several surveys incorporating quantitative and/or qualitative assessments have been conducted in recent years in the vicinity of the Paducah Riverfront Project in the Ohio, Tennessee, and Cumberland Rivers. Most of these surveys have not recorded the rabbitsfoot or sheepnose mussel. For those surveys that have recorded these species, the rabbitsfoot and/or sheepnose is found as an individual or in extremely low numbers, confirming the rarity of these species in the vicinity of the Paducah Riverfront Project.

The total number of rabbitsfoot and sheepnose mussels estimated to occur in the Burnett Street Boat Ramp and Schultz Park Expansion portions of the action area is undeterminable; however, we provide an estimate of five individuals of each species to cover any potential incidental take that might occur. We do not expect the proposed action to affect any rabbitsfoot or sheepnose mussels in the Burnett Street Boat Ramp portion of the action area, because most mussels recorded at this site were found in relatively deep water and riverward of the boat ramp in an area not likely to be impacted by boating activity or ramp construction. We do expect the proposed action to adversely affect the rabbitsfoot and sheepnose in the Schultz Park Expansion portion of the action area, due to the nature of the project activities in that area and due to the presence of suitable habitat, as a result of the direct impacts from fill and indirect impacts from marina construction and associated uses. Previously in this conference opinion, we estimated direct effects at three acres of habitat loss where rabbitsfoot and sheepnose mussels may occur. We expect the aforementioned indirect impacts to adversely affect rabbitsfoot and sheepnose mussels in the Schultz Park Expansion portion of the action area to an unknown extent; however, we have estimated that five rabbitsfoot and five sheepnose mussels may be taken and that three acres of habitat will be directly taken and 4.5 acres of habitat indirectly taken, with the habitat taken being the same habitat for both species.

Sensitivity to change:
The degree to which the rabbitsfoot and sheepnose are prone to change when disturbed is unknown. These two species are thought to be relatively sedentary within the substrate. As a result, they are likely unable to respond to change by moving great distances; however, it is possible they could move several meters. When disturbed, mussels, in general, tend to close their valves for a period of time; however, this response will vary depending on the disturbance. Mussels exposed to disturbance events will likely close their valves when disturbed and remain closed if continued to be disturbed. They are not likely to move out of the area of disturbance on their own because of their inability to move great distances in a short period of time and because their valves will likely remain closed.

Resilience:
Resilience relates to the characteristics of populations or a species that allow them to recover from different magnitudes of disturbance. Assuming that the flow characteristics and habitat conditions in the action area are not appreciably changed, the magnitude of disturbance is expected to be low and resilience is not expected to change from its current level. However, this can only be determined through monitoring of the population and habitat over time.

Recovery rate:
In this conference opinion, the recovery rate relates to the time required for a rabbitsfoot and sheepnose individual or population to return to equilibrium after exposure to a disturbance. Mussel populations are expected to continue to spawn and recruit new individuals into the population; however, the level of successful recruitment to the adult stage is unknown, especially in areas that may be subjected to repeated degradation (i.e., the shallow, near-shore areas). The recovery rate for these two mussel species is likely to vary within the action area.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future, State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this conference opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Private actions in the vicinity of the action area are primarily urban and agriculture-related activities. We are reasonably certain these actions will continue and do not expect these activities to change appreciably in the future from current conditions. Effects from urban and agricultural activities on rabbitsfoot and sheepnose could include increased sediment deposition, turbidity, and herbicide/pesticide levels in localized portions of the Ohio River. However, these effects, if they are occurring, are indeterminable. Private boating and commercial navigation activities also occur in the Ohio River and are expected to continue, but they are not expected to result in additional adverse effects even though they could potentially result in increased turbidity, physical disruption of habitat, and spills of petroleum products. Essentially, we cannot predict that these specific types of adverse effects will occur.

We are not aware of any other State, tribal or local actions to include under Cumulative effects.

CONCULSION

After reviewing the current status of the rabbitsfoot and sheepnose, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's conference opinion that the proposed action is not likely to jeopardize the continued existence of these species, and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The prohibitions against taking the species in section 9 of the Act do not apply until the species is listed. However, the Service advises FHWA, the Corps, and itself to consider implementing the following reasonable and prudent measures. If this conference opinion is adopted as a biological opinion following a listing or critical habitat designation, these measures, with their implementing terms and conditions, will be non-discretionary.

AMOUNT OF TAKE EXPECTED

The Service expects that 7.5 acres of habitat could be taken as a result of this proposed action. The 7.5 acres of habitat estimated to be taken includes 3.0 acres from direct fill, and 4.5 acres from indirect impacts including marina construction and operation, potential long-term sedimentation, and habitat disturbance.

The Service believes that take of rabbitsfoot and sheepnose mussels is undeterminable; however, we provide take of five rabbitsfoot and five sheepnose to cover any potential incidental take that may occur as a result of this proposed action.

In the "Analyses for effects of the action" section above, the Service determined that the proposed action would result in incidental take through (a) direct mortality as a result of the Schultz Park expansion fill area and relocation of any rabbitsfoot and sheepnose mussels; (b) harm from construction activities that will likely result in (1) physical harm (i.e., cracked shell, bruising) to mussels that were not included in the relocation, (2) negative effects of sedimentation that could entomb, starve, and/or suffocate individuals, (3) loss and/or degradation of habitat, (4) relocation efforts, and (5) disruption of host fish availability at key times during the reproductive cycle; and (c) harassment as a result of disruption in reproductive capabilities by, but not limited to, the spontaneous abortion of glochidia during relocation and/or monitoring efforts, individuals being dislodged downriver into unsuitable habitat, and potentially low dissolved oxygen levels.

EFFECT OF THE TAKE

In the accompanying conference opinion, the Service determined that this level of expected take is not likely to result in jeopardy to the species or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of rabbitsfoot and sheepnose mussels.

1. The FHWA, Corps, and Service must ensure that the proposed action will occur as designed, planned, and documented in the BA, all supporting information provided by the City of Paducah, and this conference opinion.

2. The FHWA, Corps, and Service must ensure that the City of Paducah implements measures to minimize or eliminate impacts of the Burnett Boat Ramp and Schultz Park Expansion sites to rabbitsfoot and sheepnose.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Act, the FHWA and City of Paducah must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The FHWA, Corps, Service and/or City of Paducah must agree to implement the proposed action as described in the BA, including mussel conservation measures listed in this conference opinion that are referred to in the BA, the BA's supporting documentation, and this conference opinion (see "Mussel Conservation Measures" section above). **This Term and Condition supports RPM 1 and 2.**

2. The FHWA, Corps, Service and/or City of Paducah shall develop a Mussel Relocation Plan and obtain the Service's prior written approval of the plan, prior to relocating mussel species, before any new construction activity occurs at or below the ordinary high water level. This plan will include a mussel relocation effort from within an area approximately three acres in size at the Schultz Park Expansion action area. We estimate that 8,200 mussels occur in this 3-acre area. It is not expected that all mussels in the entire area will likely be relocated; however, the Service believes that if approximately 50 percent of mussels in this area are relocated that will be an adequate level of relocation effort. This effort should be targeted at the rabbitsfoot and sheepnose mussel species addressed in this conference opinion and other species that are similar in appearance. This Mussel Relocation Plan will also include a baseline 'monitoring' component. Future monitoring efforts are addressed in Terms and Conditions #3 below. All rabbitsfoot and sheepnose mussels, will be tagged and either relocated to a nearby area of suitable habitat that is protected from navigation and fleeting activity, as indicated in the Mussel Relocation Plan, or as directed by the Service, to the KDFWR to be used in propagation and culture activities at the KDFWR Center for Mollusk Conservation in Frankfort, Kentucky. **This Term and Condition supports RPM 1.**

3. Upon locating a dead, injured, or sick individual of the rabbitsfoot and/or sheepnose mussel, initial notification must be made to the Fish and Wildlife Service Law Enforcement Office at 601 W. Broadway, Suite 115A, Gene Snyder Courthouse, Louisville, Kentucky 40202 (phone 502/582-5989 extension 21). Additional notification must be made to the Fish and Wildlife Service Ecological Services Field Office at 330 West Broadway, Room 265, Frankfort, Kentucky 40601 (phone 502/695-0468). Care should be taken in handling sick or injured mussels. All rabbitsfoot and/or sheepnose mussels that are moribund or have died recently are to be preserved according to standard museum practices (preferably kept frozen and/or preserved in 95% ethyl alcohol and then

frozen), properly identified or indexed (date of collection, complete scientific and common name, latitude and longitude of collection site, description of collection site), and submitted to the Kentucky Ecological Services Field Office in Frankfort, or to another location if instructed by the KYFO. This Term and Condition supports RPM 2.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than five rabbitsfoot, and five sheepnose and 7.5 acres of occupied federally listed mussel habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. In addition, if any other federally listed mussels are recorded during the mussel relocation activities, re-initiation of consultation and review of the reasonable and prudent measures provided is required. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATION

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The FHWA, Corps, and Service should consider implementing the following conservation recommendation:

Provide financial assistance to the Kentucky Department of Fish and Wildlife Resources Center for Mollusk Conservation to support programs that work to restore federally listed mussels and other native mussels in the lower Ohio River. Such assistance could take the form of protecting or enhancing similar habitat and/or providing funding to the CMC facility to propagate federally listed mussels and other native mussels.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, please provide notification to the Service's Kentucky Field Office of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes the formal conference on the action outlined in the FHWA BA. You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the species is listed or critical habitat is designated. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant

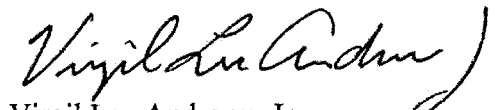
changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the rabbitsfoot and/or sheepnose as endangered or threatened and/or designation of critical habitat for rabbitsfoot and/or sheepnose and any subsequent adoption of this conference opinion, the FHWA, Corps, and Service shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the FHWA, Corps, and Service actions that may affect listed species or critical habitat in a manner or to an extent not considered in this conference opinion; (3) the FHWA, Corps, and Service action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease until re-initiation.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the rabbitsfoot and/or sheepnose has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the rabbitsfoot and/or sheepnose may occur between the listing of the species and the adoption of the conference opinion through formal consultation, or the completion of a subsequent for consultation.

For this conference opinion, the incidental take would be exceeded when the take exceeds (a) five rabbitsfoot, (b) five sheepnose, or (c) 7.5 acres of habitat as described previously in this conference opinion. These levels of take are what have been exempted from the prohibitions of section 9 by this conference opinion. The Service appreciates the cooperation of the FHWA and Corps during this consultation. We would like to continue working with you and your staff regarding this project. For further coordination, please contact me or Leroy Koch of this office at 502/695-0468.

Sincerely,



Virgil Lee Andrews, Jr.
Field Supervisor

cc: Doug Dawson, KDFWR, Frankfort, KY
Joyce Collins, USFWS, Marion, IL
Sam Werner, USACE, Louisville District
David Waldner, KDOT, Frankfort, KY
Alan Grant, KDOW, Frankfort, KY
Anthony Goodman, FHWA, Frankfort, KY

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Jose Steve John Anthony File

U.S. Department of Transportation
Federal Highway Administration

Kentucky Division

330 West Broadway
Frankfort, KY 40601
PH (502) 223-6720
FAX (502) 223 6735
http://www.fhwa.dot.gov/kydiv

January 19, 2012

In Reply Refer To:
HPD-KY

Mr. Virgil Lee Andrews, Field Supervisor
U.S. Fish and Wildlife Service
300 West Broadway
Frankfort, Kentucky 40622

Dear Mr. Andrews:

Please find the enclosed Kentucky Transportation Cabinet (KYTC) January 9, 2012, transmittal of a Biological Assessment (BA) created by Redwing Ecological Services, Inc. The BA covers ten mussel species highlighted for their potential to be affected by the proposed Paducah Riverfront Development Project, Schultz Expansion Park, and Burnett Street Boat Ramp by the City of Paducah in McCracken County, Kentucky.

We find the enclosed BA meets the requirements of 50 CFR Part 402.12. The BA presents a finding of **"may affect, likely to adversely affect"** the species *Potamilus capax* (fat pocketbook). Therefore, and in accordance with 50 CFR Part 402.14, we hereby request formal consultation with the U.S. Fish and Wildlife Service, on this species on this project. Mr. Anthony Goodman will be our primary contact for this consultation. He can be reached at (502) 223-6742.

We appreciate your continuing efforts to quickly resolve this issue. If you have any questions, please call me at your convenience at (502) 223-6747.

Sincerely,

/s/ J. Ballantyne

John Ballantyne
Program Delivery Team Leader

Enclosure (1)

cc: Leroy Koch, USFWS
David Waldner, KYTC

C:\Users\jfarmer.FH\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\JJHLK8Y0\BALLANTYNE Paducah Riverfront Development Project.docx

APPENDIX M

To ensure that no impacts to *Myotis sodalis* (Indiana bat) will occur, tree clearing in the southeast corner and the western portion of the boat launch site will be coordinated with the US Fish and Wildlife Service (USFWS) through the execution of an Indiana Bat Conservation Memorandum of Agreement (MOA) prior to initiation of construction.

APPENDIX N

"The next generation is really why we're here today... The riverfront is the one common neighborhood for everyone in this area. The one neighborhood that everyone shares is the river, because after all, that is how Paducah got here. The great old river is replete with history of the United States of America. I want to help this community enhance the river experience so that this common neighborhood that everyone shares will be a place to come and enjoy yourself for years and years to come."

- Senator Mitch McConnell
From a presentation
on Paducah's Riverfront
August 28, 2006

PADUCAH RIVERFRONT REDEVELOPMENT PLAN

PADUCAH . KENTUCKY
MARCH 2007

JJR

ACKNOWLEDGEMENTS

The Paducah Riverfront Redevelopment Plan is the result of public dialogue and the perseverance of numerous individuals and groups. Special thanks are due to the many dedicated participants recognized here. As the vision evolves and advances through detailed design toward implementation of specific projects, a continued commitment to success will be required by many current and future citizens, community leaders, and government officials. All those who have taken part in the creation of this vision are encouraged to remain involved and champion future riverfront development projects for the genesis of a vibrant and energized Paducah waterfront.

RIVERFRONT PLAN EXECUTIVE COMMITTEE

Glen Anderson	General Manager; Paducah Water
Tom Barnett	Planning Director; City of Paducah
Carla Berry	Senior Vice President; Paducah Bank
John Crivello	Chair, Paducah Propeller Club; West KY Drug & Alcohol Screening Specialists
Josh Esper	Sales Logistics; Marquette Transportation
Dan Key	Attorney; Washburn, Key & Lowery, PLLC
Rick Murphy	City Engineer; City of Paducah
Meredith Schroeder	Owner; Schroeder Publishing Company
Bill Schroeder	Owner; Schroeder Publishing Company
George Sirk	Former City Commissioner; Owner, Sirk & Company Realty
Nick Warren	Architect; Peck, Flannery, Gream, Warren, Inc.

RIVERFRONT PLAN STAKEHOLDERS

Ardeth Fitzpatrick	Facilitator; Lower Town Ren. Association
Joe Framptom	CEO; Paducah Bank
Ronnie Freeman	County Commissioner; McCracken County Fiscal Court
T.C. Freeman	Field Representative; US Senator Jim Bunning
Carol Gault	Director; Paducah Main Street
Randy Greene	Superintendent; Paducah Independent School System
Julie Harris	Executive Director; River Heritage Museum
Mary Hammond	Executive Director; Paducah McCracken Visitor Bureau
Yvonne Holsapple	Owner; Executive Inn
Brian Laczko	Executive Director; Carson Center for the Performing Arts
Beverly McKinley	Owner; Paducah Harbor Bed & Breakfast
Bob Manchestor	Chairman; Paducah Planning Commission
David Mast	Field Representative; US Representative Ed Whitfield
Joe Metzger	Riverfront Property Owner
Gerry Montgomery	Former Mayor and City Commissioner; RHM Board Member
Zana Renfro	County Commissioner; McCracken County Fiscal Court
Elaine Spalding	President; Paducah Area Chamber of Commerce
Michael Smith	Azimuth Development
Bob Wade	Vice President; Regions Bank
Ken Wheeler	River Heritage Museum Board Member
Burford Wilson	Chairman of Urban Renewal Board; Board of Adjustment Member
Martie Wiles	Field Representative; US Senator Mitch McConnell
Sandra Wilson	NewPage
May Louise Zumwalt	Executive Director; Museum of the American Quilters Society

MAYOR - CITY OF PADUCAH

William F. Paxton, III

COMMISSIONERS

Robert Coleman	Mayor Pro Tem
Gayle Kaler	
Gerald Watkins	
Robert "Buz" Smith	

CITY OF PADUCAH STAFF

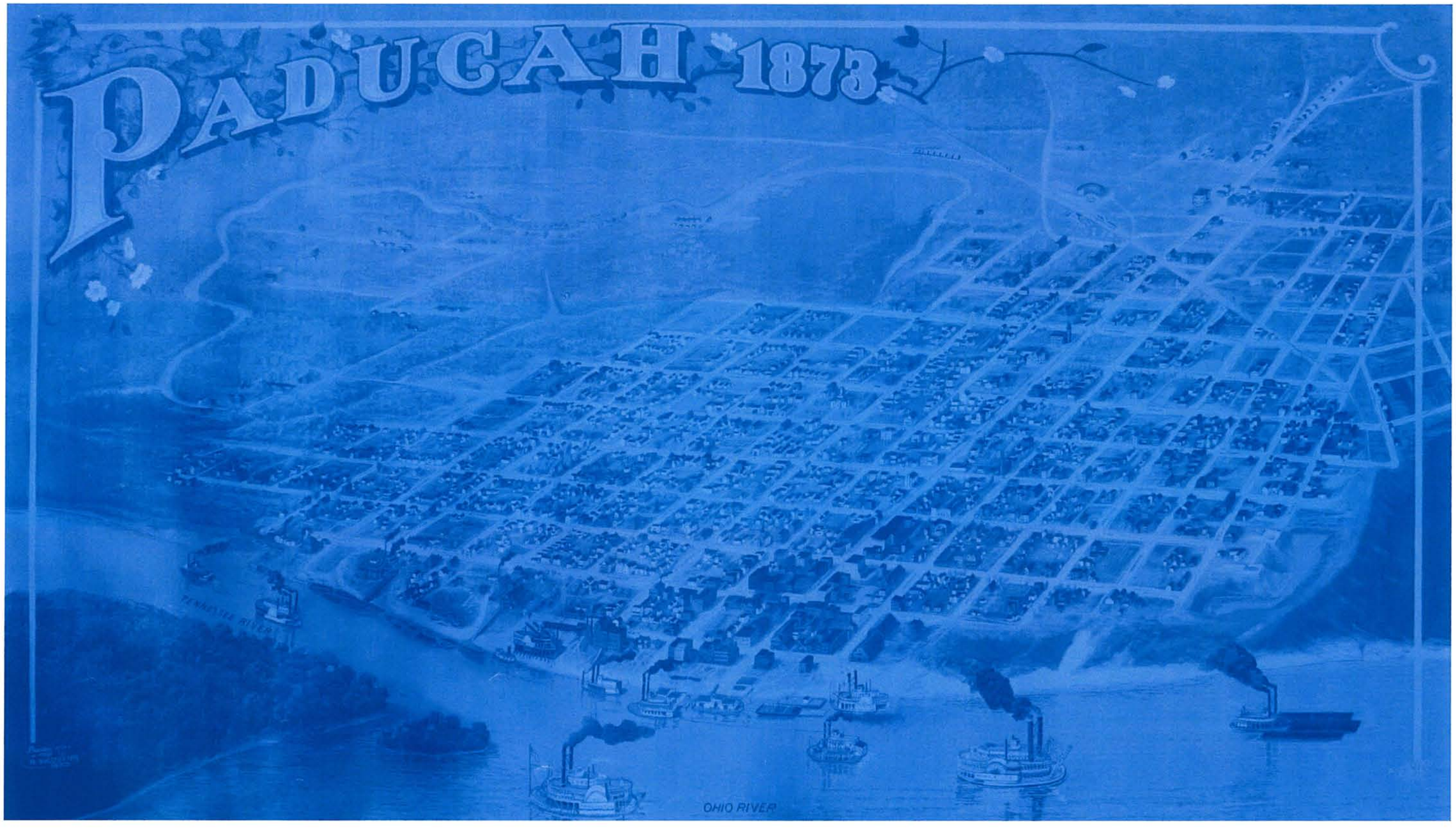
James Zumwalt	City Manager
Thomas Barnett	Director of Planning
Rick Murphy	City Engineer
Steve Ervin	City Planner
Ben Peterson	City Planner

RIVER INDUSTRY STAKEHOLDERS

Robert Brewer	Crounse Corporation
Tim Culp	James Marine
Dave Dewey	Western KY Navigation
Les Grimm	Ingram Barge
Ronnie James	James Marine
Jeff James	James Marine
Buck Lay	B & H Towing
Keith Lay	B & H Towing
Emmett Neal	Crounse Corporation

STATE & US GOVERNMENT LIAISONS

Charles O. Bush, Jr.	KY Department of Fish & Wildlife
Nick Frascella	US Coast Guard
Ken Hines	US Coast Guard
Mike Ricketts	US Army Corps of Engineers
Sam Werner	US Army Corps of Engineers


PADUCAH 1873
TENNESSEE RIVER
OHIO RIVER

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01
INTRODUCTION & OVERVIEW

INTRODUCTION AND OVERVIEW

PROJECT INTRODUCTION & OVERVIEW

Paducah, as a city founded at the confluence of the Ohio and Tennessee Rivers, has maintained strong ties with each river throughout its history. Initially founded in 1827 by William Clark (of Lewis and Clark expedition fame), this strategic location was an important setting for the river and rail transportation industry including:

- port facilities and major destination for steamboats;
- headquarters for many barge companies;
- railway hub for the Illinois Central Railroad providing the major north-south link between Chicago and the Gulf of Mexico;
- important east-west rail link serving as a spring point for westward expansion.

However, Paducah has not fully capitalized on its recreational, cultural, and historical ties with the river, and the economic opportunities that these present. This is in large part due to a lack of public waterfront access and facilities.

In 1992, the City instituted a downtown redevelopment plan to combat the blight that was taking root along its riverfront and downtown areas. Today, the City enjoys a national reputation for its accomplishments in downtown renewal. These accomplishments include the National Quilt Museum, the Artist Relocation Program, the Luther F. Carson Four Rivers Center for the Performing Arts, the River Heritage Museum, and the burgeoning rebirth of downtown.

Despite these accomplishments, however, Paducah still lacked a major public link with its Riverfront including those areas known as Riverfront Park. To address these concerns, the City has proactively taken measures to create a Riverfront Redevelopment Plan that will provide for a long-term physical renovation of the riverfront. Improvement identified in the plan will include a new public Steamboat Landing/Excursion Dock facility, a new Marina, a Performance Plaza, Overlook/ Observation Deck, Public Recreation Areas and connections to new Greenway trails, a new boat launch and recreation park. It will also create residential housing and retail opportunities along the City's Riverfront. The Riverfront Plan is also anticipating to programmatically link with current initiatives being led by many of the cultural institutions, and to coordinate with environmental interpretation opportunities and annual social events that take place along the downtown riverfront.

The proposed vision and associated improvements will provide a visually stunning riverfront incorporating public amenities, recreational facilities and public spaces that will link the City's downtown to the River. Proposed improvements include a terraced riverbank integrating overlooks, fountains, recreational trails, and landscaping resulting in a "green ribbon" adjacent to the riverfront. Additional improvements include reforming/renovating public infrastructure adjacent to the Executive Inn, and a new six-lane boat launch ramp located further downstream. All Phase II improvements will complement the redeveloped Public Steamboat Landing & Access Facility funded as part of Phase I riverfront redevelopment.

The enhancement of Paducah's riverfront will attract new tourism, recreation, and economic development opportunities for the City. Most importantly, the riverfront's transformation will reconnect people with the river, allowing them to celebrate Paducah's unique location and create an extraordinary environment for the next generation to establish it's tradition.

02
PROCESS

PROCESS

PROJECT PROCESS

The Riverfront Redevelopment Plan relied on an interactive process involving a wide range of participants including the Riverfront Plan Executive Committee, Riverfront Plan Stakeholders, City of Paducah Staff, and the general public. Each group offered unique insight into the needs and desires of the community and allowed ideas and concepts to be tested to determine the best match for the community. The recommendations within this plan represent the collaborative effort of each group to assure a high level of community commitment to the proposed enhancements.

Below is a timeline of activities and events conducted in order to complete the Riverfront Redevelopment Plan.

US Army Corps of Engineers Meeting (January, 2006)

JJR and City of Paducah representatives met with members of the Corps in the Louisville District office to coordinate and discuss Paducah's general intent for riverfront improvements, and to establish communications with the District's Regulatory Branch.

Project Initiation Meetings (March 8-9, 2006)

Separate project meetings involving City Staff, Executive Committee, Stakeholders, and the Public were conducted over a two day period. JJR led the discussions reviewing the overall project scope, planning boundaries and schedule. The findings from review of the background information, issues, and perceived opportunities, were presented and identified, and documented. Input gained during these meetings resulted in the distillation of the following overarching riverfront planning and design goals used to evaluate options and guide decisions.

- Create or provide the highest and best use of the riverfront;
- Ensure community involvement and use of the river by maximizing visual and physical access to the river;
- Develop a vibrant riverfront that becomes an asset to downtown;
- Provide a financially manageable phased implementation plan;
- Create momentum through the implementation of catalytic projects;
- Provide safe interface of commercial and recreational boating;
- Establish a place for public gathering and celebration of Paducah.

Riverfront Bus Tour (March 23-24, 2006)

A group bus tour to the riverfront cities of Chattanooga, Tennessee, and Evansville, Indiana was conducted to observe two communities possessing successful redeveloped riverfronts. Key members of the Paducah Riverfront Redevelopment Plan were able to ask questions of elected officials, staff members, and consultants that had been involved with planning through implementation of these highly successful downtown riverfronts.

Alternatives and Analysis Presentation (May 17-18, 2006)

A City Staff meeting followed by a public hearing were held to present riverfront conditions analysis and perceived riverfront opportunities and alternatives. Photographic images illustrating a wide range of successful riverfront elements, opportunities and treatments supplemented the concepts to help determine public preferences.

Submission of Preliminary Riverfront Plan (June 23, 2006)

Based on input and consensus reached at the Alternatives and Analysis meetings in mid May, the preliminary consensus Riverfront Redevelopment Plan was developed and submitted to the City on 23 June 2006.

Follow-up meetings with Riverfront Property Owners (June and July, 2006)

The City held a series of meetings with riverfront property owners with land influencing the Riverfront Redevelopment Plan. These meetings revealed new information regarding future plans for some of these properties, impacting the City's ability to purchase and control these properties as part of the Riverfront Redevelopment Plan. This information resulted in new strategy, approach, and configuration of the Riverfront Redevelopment Plan.

Revised Riverfront Redevelopment Plan (August and September, 2006)

Based on new information, meetings and input from the City as described above, JJR created a new Riverfront Redevelopment Plan that shifted the proposed activities such as the Excursion Dock, Marina, and Riverfront Park areas 3 – 5 blocks downstream. This shift of the plan centers proposed riverfront uses on riverfront property between Madison Street and Washington Street that is owned or controlled by the City.

Meeting with River Industry and Regulatory Agency Representatives (August, 2006)

Representatives of the USACE, US Coast Guard, Crounse Corporation, James Marine, City of Paducah, and the Consultant Team met to discuss the new Riverfront Redevelopment Plan. In general, this plan was preferred over the previous plan because it maintains more clearance from the navigational channel, and was perceived to have less potential interference with existing and future planned river operations.

Ongoing Discussions and Meetings with Cultural Institutions along the Riverfront

During the planning process, input has been provided at public meetings, stakeholder meetings and at presentations to museum boards. An understanding of current efforts as well as future plans of these entities was important in order to coordinate the interface with the cultural institutions and their efforts to link to the river. Some of these meetings included input from representatives from the Mural Walls, River Heritage Museum, Carson Four Rivers Center and the historic railroad group.

03
EXISTING CONDITIONS

EXISTING CONDITIONS

The following materials represent a visual and descriptive summary analysis of existing conditions along the City of Paducah riverfront. The analysis was performed during earlier stages of the planning process, and were presented to several groups in Paducah including: the Riverfront Redevelopment Executive Committee, City engineering and planning staff, Stakeholders, and the Public. The analysis included the identification and summary understanding of:

- Land Use along the river and in the vicinity of downtown Paducah;
- Parcel data including the identification of properties for potential acquisition by the City;
- Vehicular circulation and parking in the vicinity of the project area near downtown;
- Open space, trails, natural areas, and "public realm" along and near the Paducah riverfront;
- Physical characteristics, use, and appearance, of the riverfront edge in the project area, including edge conditions and vegetation;
- Utility infrastructure in the riverfront project zone.

The physical characteristics and conditions along the river edge in the study area vary between highly urbanized/high intensity uses in the vicinity of the downtown, to somewhat disturbed or almost "natural" at the downstream end of the study area.

In the upstream end of the project area, land use has been historically linked to the river industry and includes a number of towing firms that use the area for the temporary mooring of barges, and for crew and support goods transfer. In this area, the banks on the riverside of the floodwall can best be described as unimproved. The riverbank is steeply sloped from the floodwall to the river with evidence of erosion. Fill material consisting of construction debris can be observed at various locations and was probably placed to deter erosion.

In the vicinity of the downtown, land use includes the existing boat launch, parking, riverboat mooring facilities, and hotel lodging at the Executive Inn. For the most part, this area is occupied by structures, pavement, limestone rip rap, and cobbles, with some lawn area interspersed. Riverfront edge improvements were initiated in the late 1980's as part of a downtown redevelopment plan. Improvements included walking trails, observation platform, performance stage, riverboat landing area, and sidewalks connecting the riverfront to the upland side of the floodwall and the foot of Broadway. These improvements were never fully completed due to budget constraints.

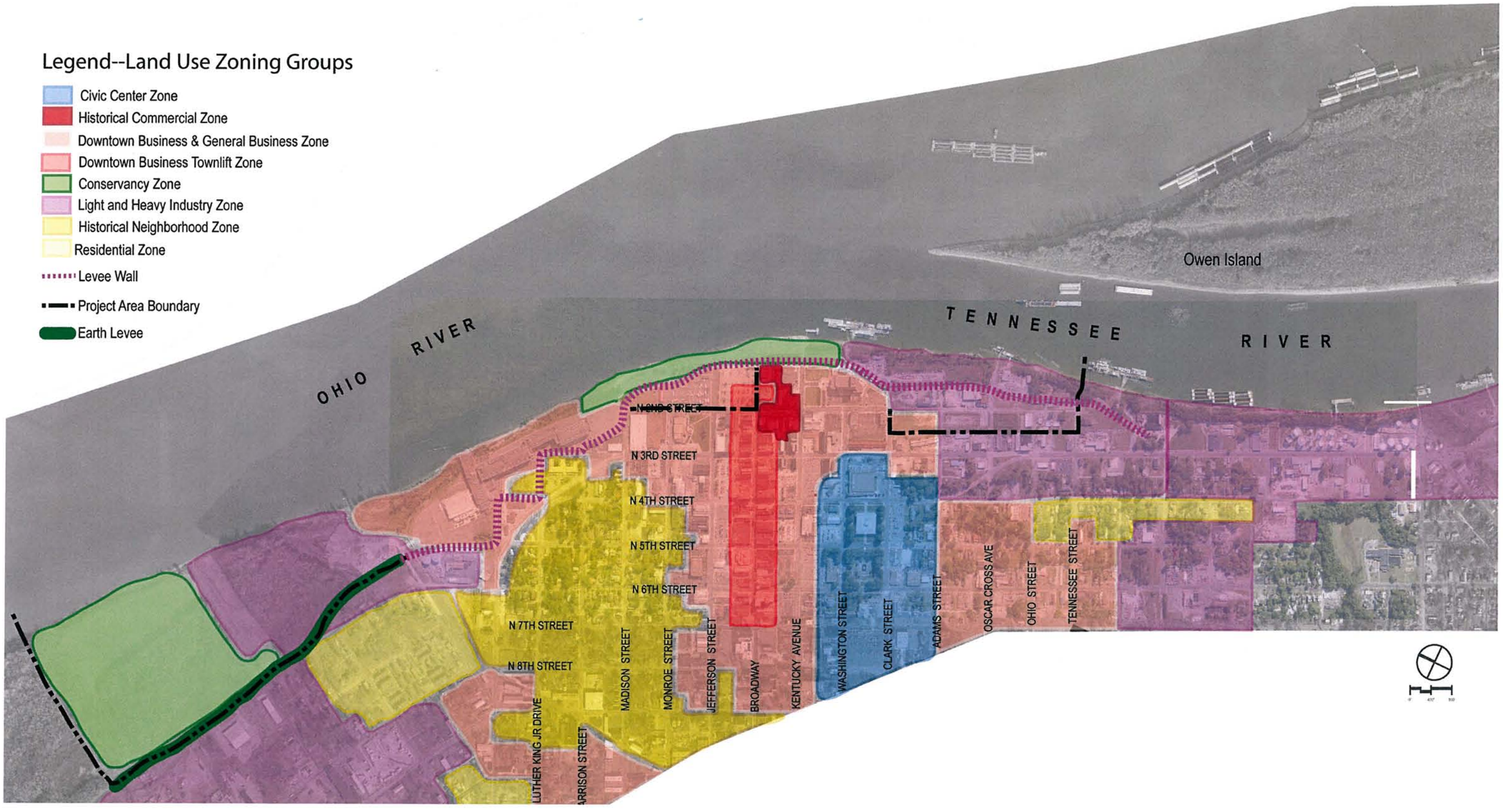
The area along the river between the Executive Inn to the undeveloped city-owned parcel near Burnett Street is characterized by a mixture of historically disturbed land, filled land, vacant, row crop agriculture, and woodland areas. Activities in the area include barge access/offloading for Midwest Terminal and the future Federal Materials Concrete operation, the city's 36" water intake pipes, and the city's 102" combined sewer outfall.

While the activities on the river and the river itself provide a tremendous economic, visual, and recreational resource, the general condition of the river edge could at best be described as poor and unattractive, and at worst dangerous. It is with this in mind that the City has taken up the challenge of improving access to the river and beautifying the river edge to take advantage of this unique amenity and major resource.

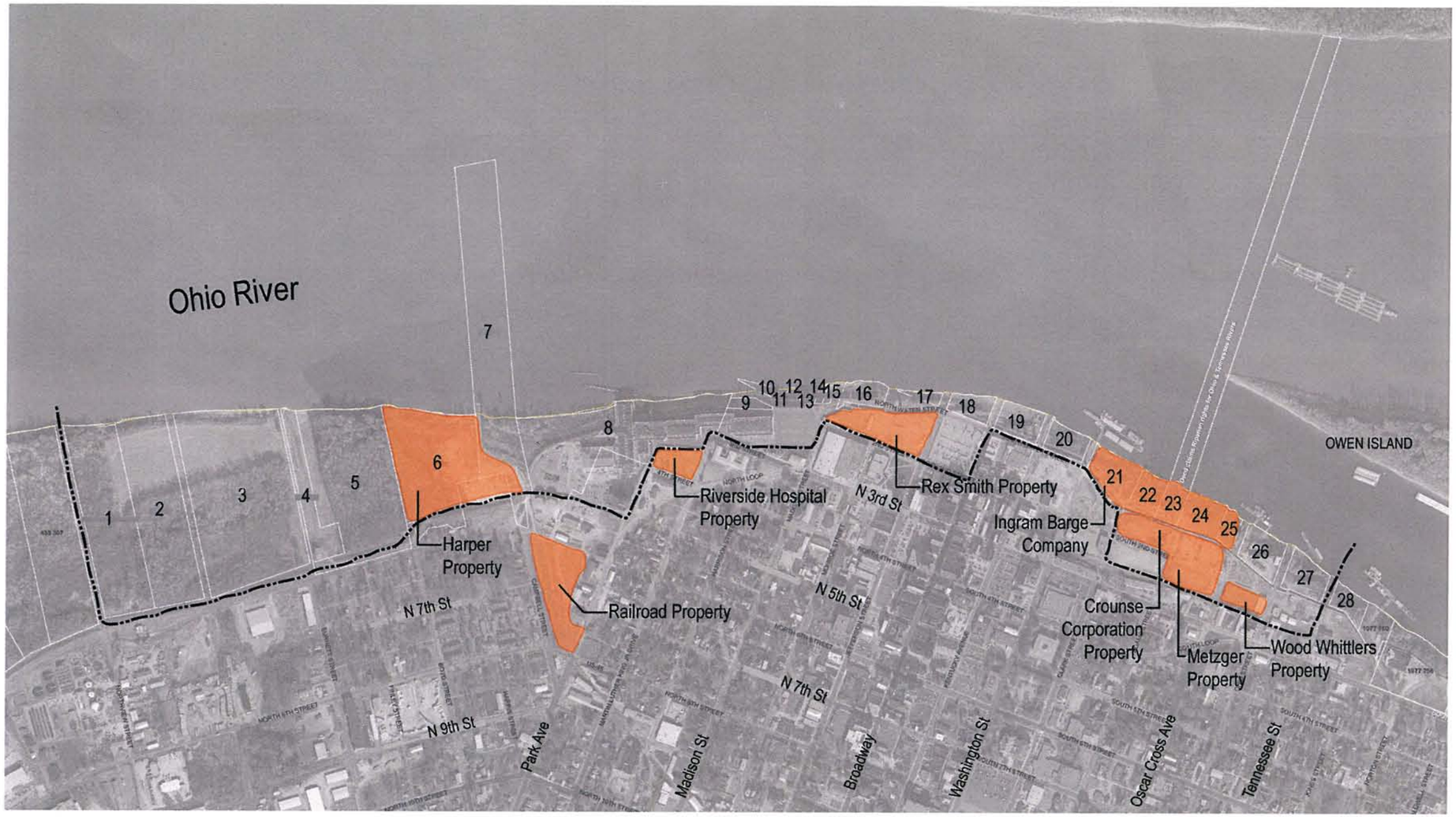
The plan graphics on the ensuing pages summarize various land uses and existing conditions in the study area. Detailed descriptions of the utility infrastructure, riverfront edge, and photographic inventory are available as separate pieces and technical memoranda of the Paducah Riverfront Redevelopment Plan.

Legend--Land Use Zoning Groups

- Civic Center Zone
- Historical Commercial Zone
- Downtown Business & General Business Zone
- Downtown Business Townlift Zone
- Conservancy Zone
- Light and Heavy Industry Zone
- Historical Neighborhood Zone
- Residential Zone
- Levee Wall
- Project Area Boundary
- Earth Levee



PARCEL DATA



KEY	DEEDBOOK	OWNER_NAME1	ACRES
1	433	City of Paducah	20.52
2	433	City of Paducah	15.65
3	433	City of Paducah	35.36
4	647	Harper Industries	4.05
5	647	Harper Industries	54.43
6	650	Harper Industries	54.43
7	688	Midwest Terminal	54.43
8	637	Paducah McCracken Visitors Bureau	54.43
9	646	Paducah McCracken Convention Bureau	0.58
10	646	Paducah McCracken Convention Bureau	0.40
11	1060	Paducah McCracken Convention Bureau	0.19
12	1060	Paducah McCracken Convention Bureau	0.20
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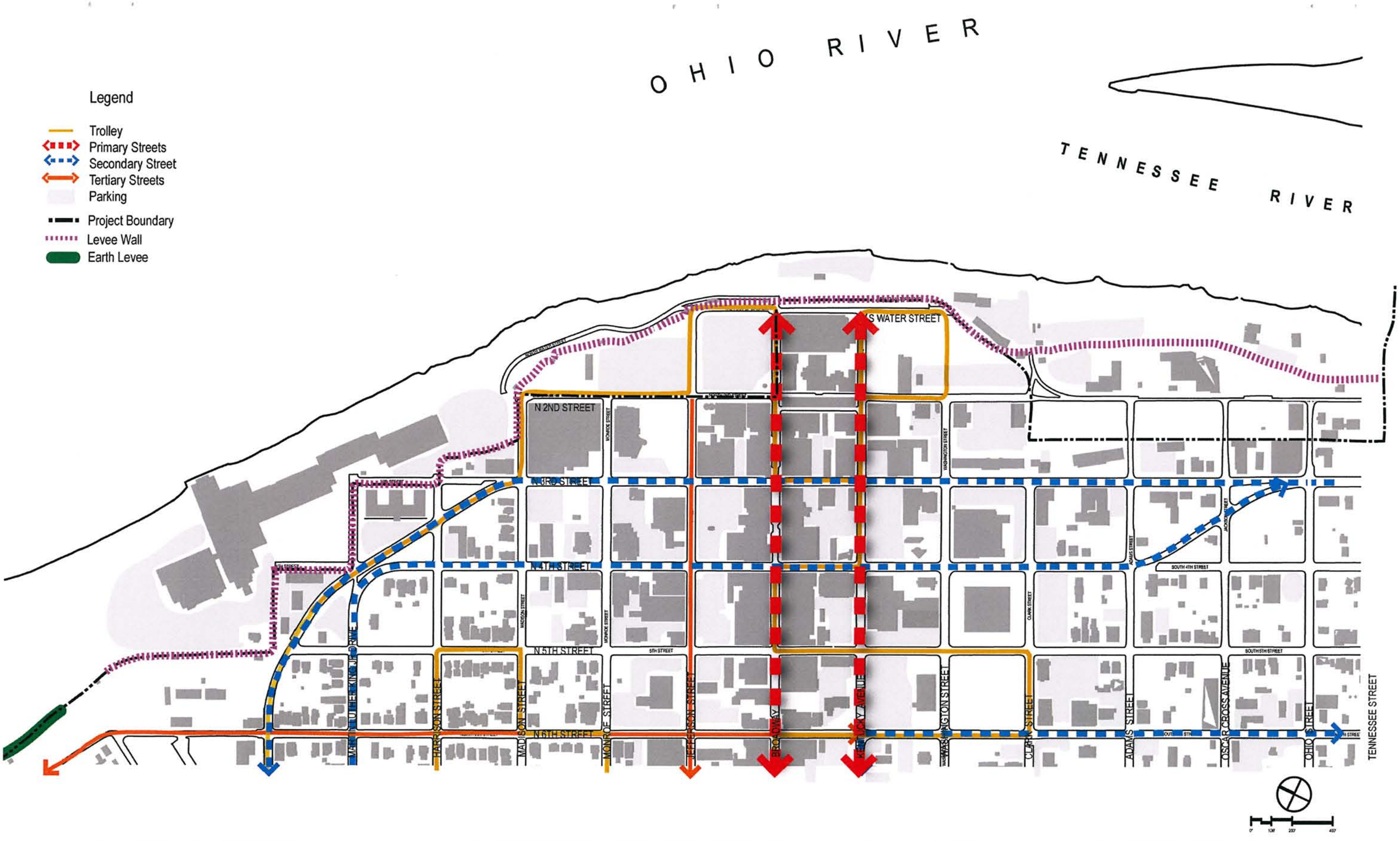
14	1060	Paducah McCracken Convention Bureau	0.20
15	1060	Paducah McCracken Convention Bureau	0.39
16	680	City of Paducah	1.51
17	unknown	City of Paduah	0.45
18	unknown	City of Paducah	14.36
19	unknown	City of Paducah	1.46
20	unknown	City of Paducah	2.06
21	816	CROUNSE CORPORATION	9.16
22	816	CROUNSE CORPORATION	9.16
23	816	CROUNSE CORPORATION	9.16
24	816	CROUNSE CORPORATION	9.16
25	816	CROUNSE CORPORATION	9.16
26	1044	RJ Boat & Barge Company	2.44
27	1080	Ingram Barge Company	2.23
28	1077	Ingram Barge Company	7.09

Source: Planning Department - City of Paducah

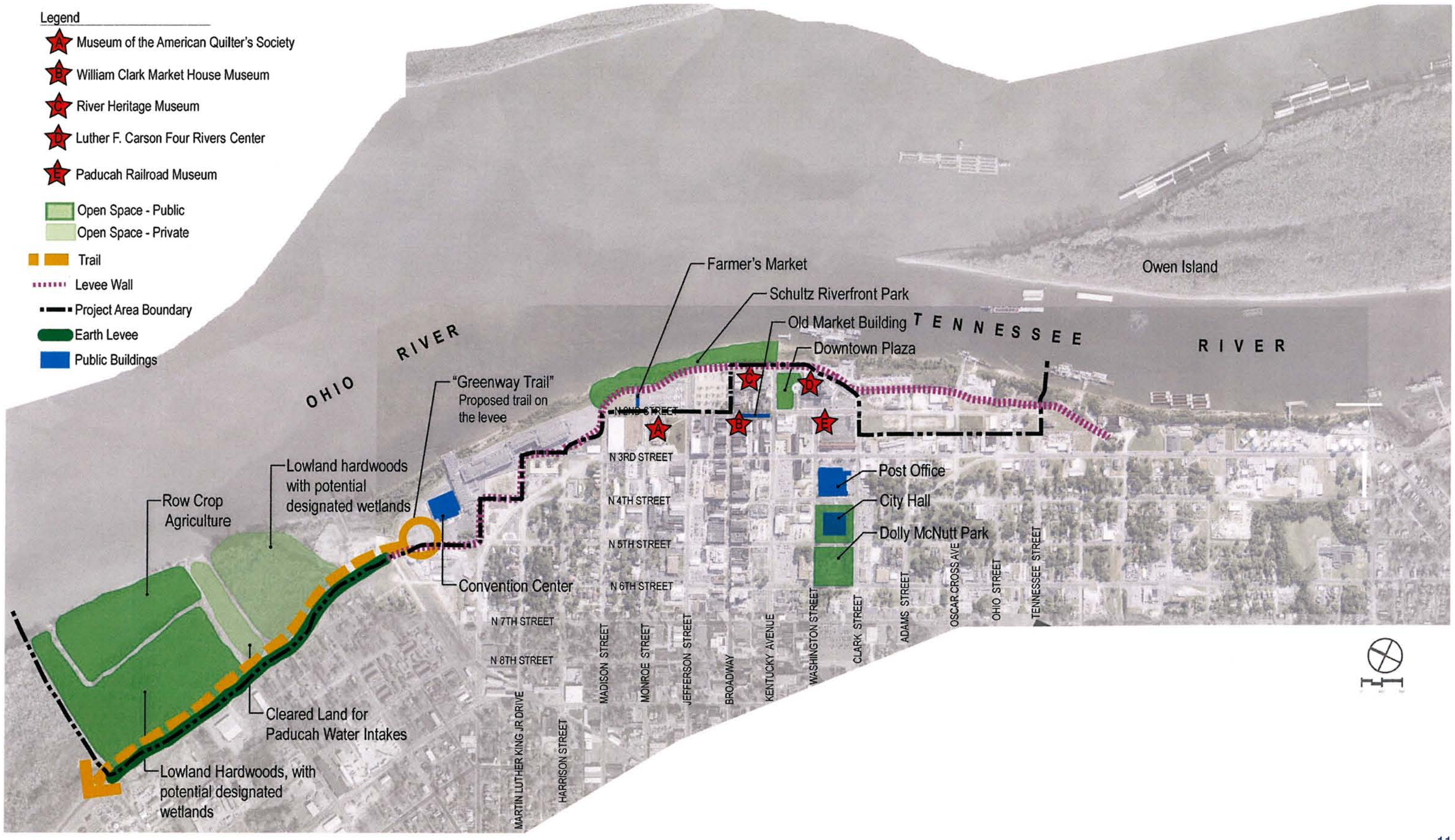
The parcel map shown above represents parcel ownership and area of each parcel (in acres) in the vicinity of the project area. Properties that are shown in orange represent properties that could be considered for potential future acquisition by the City of Paducah should these properties become available at some later date.

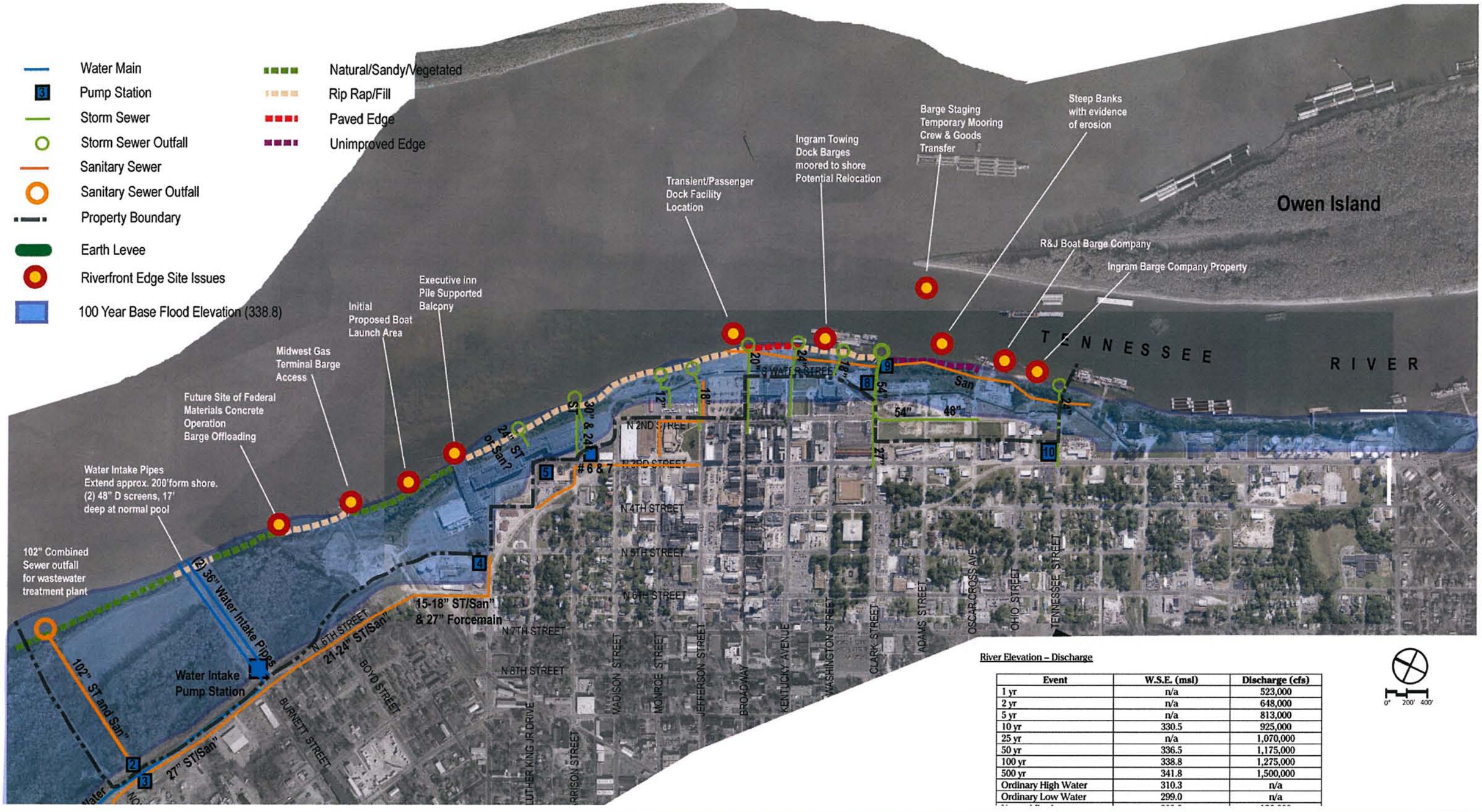


EXISTING CONDITIONS

CIRCULATION & PARKING

OPEN SPACE, TRAILS, NATURAL AREAS & PUBLIC REALM





River Elevation – Discharge

Event	W.S.E. (msl)	Discharge (cfs)
1 yr	n/a	523,000
2 yr	n/a	648,000
5 yr	n/a	813,000
10 yr	330.5	925,000
25 yr	n/a	1,070,000
50 yr	336.5	1,175,000
100 yr	338.8	1,275,000
500 yr	341.8	1,500,000
Ordinary High Water	310.3	n/a
Ordinary Low Water	299.0	n/a

EXISTING CONDITIONS

RIVERFRONT CHARACTERISTICS & UTILITY INFRASTRUCTURE

ECONOMIC CONTEXT

Paducah is a city of some 25,400 residents, or about 39% of the 64,600 residents of McCracken County and 26% of the 98,100 residents in the four-county "micropolitan area." Paducah is the seat of McCracken County and was founded on the Ohio River below the mouth of the Tennessee River when the first settlers arrived around 1821. The site was first chosen by George Rogers Clark during the American Revolution. The early settlement was known as Pekin but, in 1827, the town was formally laid out by Clark's brother William who selected the name Paducah to honor the legendary Chickasaw leader, Chief Paduke. Paducah became the county seat in 1832 when it was moved from Wilmington.

The Ohio River has had a profound influence on the city, of course, perhaps no more so than in 1937 when flooding engulfed downtown Paducah and spread more than two miles inland. The present flood wall was constructed in response. The wall's height was driven by the height of the 1937 flood which apparently would have reached to within two feet of the top. But the wall has also had the effect of cutting off the river from the day-to-day activities of the city. Many factors contributed to the decline of riverfronts in cities, including major shifts in transportation from river boats to railroads and to automobiles. But the Paducah wall also limited visual access and, in the minds of many, "out of sight meant out of mind." Neglect of the riverfront resulted and it was left to marginal uses and least expensive efforts to make it attractive as a park and as a landing for occasional cruise vessels. To date, it is also used for fishing tournaments and as a community gathering place.

With better flood control continuing to be instituted in the Tennessee Valley, and with growing success in downtown revitalization, Paducah seeks to "reclaim" its remarkable riverfront. The city attracts many tourists every year in the form of fisherman, quilters, and others who seek a high quality of experience on the riverfront. Moreover, the number of these visitors is growing, putting pressure on the city to expand its services, to enlarge downtown's revitalization, and to leverage the allure of the Ohio River as an economic development catalyst.

The City of Paducah, therefore, commissioned the creation of a riverfront plan in order to capture the growing opportunities that it offers. Prior to the riverfront plan, the city embarked on a comprehensive city plan and a targeted downtown plan. Those plans focus a number of river and non-river issues, not the least of which are prospects for economic development. In the course of the riverfront planning process, however, three major development opportunities emerged that are not fully addressed in the other plans:

- A residential market that can take advantage of the mixed use characteristics of downtown and the views and recreation produced by the river itself.
- A marina, or perhaps two, that can accommodate large cruise vessels, transient boaters, and fishing tournaments.
- Institutional growth in the form of the arts when museums and theaters might be added or expanded to serve a growing tourist market and an increasingly demanding resident population. In no small way, this growing element is a corollary to the successful Artist Relocation Program in Lowertown.

These generally represent niche and specialized market sectors for which little direct data can be readily consulted. Economic and market analysis, therefore, relies not only on data as an indicator of trends and opportunities, but also on the experience of other cities and on interviews of Paducah area real estate and market experts and local interest groups.

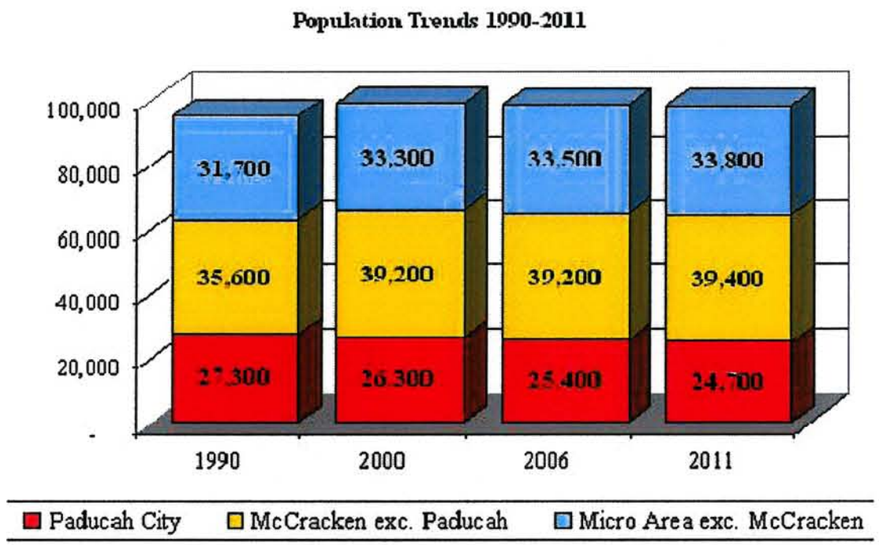
DEMOGRAPHIC PROFILE 1990 - 2005

Paducah has relatively stable demographics
- Population 26,000±
- Households 11,900±

McCracken Co. had small net gains
- Population up 2,000 to 65,000±
- Households also up 2,000 to 27,700±

Regional growth is taking place, but outside the city.
- Paducah can capture some of this growth with increased residential development along the riverfront.

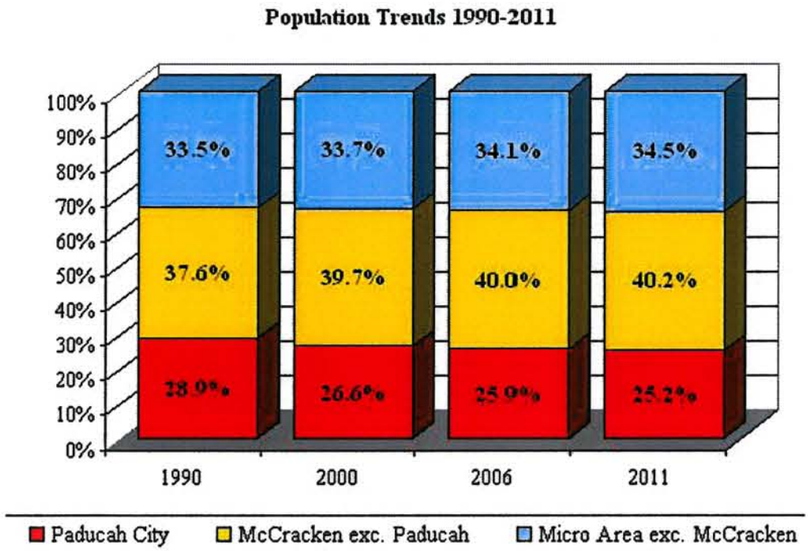
STABLE REGIONAL POPULATION



PROJECTED INCREASE IN 50+ AGE RANGE BETWEEN 2000-2011

- 55-59 up 23% (1,350 people)
- 60-64 up 43% (1,900 people)
- 85+ up 23% (500 people)
- Boomers in peak earnings and wealth years, possibly translating to:
  - Demand for more upscale housing
  - Demand for more recreational boating
- Also adding to key civic and business leadership.
- Empty nester and senior stages.

Economic Opportunities:
- Riverfront housing as alternative to single family homes
- Senior housing with walkable activities
- Specialty retailing
- Specialty dining



ECONOMIC CONTEXT

PERSONAL INCOME

Per Capita Income 1990 to 2004
- McCracken County up 77.0%
- Micropolitan Area up 76.1%
- Kentucky up 76.6%
- Inflation up just 44.5%
  - Roughly 30% increase in buying power

McCracken Co. PCI 2004: $31,550
- 39% higher than rest of micro area
- 16% higher than Kentucky as a whole

RIVERFRONT OPPORTUNITIES: RETAIL TRADE

Attracting more retail downtown
- Capitalize on county or rest of city
- Capturing more outside visitors, or more of their time and money
  - Tourism, museums, entertainment
  - River Queens, fishing families
  - Harrah's visitors (1.1 million/year)
- Sharing future buying power growth of the region
- Increased presence of downtown housing

RIVERFRONT OPPORTUNITIES: HOUSING

2005 Downtown market study recommends up to 400 new housing units
- Capitalize on river views
- Development Strategies recommends a minimum of 15 per year with riverfront views
- Riverfront views can accommodate 90-135 units depending on site planning

RIVERFRONT MARINA OPPORTUNITIES: CRUISE RIVERBOATS

40-50 tourist riverboats stop at Paducah annually.
- Delta Queen
- American Queen
- Mississippi Queen
- RiverBarge River Explorer

12,700 passengers per year
4,400 crew members per year

RIVERFRONT MARINA OPPORTUNITIES: RECREATIONAL MARINA

McCracken County has 3,600± registered boaters
- 2.1% of Kentucky's registered boaters

McCracken County population
- 1.5% of state population

Ratio of boaters to population favors McCracken County:
- 55.5 boats per 1,000 residents
- Only 41.9 statewide

04
LAND USE OPPORTUNITY ALTERNATIVES

Legend

- Removal
- Remain
- Phased Removal
- A New Lodging
- B Arena / Ice Rink / Rec.
- C Hotel Development
- D Floating Dock / Building
- E Museum Redevelopment
- F Carson Four Rivers Center
- G Performing Arts Interface
- H Housing
- L Boat Launch
- M Marina

RIVERFRONT CONCEPT 1

This concept looks at developing the following programmatic elements:

1. Maintain and design a new Cruise Dock as a feature and terminus of Broadway.
2. Develop a 150-200 slip Marina along the Executive Inn property.
3. Develop a public boat launch and related site improvements downstream of the Executive Inn redevelopment.
4. Land based development south of Broadway looks at energizing North 2nd street by introducing additional opportunities to expand cultural facilities through the incorporation of smaller structures that enliven the street and line both existing and proposed parking lots. These structures allow for the relocation of current facilities that occupy the historic market structure.
5. Two possibilities for the expansion of the River Heritage Museum:

a. At the current site as part of the North 2nd Street block redevelopment

b. At the block south of the current surface lot serving the Four Rivers Center

6. Development of the remaining blocks between North 2nd, North 3rd and Oscar Cross Ave. to Jefferson Street is suggesting predominately riverfront residential with an emphasis of mixed use along North 3rd street.
7. The plan suggests future redevelopment of the three parking lots between Broadway and Madison. The block between Broadway and Jefferson becomes the primary Public Square on the riverfront, creating an address and downtown focus promoting redevelopment and the possibility of a new Hotel (approximately 200 rooms). The northerly two blocks become prime riverfront residential.
8. The Executive Inn focuses on redevelopment immediately adjacent to the conferencing center and the component perpendicular to the river. Parallel to these elements, a new 200 room mid-rise tower could be constructed flanked to the south by a public type destination such as an arena providing twelve month programming including everything from basketball to ice skating. The remaining property could provide additional residential development along the riverfront.
9. The Open Space along the river could develop as the following elements:

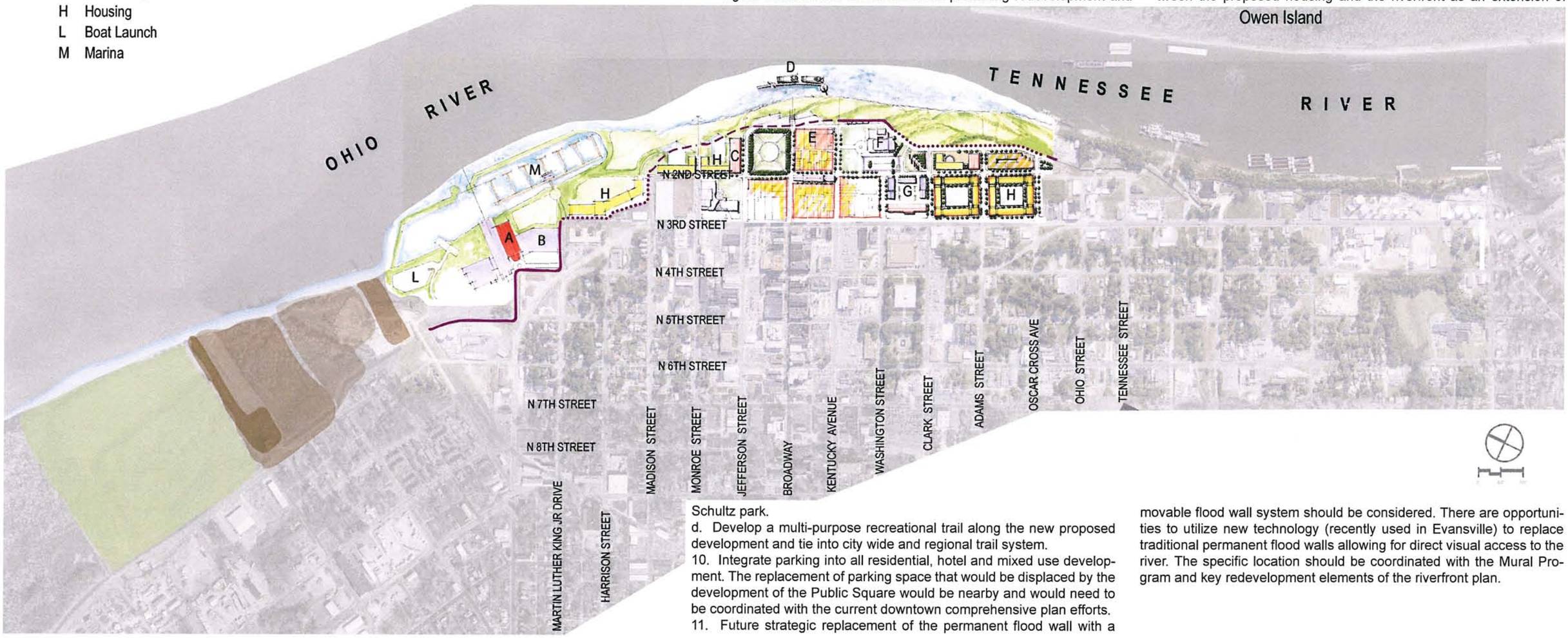
a. Develop a new Stage and seating area as the terminus of Broadway. Redevelop portions of the old Steamboat Landing.

b. Restore the shoreline upstream of Broadway

c. Expand Schultz Park to the north. Develop the green area between the proposed housing and the riverfront as an extension of Schultz park.

d. Develop a multi-purpose recreational trail along the new proposed development and tie into city wide and regional trail system.

10. Integrate parking into all residential, hotel and mixed use development. The replacement of parking space that would be displaced by the development of the Public Square would be nearby and would need to be coordinated with the current downtown comprehensive plan efforts.
11. Future strategic replacement of the permanent flood wall with a movable flood wall system should be considered. There are opportunities to utilize new technology (recently used in Evansville) to replace traditional permanent flood walls allowing for direct visual access to the river. The specific location should be coordinated with the Mural Program and key redevelopment elements of the riverfront plan.



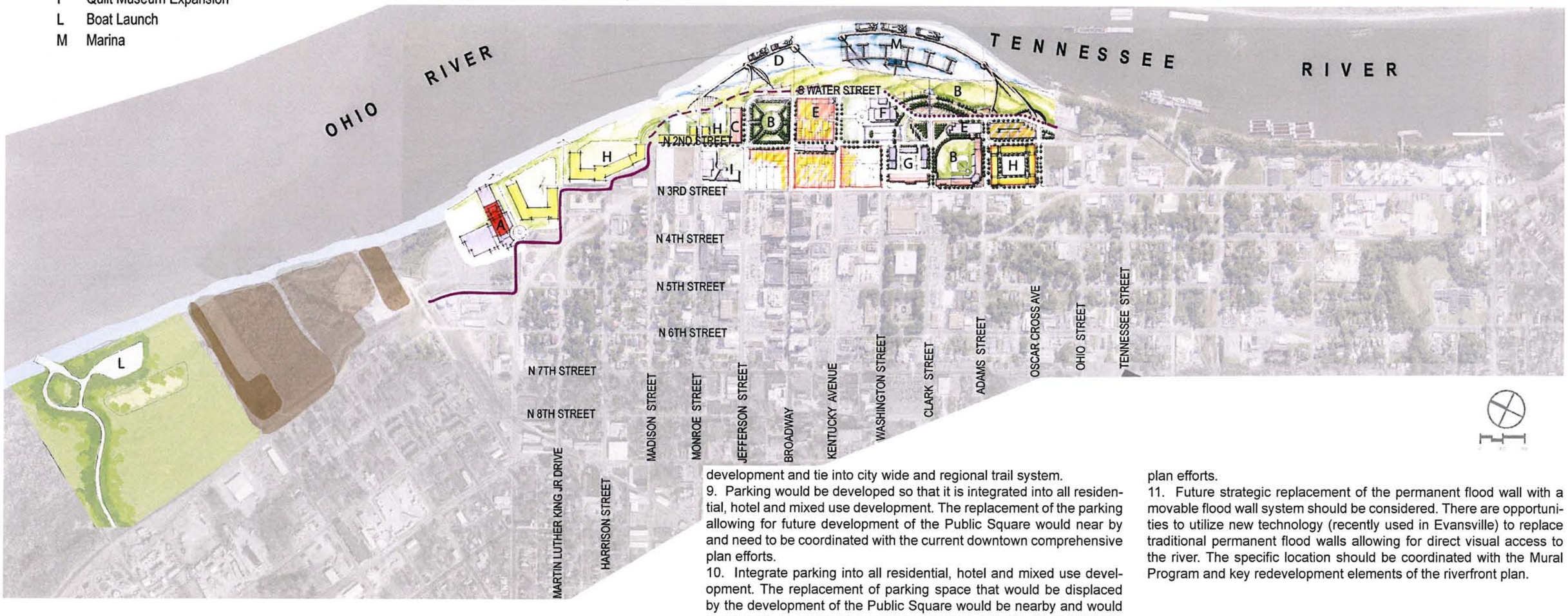
RIVERFRONT CONCEPT 2

- Removal
- Remain
- Phased Removal
- A New Lodging
- B Rec. / Open Space
- C Hotel Development
- D Large Dock
- E Museum Redevelopment
- F Carson Four Rivers Center
- G Performing Arts Interface
- H Housing
- I Quilt Museum Expansion
- L Boat Launch
- M Marina

RIVERFRONT CONCEPT 2

This concept looks at developing the following programmatic elements:

1. Maintain and design a new Cruise Dock as a feature and terminus of Broadway at the historic steamboat landing.
2. Develop a 150-200 slip Marina south of the Four Rivers Center near the confluence of the Tennessee and Ohio Rivers.
3. Develop a public boat launch and related site improvements downstream of the Paducah City Water intakes on property currently owned by the City. The facility should be designed to stage fishing tournaments and year round boating needs. The property could be developed to also incorporate picnicking and camping.
4. Land based development south of Broadway looks at energizing North 2nd street by introducing additional public and private development opportunities. These structures allow for the relocation of current facilities that occupy the historic market structure. Expand the cultural facilities through the incorporation of smaller structures that enliven the street and line both existing and proposed parking lots. Develop another Museum type of anchor (possibly the River Heritage Museum expansion) between Adams Street and Clark Street. Another potential public destination is the development of a Community Center combined with an outdoor athletic stadium on this side of the downtown.
5. Development of the remaining blocks between North 2nd, North 3rd and Washington Street, Jefferson Street is suggesting a combination of riverfront residential and mixed use along north 3rd street.
6. The plan suggests future redevelopment of the three parking lots between Broadway and Madison. The block between Broadway and Jefferson becomes the primary Public Square on the riverfront, creating an address and downtown focus promoting redevelopment and the possibility of a new Hotel (approximately 200 rooms). The northerly two blocks become prime riverfront residential.
7. The Executive Inn focuses on redevelopment immediately adjacent to the existing conferencing center with the redevelopment of a new 200 room mid-rise hotel. Demolition of the remaining property could provide additional residential development along the riverfront.
8. The Open Space along the river could develop as the following elements:
a. Develop a new performance stage with associated seating area, an overlook and water feature as the primary focus of a new waterfront park south of the Four Rivers Center and the proposed marina.
b. Restore the shoreline and develop an overlook at Broadway
c. Expand Schultz Park to the north. Develop the green area between the proposed housing and the riverfront as an extension of Schultz park.
d. Develop a multi-purpose recreational trail along the new proposed development and tie into city wide and regional trail system.
9. Parking would be developed so that it is integrated into all residential, hotel and mixed use development. The replacement of the parking allowing for future development of the Public Square would near by and need to be coordinated with the current downtown comprehensive plan efforts.
10. Integrate parking into all residential, hotel and mixed use development. The replacement of parking space that would be displaced by the development of the Public Square would be nearby and would need to be coordinated with the current downtown comprehensive plan efforts.
11. Future strategic replacement of the permanent flood wall with a movable flood wall system should be considered. There are opportunities to utilize new technology (recently used in Evansville) to replace traditional permanent flood walls allowing for direct visual access to the river. The specific location should be coordinated with the Mural Program and key redevelopment elements of the riverfront plan.



SUMMARY

Paducah is the center of a largely rural region that has generally not added significant net population for several decades. Still, Paducah has been able to trigger certain catalytic initiatives that are causing changes in market dynamics. Downtown revitalization, construction of cultural institutions, and implementation of the Artist Relocation Program are all taking place at a time when much of America is also rediscovering the downtown experience. The desire to rediscover Paducah's remarkable river and to reincorporate it into the fabric of the city is a further part of this change that is affecting a great many cities.

Such effects typically manifest themselves first in the largest cities, like Chicago or New York. As it has turned out in the last 25 years or so, the changes led by such cities have triggered downtown renaissance in second tier places like Minneapolis, Indianapolis, Cincinnati, St. Louis, and Kansas City. Even places not known for their downtowns are enjoying an urban regeneration, like Dallas and Houston. Slowly, these forces and the lessons learned among investors take effect in smaller cities. Paducah is clearly sensing these forces and has already taken major steps to exploit them, as noted above.

A key lesson from the last few decades is that urban revitalization without residential revitalization is futile. Housing, and the people that occupy it, must be part of the formula—housing mixed in with commercial and institutional changes and growth to create vibrant, 24-hour places that are increasingly appealing to a diverse and generally affluent set of demographic segments.

While the region and city of Paducah have not been growing rapidly, they have been adding new housing at a relatively rapid pace. Most of that new housing is, in effect, replacement of older and dysfunctional housing. This gives the appearance of growth without much growth, but it is more important to recognize such forces as indicative of improvements in market dynamics. For this reason, Paducah is well positioned to capture some of that change in the downtown area—a phenomenon already demonstrated in Lower Town. With the right attitudes of civic leaders and policies of local and state government, changes can be brought about that re-energize the historic places of Paducah while preserving their special and unique qualities.

Thus, we conclude that downtown housing is and should be a high priority opportunity for Paducah, especially housing that relates to and provides views of the Ohio River. Indeed, the conclusions of this report are technically limited to "riverfront housing" which, in our opinion, should precede further efforts to promote more downtown and Lower Town housing development. It is time to take advantage of the river to promote greater city-wide change. And the market vitality is such that the housing market, in particular, is prime for growth along the river in the downtown area.

We conclude in the report that downtown should be readily able to capture an average of 15 housing units per year in attached townhouse configurations over the next decade. We recommend that this scale of development seek affluent homeowners willing to pay an average of $280,000 per unit (in 2006 dollars) for a 2,200 square foot home. Most of the buyers-occupants will be existing residents of Paducah in their fifties or older, without children at home and in their peak earnings years. Moreover, they will bring equity to the new homes by selling existing single family homes in order to change lifestyles. And they will lead a resurgence of economic and social life in the downtown area while enjoying the nearby shops, restaurants, museums, and open space.

Moreover, Paducah is not such a large city that these households will have to forego the other amenities in the region because they won't be moving far. Indeed, accessibility by automobile gives Paducah a high quality of life and enables most people to readily get to work, recreation, dining, and home. The Paducah riverfront needs to be "sold" as another of the accessible "neighborhoods" of the region, but with its own character.

The downside of this housing market is that it likely cannot be initiated without some amount of public or civic financial support. Our projections show that it will likely cost an average of about $150 per square foot of housing to build (including soft costs, hard costs, land, and profits), while selling for about $127 per square foot, on average. This 18% differential might be made up by programs that effectively provide the land to developers-builders for nothing, or the equivalent cost write-down. The other major market for riverfront change is a recreational boating marina coupled with a facility to better handle the cruise boats that stop—and want to stop—at Paducah. Several major indicators point to a substantial opportunity for marina development on the downtown riverfront:

- Existing marinas on the Ohio River are relatively few and far between, or are located at great distance from Paducah.
- A nearby successful marina is at Golconda, Illinois (Pope County), with over 200 wet slips. But the Golconda marina is successful despite a very small population in Pope County. Indeed, Pope County's 2005 population of 4,200 was only 6.5 percent the size of McCracken County's population of 64,700, suggesting that a marina that is located closer to population concentrations could be at least as successful and probably more so.
- Paducah boat owners are heavy users of the marina facilities at Kentucky Lake and Lake Barkley. This is a long drive for most area households which precludes frequent boating. A downtown marina will encourage more boating and will enable more boat owners to keep their boats closer to home.
- The number of recreational boat owners in McCracken County broadly surpasses those in surrounding counties. Thus, the demand for marina facilities is concentrated in greater Paducah while the supply of marina facilities is relatively far away.
- There are hopes to build a marina in Metropolis, Illinois, as part of the casino environs. All indicators suggest that this would be a successful project based, in no small part, on the scale of the Paducah boat owner market. Our judgment, however, is that there is ample room in the lower Ohio River market for several recreational boat marinas in light of the number of boat owners and the relatively paucity of conveniently located marinas.

We recommend that plans for a marina of as many as 300 slips be planned and that at least 150 slips be constructed as soon as possible in order to satisfy demand and to test the market for additional growth. This report also provides a preliminary financial proforma for a 200-slip marina on the riverfront that makes a small operating profit. While it is unknown what the costs to build a new marina will be, it is also clear from the proforma that the operator alone will not be able to afford the capital expenses. Thus, the marina almost certainly must be a publicly owned facility, though probably leased to a private marina operator.

Adding to the feasibility for a publicly owned marina facility is and will be the cruise riverboat industry. The Paducah Convention & Visitors Bureau projects that 2007 will see some 43 stops by various cruise boats. This can bring more than 12,000 out-of-town visitors to downtown Paducah and over 4,000 crew members. By creating a much more comfortable arrival setting, downtown Paducah can greatly benefit from the tourism spending that these visitors will generate.

MARKET OPPORTUNITIES DEVELOPMENT ANALYSIS

RECREATIONAL BOATING IN PADUCAH - SUMMARY RECOMMENDATIONS

1. 2005 Downtown market study recommended 250 boat slips
2. Provide a minimum of 150 boat slips but planning for up to 300 boat slips.
3. Test the Market first
4. Minimize upfront capital costs

RECREATIONAL MARINA ECONOMICS

A 200-slip marina could capture $554,000 in annual revenues for slip rentals alone

Annual Slip Revenue Estimates for Paducah Marina (2006 Dollars)

Slip Length (Linear Feet)	Number of Slips	Percent of Total	Monthly Rate per Foot	Gross Annual Revenue Potential
24	60	30.0%	$6.80	$117,500
30	55	27.5%	$7.10	$140,500
40	50	25.0%	$7.25	$173,900
60	35	17.5%	$7.25	$182,700
TOTAL	200	100.0%	$7.13	$615,000
Vacancy Adjustment 10.0%				Actual Annual Revenue Potential $554,000

RECREATIONAL MARINA ECONOMICS

Total Revenue Potential: $1.38 million
- Slip rentals, repairs, concessions, etc.

Total Expenses: $1.02 million
- Cost of goods sold, labor, etc.

Net Operating Income: $360,000
- Applicable to profits and debt service

05
CONSENSUS RIVERFRONT REDEVELOPMENT PLAN

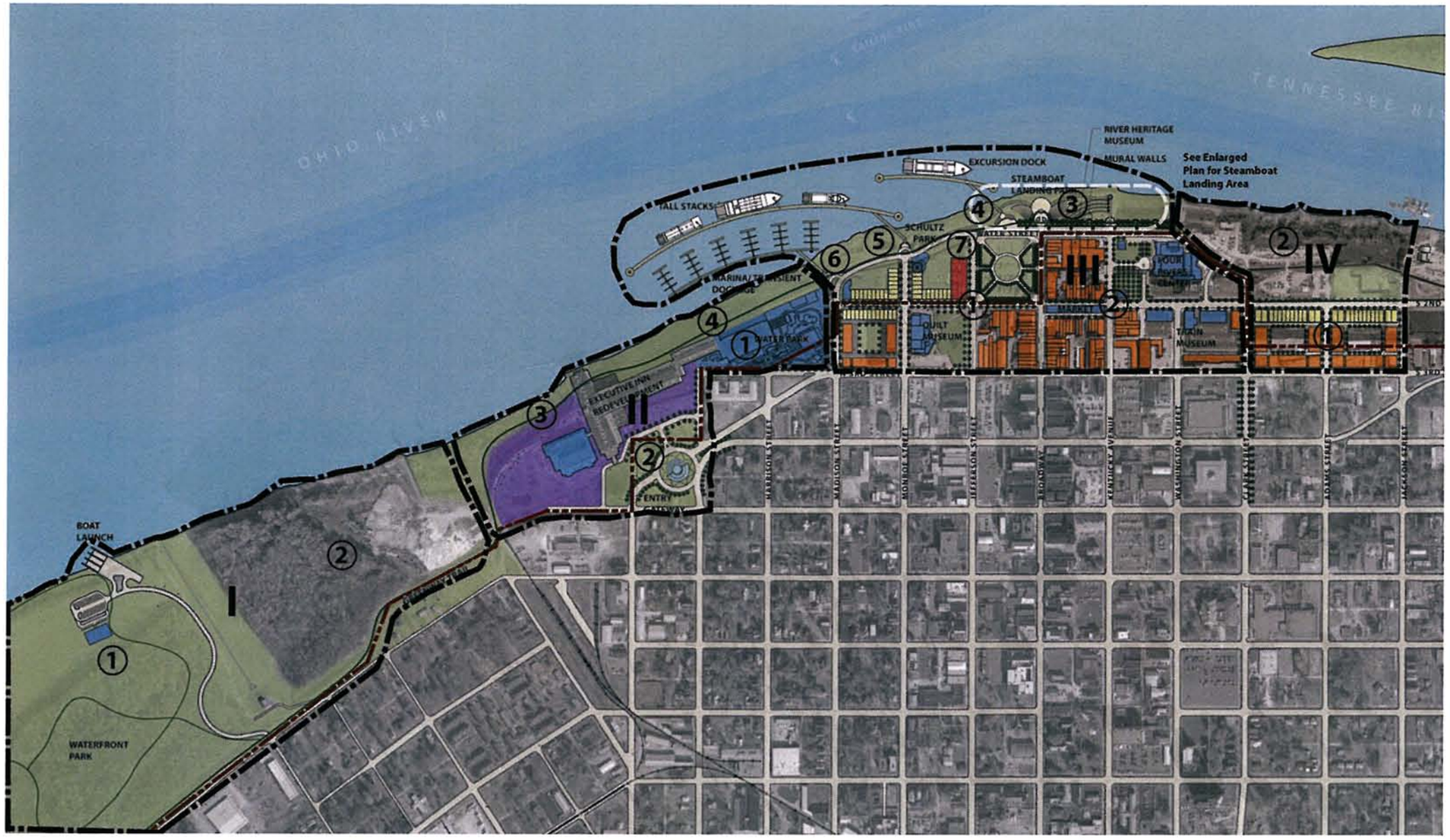
The final Riverfront Redevelopment Plan represents a synthesis of community, stakeholder, river industry and city input and sets forth a single vision guiding future planning and development efforts along the heart of Paducah's downtown riverfront incorporated along their downtown Riverfront Park. The plan identifies and addresses opportunities related to the following:

- The provision of new and improved facilities for commercial and recreational boating;
- Improved physical and visual access to the riverfront;
- Enhancement and expansion of riverfront open space, and multi-recreational trail opportunities;
- Increased downtown housing combined with commercial/retail and civic activities.

AREA DESCRIPTIONS

For ease of discussion, the riverfront redevelopment plan has been divided into sub-areas from north to south (downstream to upstream). The sub-areas can be roughly divided into:

I. New Boat Launch and Greenway Trail;
II. The Executive Inn;
III. Downtown and Steamboat Landing Area; and
IV. River Industry Properties

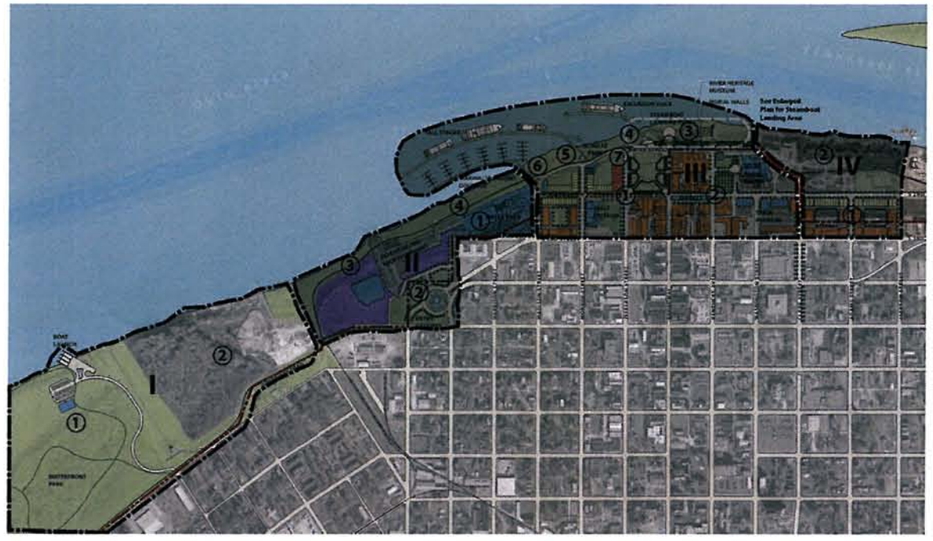


I. New Boat Launch and Greenway Trail

This zone is located at the downstream end of the study area and consists of relatively undeveloped property. Anticipated and proposed activities include the following:

1. The existing boat launch facility, currently located along the downtown riverfront, will be relocated to the undeveloped property owned by the City at the end of Burnett Street. The new boat launch, developed in conjunction with the Kentucky Fish and Wildlife Resource Department (KFWRD), will contain 5-6 launch lanes with parking for 100 motor vehicles and boat trailers, and another 100 spaces to be built as needed in the future. The relocation of the boat launch will reduce congestion and vehicle parking associated with recreational fishing activities such as launching and trailering boats, and allow for the transition of the downtown riverfront area back to its historic use as a steamboat landing.

2. Properties and land uses between the proposed boat launch and the Executive Inn include: water intake pipes and pump station for Paducah Water; the future barge off-loading site for Federal Materials Concrete; and Midwest Terminal Barge Access. At this time it is anticipated that these uses will remain. The Greenway Trail, which is planned for the top of the earthen levee wall, will provide a pedestrian and bicycle link between the boat launch and downtown Riverfront Park.

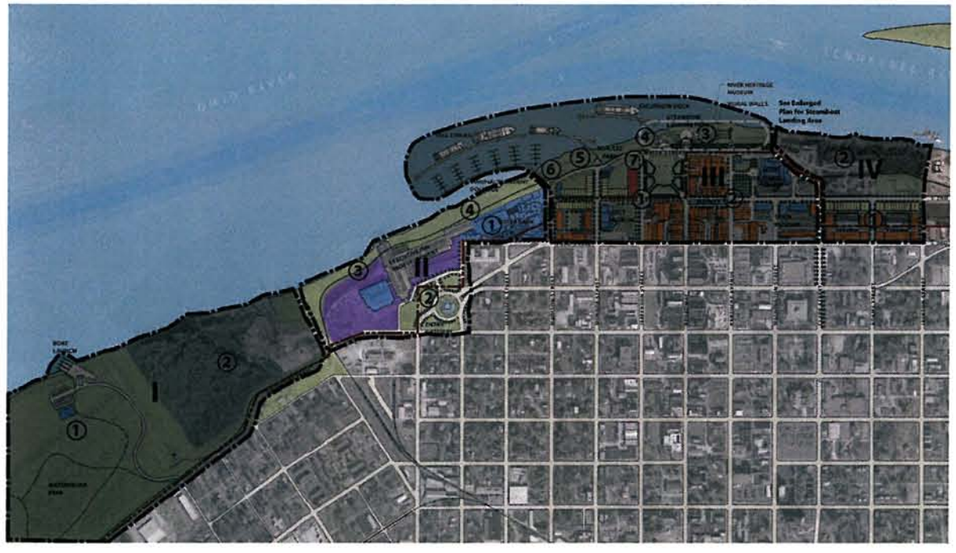


Area I. New Boat Launch and Greenway Trail

II. Executive Inn Redevelopment

The Executive Inn area will continue to focus on the redevelopment of existing lodging facilities, and more strongly integrating the area with the downtown by improving access to the river. Elements for these changes include:

1. The creation of a new indoor/outdoor water park that would provide for an opportunity for the Executive Inn to partner with the City of Paducah.
2. The creation of a new "Entry Gateway" feature/roundabout for vehicles entering the downtown area. This feature would be located between Park Avenue and Martin Luther King Boulevard, just west of the Executive Inn.
3. Potential removal of the existing floodwall that would be replaced by a movable floodwall. The movable floodwall can be erected in less than a 24 hour period. It also improves the visual appearance or aesthetics of the area around the Executive Inn in terms of first impressions or curb appeal. The demountable floodwall would be installed along the earthen berm behind the existing Executive Inn. This scenario would occur only in the event of cooperation between the City and a new owner making a substantial reinvestment in the hotel.
4. The alignment of the Greenway Trail in this location would be along the river side of the Executive Inn. The trail would also serve as the location, and contain the foundation for the movable floodwall.



Area II. Executive Inn Redevelopment

III. Downtown and Steamboat Landing Area

(Vicinity of Madison Street to Clark Street, North 3rd Street to the river's edge)

This zone consists of Downtown Paducah and the historic steamboat landing area along the waterfront. Access to the waterfront area is limited to existing openings in the flood wall at Kentucky Avenue, Broadway, and Jefferson Street.

Land based development proposes the following:

1. Development north of Broadway:
   - Future redevelopment of the parking lot block between Broadway and Jefferson becomes the primary Public Square on the riverfront, creating an address and downtown focus promoting redevelopment and an opportunity to integrate a new hotel between Jefferson and Monroe (approximately 200 rooms). Parking will be replaced.
   - The northerly two blocks of existing parking become prime mixed use with a riverfront residential element.
   - Public and private development opportunities and residential flank the block containing the Quilt Museum.

2. Development south of Broadway:
- Energize North 2nd street by introducing additional public and private development opportunities. Provide new structures that allow for the relocation of current facilities currently occupying the historic market structure. Renovate the historic market building to develop a year round public market.
- Expand the cultural facilities through the incorporation of smaller structures that line both existing and proposed parking lots and enliven the street.
- Expand on the concept of a "Cultural Cluster". Promote development more related to public arts and culture that ties into the Four Rivers Center from Washington Street to Clark Street.
- Create additional parking as needed.

Along the waterfront, the following elements are proposed:

3. The creation of features that function as access gates and create focal points at Broadway and Kentucky;
4. Incorporation of previously constructed excursion dock infrastructure into a new riverfront plaza and access structures for a new excursion pier. As the master plan evolves from concept to implementation, site data provided by new site surveys, river hydrologic studies and geotechnical investigations, will better define existing conditions and influence appropriate technical design solutions. In addition to physical criteria, future discussions with regulatory agencies and city staff will further define design parameters related to permitting concerns, levels of acceptable risk, maintenance requirements, aesthetics, and specific phased construction budget based on available funding. As these physical, policy, budget, and aesthetic aspects of the project are more clearly defined and understood, the final physical design (form, size, location, materials, etc.) will be determined.

The excursion pier facility can be constructed using a variety of technically feasible solutions. Initially, the development of a floating pier will be explored. Other alternatives include a fixed multi-tiered access structure and/or the creation of a jetty/rubble mound breakwater. The design and permitting process will help evaluate these approaches and assist the City and consultant project teams in developing the most appropriate design resolution for the excursion dock and it's physical access.

5. Provision of a second access plaza and structure to a 2nd large pier structure that functions as:
   a) a breakwater structure that creates a protected basin for a 150 slip (approx.) marina;
   b) a public promenade/fishing pier;
   c) a place to showcase or congregate "Tall Stack" boats for celebratory events.

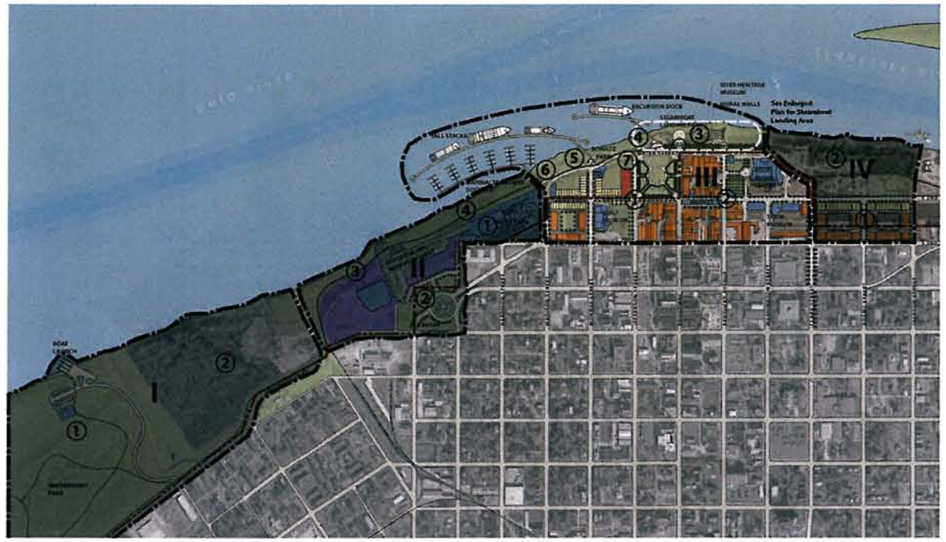
Similar to the excursion dock, a more in depth assessment of the technical resolution will be developed. The final design resolution of the primary structures and related infrastructure will evolve as the existing site conditions, permitting feasibility, facility performance, maintenance, aesthetics, and available project funding are more clearly understood.
6. Provision of an access plaza and gangway ramp to marina dockage located within the large pier.
7. The use of the floodwall as the mural wall will remain in place and unchanged in this area.
8. Enhance automobile access through Schultz Park from Jefferson Street to Madison Street.

IV. River Industry Properties (Vicinity of Clark Street to Tennessee Street)

These blocks are currently a combination of buildings and surface parking from South 3rd Street down to the river. Most of the land ownership/land use between Clark Street and Jackson Street is related to river industry business and activities.

1. Land based development - recommendations for the blocks between South 3rd street and South 2nd Street include increasing the density and providing a more diverse mix of uses. These include a combination of housing, office, and commercial development. Pedestrian circulation linking this area to the Four Rivers Center and the downtown and steamboat landing area should be provided via the Greenway Trail, and enhanced streetscape treatments along South 2nd Street. Each development would incorporate its own parking.

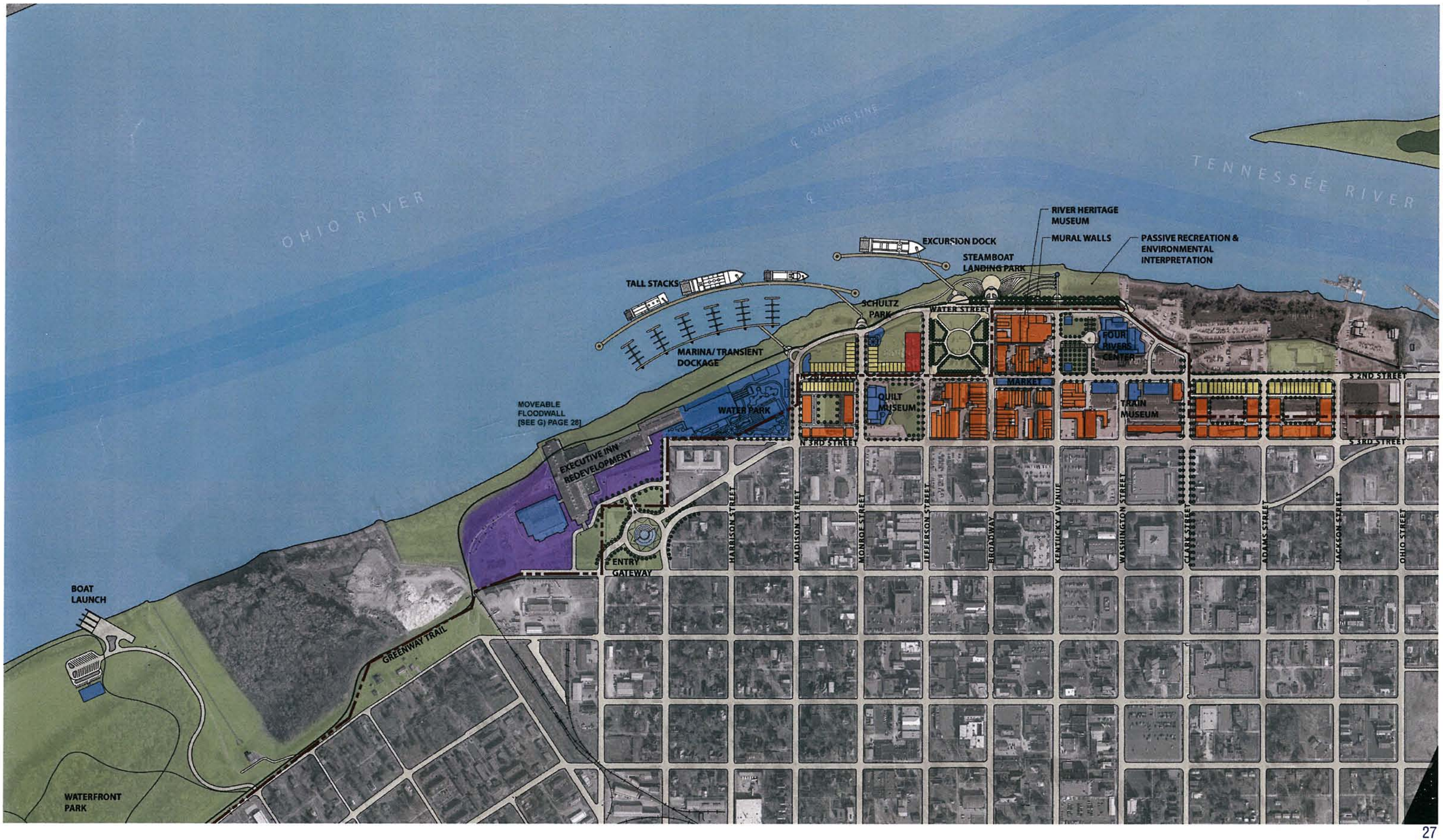
2. Riverfront (east of South 2nd Street) - at this time, current river industry landowners are planning to continue their operations in this area. Accordingly, this area should/will continue to retain it's working riverfront use and character. As a long term strategy, it is suggested that the city continue to investigate the potential acquisition of river industry owned properties as they become available along the river in order to increase riverfront access opportunities and public open space.



Area III. Downtown and Steamboat Landing Area

Area IV. River Industry Properties (Vicinity of Clark Street to Tennessee Street)

CONSENSUS PLAN



A more detailed description of the Steamboat Landing between Broadway and Kentucky Avenue is provided below, and illustrated on the Enlarged Plan. Opportunities include the following:

a) Water Feature and Enhancement of Wilson Stage and Performance Plaza/Amphitheater with formal and informal seating:
- Located at the terminus of Broadway on the river side of the floodwall;
- Overlook plaza at the same relative elevation as Broadway containing a water feature with vertical jets that could be viewed or observed from several blocks away on Broadway; a water fall or cascade would lead down from the upper pool to a lower pool at the performance plaza level;
- Performance plaza located at mid-level elevations between the over look plaza and "normal pool" elevation of the river. Formal seating for the performance plaza would be provided along two adjacent wings that transition into more organic and less structured lawn seating.

b) River Overlook Structure:
- Serves as a terminus to Kentucky Avenue;
- Provides views up the Tennessee and Ohio River, and to the tip of Owens Island.
- Allows for the observation of river industry activities at the confluence of the Tennessee and Ohio Rivers.
- Provides views back towards the City from the river.

c) Promenade:
- Provide an approximately 50' wide promenade zone on the riverside base of the existing flood wall. Includes special paving, lighting, site furniture (benches and trash receptacles), and a double row of trees capable of withstanding prolonged periods of inundation during extended periods of flooding. This area will provide an opportunity for seating and interpretive exhibits.

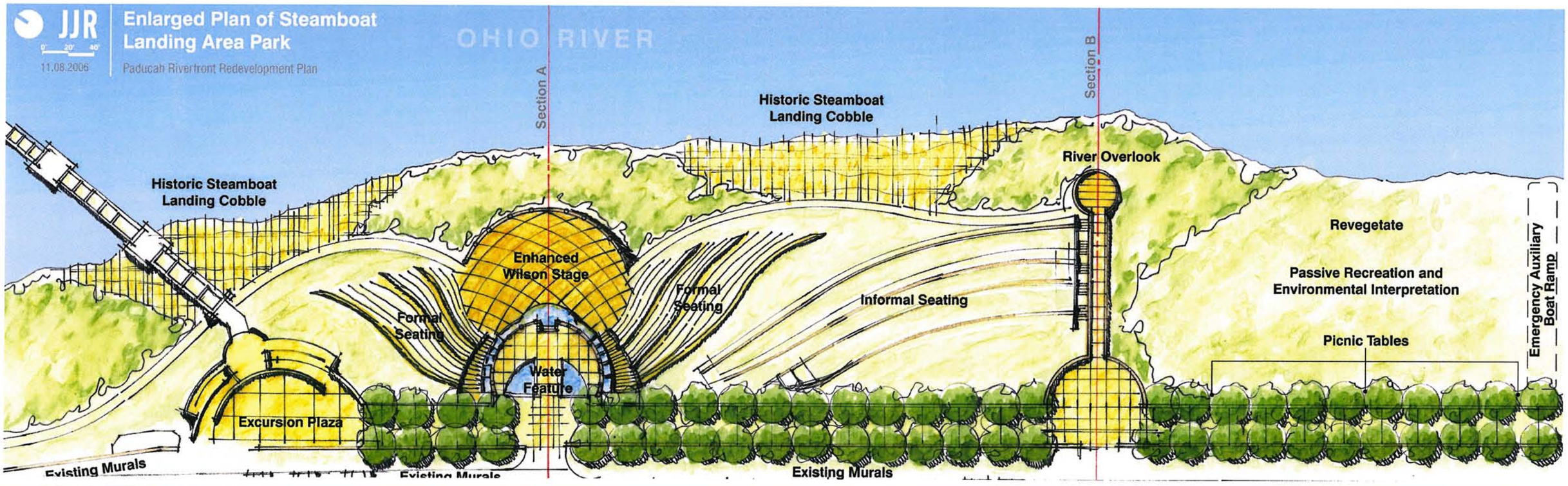
d) River Edge Treatments:
- Re-establishment of some of the historic riverboat landing slope edge treatments through the reuse and reconstruction of existing stone cobbles. This treatment could extend between Jefferson Street and Kentucky depending on the quantity and condition of the historic cobble.
- Provide sustainable bioengineered edge treatments in the more natural "soft" waterfront edges of the downtown riverfront.

e) Interpretive Elements/River Heritage Museum Integration
- Outdoor classroom
- History, culture and biology/ecology

f) Automobile Access
- maintain 24 hour automobile access and enhance Schultz Park
- "drag the gut" from Jefferson Street to Madison Street
- new boat launch/waterfront park at Burnett Street
- new vehicular access would also be available at the new boat launch located at the intersection of North 6th Street and Burnett Street. This area will have parking for 100 vehicles, and direct access to the river.

g) Flood Wall
- Various treatments were discussed in terms of how to best integrate the structure and enhance visual access to the river. Public feedback wanted to retain the flood walls and mural walls as they currently exist. There would be an opportunity to discuss moveable flood wall technologies in the future with the possibility of integrating them with the appropriate redevelopment of the Executive Inn.

The intent is to showcase the river, its relationship to the downtown, the working river industry, and create a catalyst for private investment. The riverfront becomes the address for multiple cultural buildings and their related organizations like the River Heritage Museum, Carsen Center for Performing Arts, Maiden Alley Cinema, Quilt Museum, art venues, other museums and festivals.



JJR
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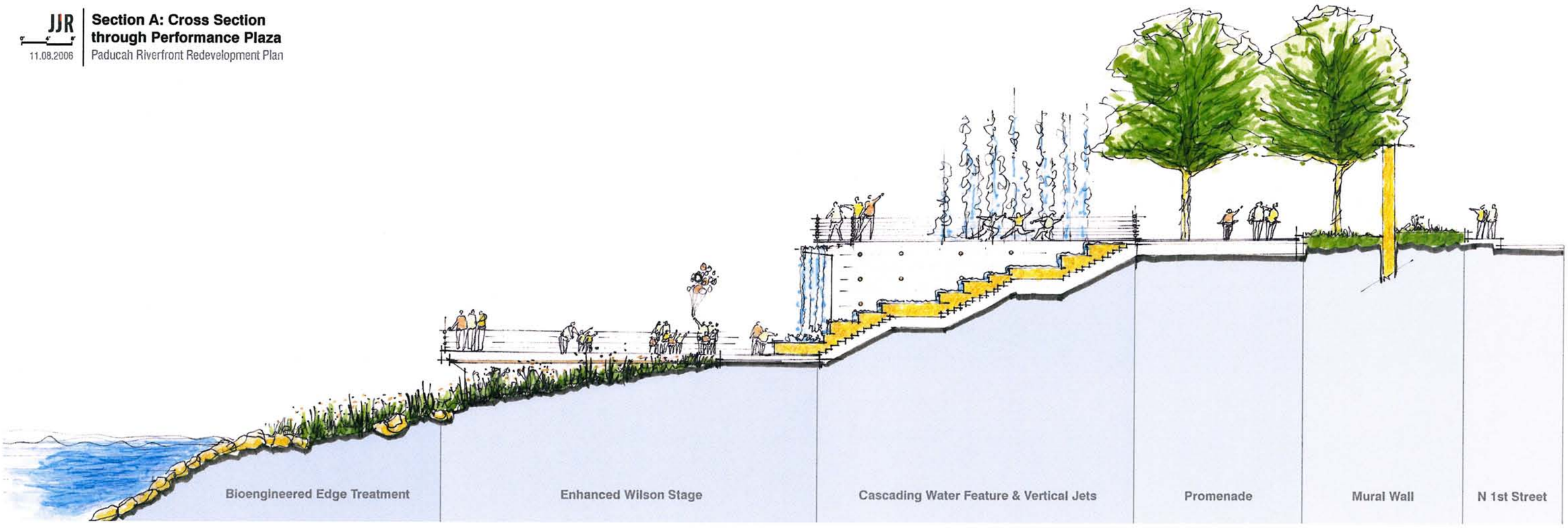
Section A: Cross Section through Performance Plaza
Paducah Riverfront Redevelopment Plan



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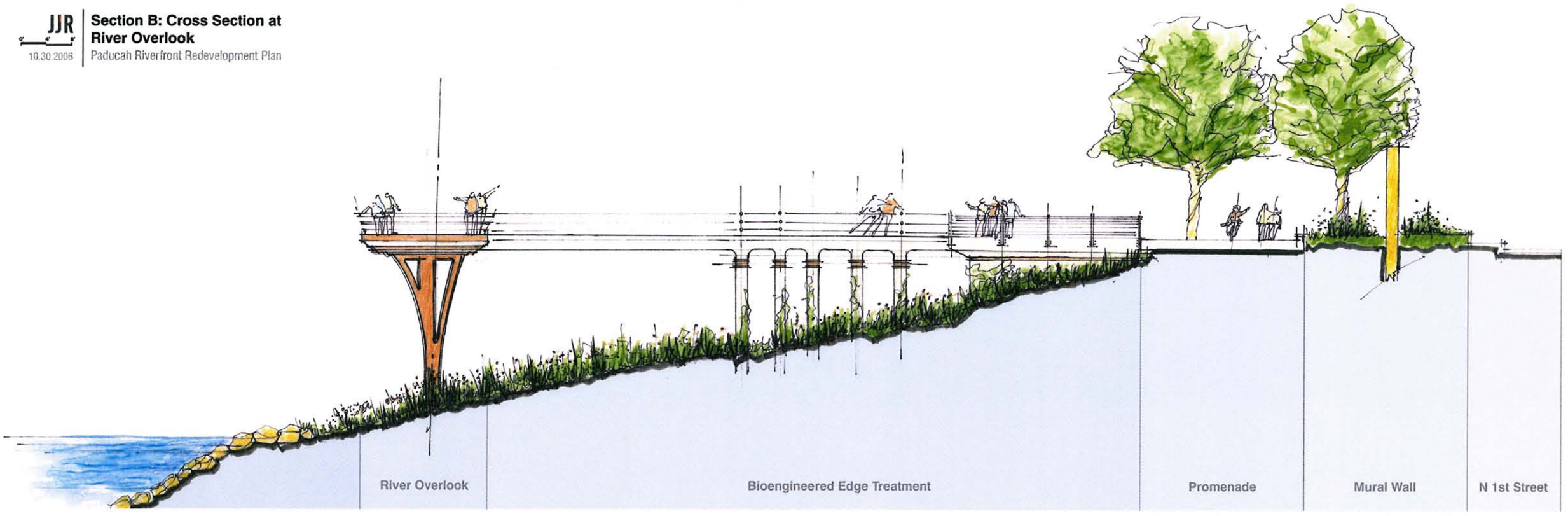
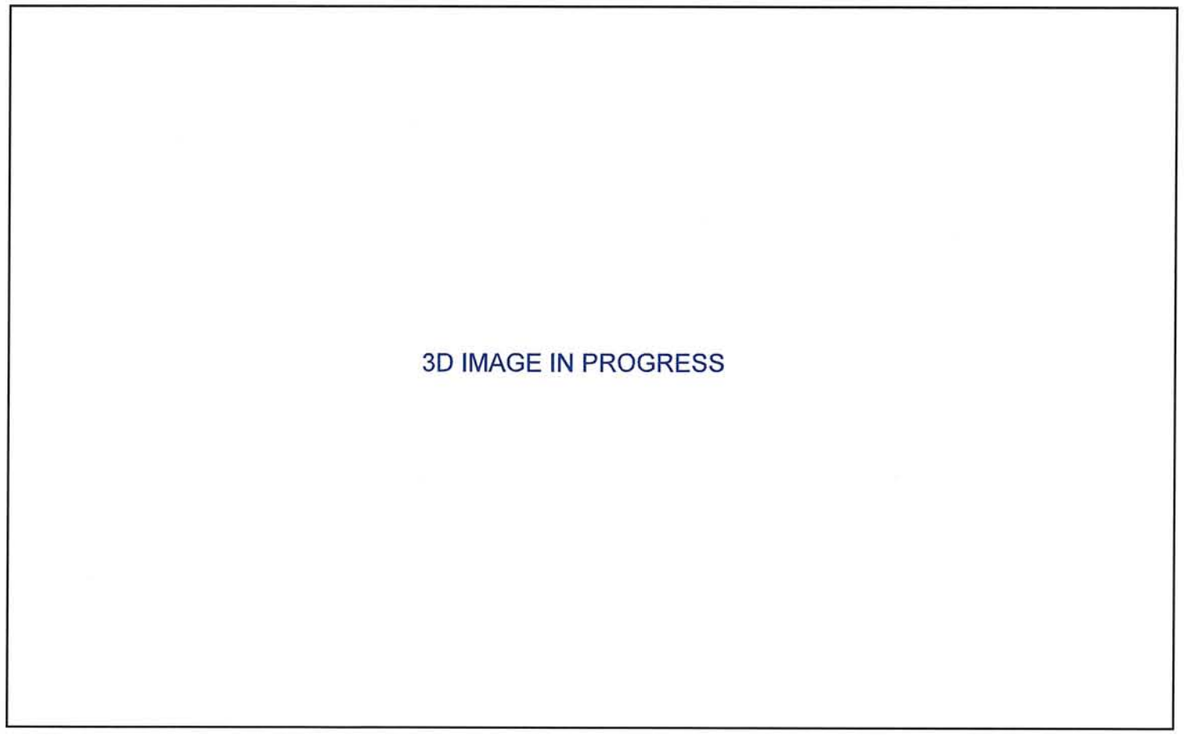
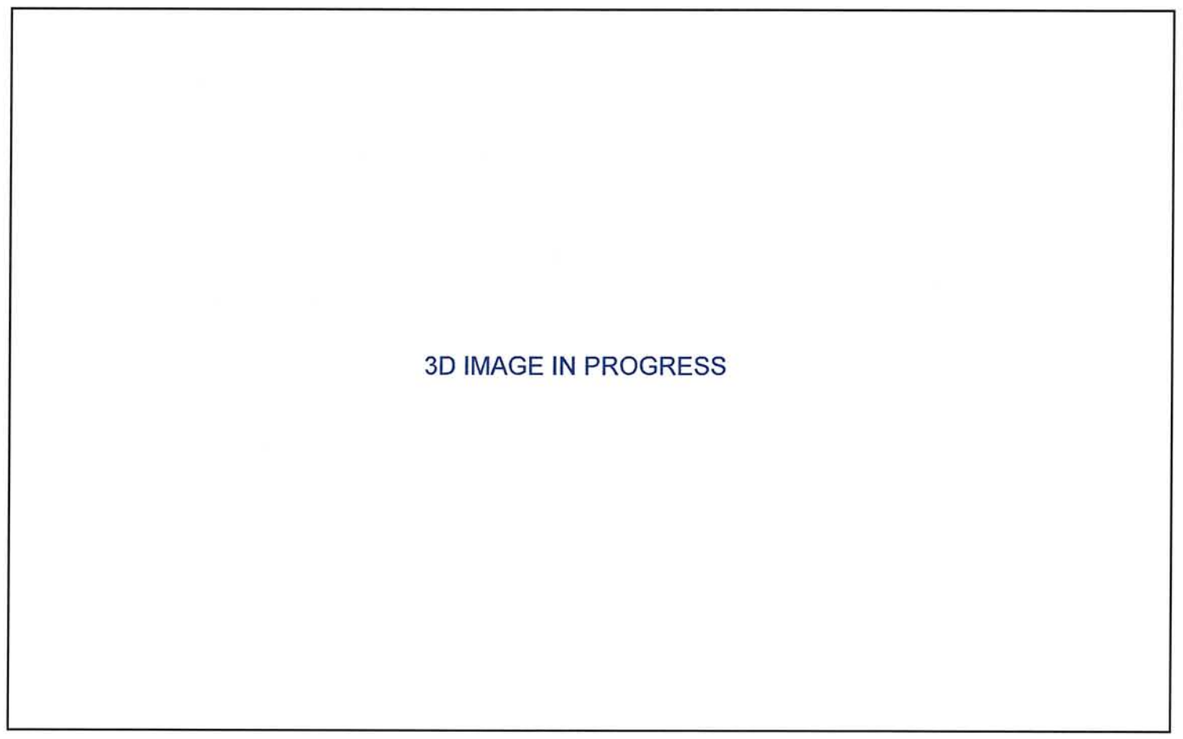
Section B: Cross Section at River Overlook
Paducah Riverfront Redevelopment Plan



ILLUSTRATIONS

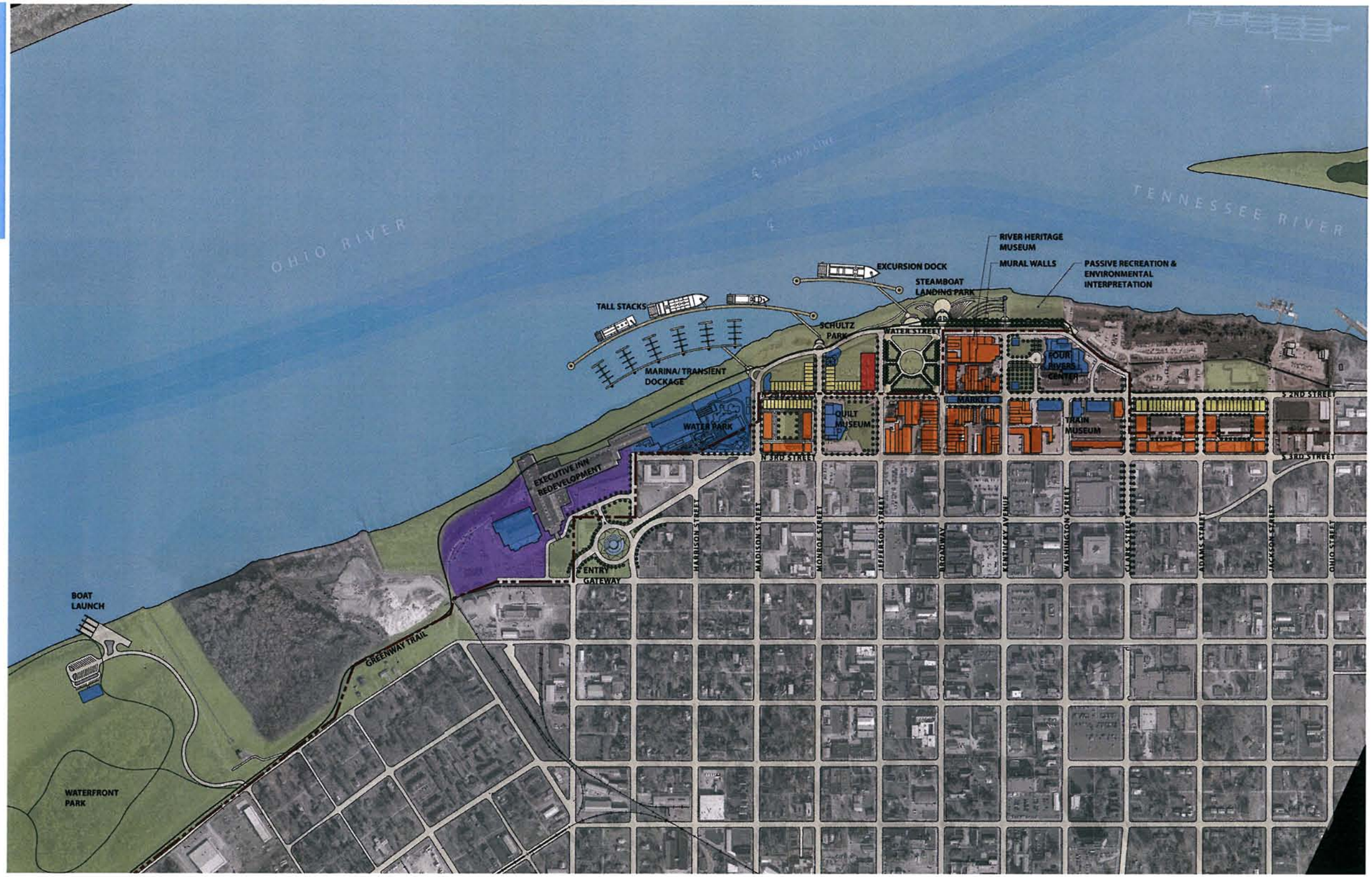




3D IMAGE IN PROGRESS

3D IMAGE IN PROGRESS

06
IMPLEMENTATION STRATEGY



The following is a summary of costs for potential near-term riverfront development projects based on the Paducah Riverfront Redevelopment Plan as of October, 2006. The costs are based on concept level information and as such require numerous assumptions resulting in "ballpark" or order of magnitude estimates of actual costs. The figures listed should only be used as a general understanding of potential costs, and serve in the assistance of establishing budgets and raising funds for the development of the riverfront.

Phase 1 Riverfront Projects		**Approximate Cost**
Mobilization/Demolition/Erosion Control:		**$ 411,000**
Edge Improvements and Shore Protection :		**$ 223,000**
Steamboat Landing:		**$ 6,161,000**
• Performance Plaza	$ 4,612,000	
• Informal Seating Area	$ 186,000	
• Promenade	$ 636,000	
• River Overlook Structure	$ 727,000	
Excursion Dock and Plaza:		**$ 3,925,000**
• Plaza/Overlook	$ 473,000	
• Walkway/Ramp/Gangway Connection	$ 805,000	
• Floating Pier/Dockage/Breakwater Structure	$ 2,647,000	
Riverfront Park and Boat Launch:		**$ 2,154,000**
• Boat Launch Ramp (Six Lanes)	$ 313,000	
• Parking (100 paved spaces; 100 gravel spaces)	$ 525,000	
• Access Road	$ 97,000	
• RV Campground (40 sites with services)	$ 750,000	
• Buildings and Amenities	$ 469,000	
	Phase 1 Total	**$12,874,000**
Total Project Probable Cost Opinion (2006 Dollars)		**$48,000,000**

IMPLEMENTATION MATRIX

The key to a long range implementation plan like this is to consider the Riverfront Redevelopment Plan as the broad foundation for continuing community focus and convergence on riverfront elements and riverfront development in Paducah. The Implementation Matrix attempts to outline how the various elements of the Paducah Riverfront Redevelopment Plan may be implemented over an extended time horizon. It should be remembered that the Riverfront Redevelopment Plan is a vision plan and the implementation strategies will need to be flexible and continually updated as Paducah moves forward into the years ahead.

Realistically, the programmatic elements of the plan that have been described in this document could take two decades or more to implement.

Major implementation steps in the matrix are generally grouped as follows:

A. Approval of and adoption of the Riverfront Redevelopment Plan
B. Determination of an Organizational Structure for Implementation
C. Communication of the Plan
D. Preparation of Preliminary Site Specific Plans and Programs
E. Design/Engineering and Implementation of Catalytic Projects

On a preliminary basis, the matrix is a list of tasks to accomplish these actions; it suggests who might be responsible for the action; estimates a preliminary cost; identifies a broad list of potential funding sources; and contains some other comments related to timing, etc. The costs listed in the matrix are extremely preliminary and validation will come from the Preliminary Site Planning that is listed in action D. above. Phases will also be determined at that time. As the plan moves forward during the future implementation phases, it is important to develop key mechanisms that promote local initiatives that will contribute funding, provide an operational/development entity and promote the level or standard of design.

A critical facet of the implementation process is the formation of an organizational structure that will take on the responsibility of moving the plan forward. More importantly is the organizational structure's ability to continue to champion the riverfront's redevelopment and become a clearing house for all initiatives involving the downtown riverfront. The organizational structure needs to be able to aggressively pursue funding, proactively promote and attract private investment, and coordinate the efforts required to guide and review proposed development. Furthermore, the organizational structure should be responsible for the coordination of daily and seasonal activity. This coordination ranges between addressing required maintenance and operational logistics to facilitating the staging of formally programmed annual events.

A localized presence and mechanism capable of providing project funding needs to be established in order to demonstrate local commitment, and bridge the time gap of various county, state, and federal funding sources. This local commitment can be realized through the creation of a Tax Increment Financing (TIF) District. The TIF District can be based on a specific area encompassing both existing and potential redevelopment. As development occurs, the TIF District increases the opportunity to capture a broader tax increment. This district and its assessment is defined both in terms of dollar amount and the specific duration of the program. A TIF District is an effective tool for funding public realm amenities and infrastructure. An important aspect of such a program is the demonstration of community commitment which will attract private investments and increase the momentum of the downtown's riverfront redevelopment.

Finally, to maximize the return of public investment and enhance the redevelopment efforts, a standard of design and level of quality needs to be communicated. This is best achieved through the development of design guidelines. With development of such a tool, the City can proactively solicit qualified developers and set a standard in which to evaluate all proposed development. The intent is to possess tools that provide continuity of intent through multiple phases of development and changes in leadership and organizational structures.

As projects are successfully implemented, it is critical that funding and dedicated staff be allocated for the ongoing maintenance of all Riverfront Improvements. It is important to maintain and prioritize the stewardship of the publics investment and safeguard Paducah's legacy.

All of the above are effective tools that have been used by many communities which have successfully completed significant phases of riverfront and downtown redevelopment.

IMPLEMENTATION MATRIX

Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
A. Approve Final Riverfront Redevelopment Plan	1. Steering Committee to review and make recommendations	Administrative	Steering Committee	N/A	N/A	March 2007
	2. Planning Commission to review and make recommendations	Administrative	Planning Commission	N/A	N/A	April 2007
	3. City Commission to review and approve Riverfront Redevelopment Plan	Administrative	City Commission	N/A	N/A	April 2007
B. Establish Organizational Structure for implementation of the Riverfront Redevelopment Plan	1. Establish a Riverfront Development Corporation structure including: existing agencies; task force of multi-agency public and private non-profit composition; new authority or non-profit foundation or corporation; etc.	Administrative	City Planning	N/A	N/A	Winter 2007
	2. Develop a Tax Increment Finance District	Administrative	City Planning	N/A	N/A	Winter 2007
	3. Develop Design Guidelines	Administrative	City Planning	N/A	N/A	Winter 2007
	4. Create a Design and Technical Review Committee to review all proposed public and private development	Administrative	City Planning City Engineering City Parks and Recreation City General Government	N/A	N/A	February 2007
	5. Establish recommendation for city commission review and approval	Administrative		N/A	N/A	Winter 2007

IMPLEMENTATION MATRIX

Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
C. Communicate the Plan	1. Develop a public relations document that includes final riverfront plan, design character and outline of implementation strategies. Create poster plans and web site graphics	Promotional	City Planning and Steering Committee	$30,000	2007 budget	Winter 2007
	2. Use public television programming	Promotional	City Planning and Steering Committee	Minimal	Communication Budget	Winter 2007
	3. Schedule series of public presentations	Promotional	City Planning and Steering Committee Chamber/Tourism	N/A	N/A	Winter 2007
	4. Lobby Federal and State Government Representatives	Promotional	City Planning and Steering Committee Chamber/Tourism	N/A	N/A	Ongoing
D. Prepare program, preliminary site plans, and design standards for each riverfront project in the following priority order: • New boat launch ramp and parking • Steamboat Landing • Excursion Dock and Plaza • Schultz Park and Marina Breakwater • Marina/Transient Dockage • Greenway Trail and Movable Floodwall • Completion of Riverfront RV Park next to Boat Launch	1. Establish project committee for each riverfront project 2. Meet with stakeholders and public 3. Assess constraints and opportunities 4. Complete market analysis 5. Create public infrastructure plan 6. Evaluate funding sources 7. Establish Preliminary Site Plans and Detailed Action Plans 8. Evaluate maintenance and required manpower estimate	Planning and Design	City Planning and Engineering Departments; Project Steering Committee	Each Preliminary Site Plan could range from approx. $15,000 to $75,000	Consortium of funding from City, County, public agencies, private foundations	Preliminary Site Plans could be completed over a 1 to 3 year period Costs do not include additional market studies or brownfields environmental assessment

Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
E-1. Pursue Catalytic Projects Design and Construct new downstream City Boat Launch	1. Complete preliminary site plan and costs for Boat Launch 2. Relocate existing City boat launch and Facilities 3. Establish infrastructure improvements plan for area to include: utilities; access; linkages to greenway trail; parking; storm water management; habitat/ environmental enhancements 4. Develop trail to connect with City/Regional Greenway Trail 5. Develop Interpretive Program, brochures, mapping, signage system 6. Establish budget and funding plan 7. Construct Improvements 8. Maintenance	Administration, Planning, Design, Engineering, Construction Management, Long term maintenance	City Planning and Engineering Departments; Project Steering Committee	$0.8 to $1.5 Million Assumes minimum construction of boat launch ramp, 100 space parking area, and access road Does not Include Brownfield Analysis and Clean-up	Possible Funding Sources include: USFWS; City; Local Private Contributions; Federal Appropriations/ Transportation Funding; State Bonding; Trail Grants; City Sales Tax; City Bond Referendum; Regional and National Foundations that fund environmental enhancements;	This phase to be completed by end of fall 2007.
E-2. Pursue Catalytic Projects Steamboat Landing	1. Complete Preliminary Site Plan for the Steamboat Landing area 2. Establish development program and priorities 3. Establish budget and funding plan 4. Complete Final Design and Engineering for following elements: • Performance Plaza • Informal Seating Area • Promenade • River Overlook Structure • River Edge Improvements and Shore Protection 5. Construct Improvements 6. Maintenance	Administration Planning, Design, Engineering, Construction Management, Long term maintenance	City Planning and Engineering Departments; Project Steering Committee	Performance Plaza Est. at $4.6 million Informal Seating Area Est. $0.2 million Promenade Est. $0.65 million River Overlook Structure Est. $0.73 million	Possible Funding Sources include: City; Private Contributions; Federal Appropriations/ Transportation Funding; State Bonding; City Sales Tax; Boat Licensing; Marina Improvements Supported by Revenues	Project should be planned in conjunction with the relocation of the existing boat launch. Project could be completed in 1 to 4 years

IMPLEMENTATION MATRIX

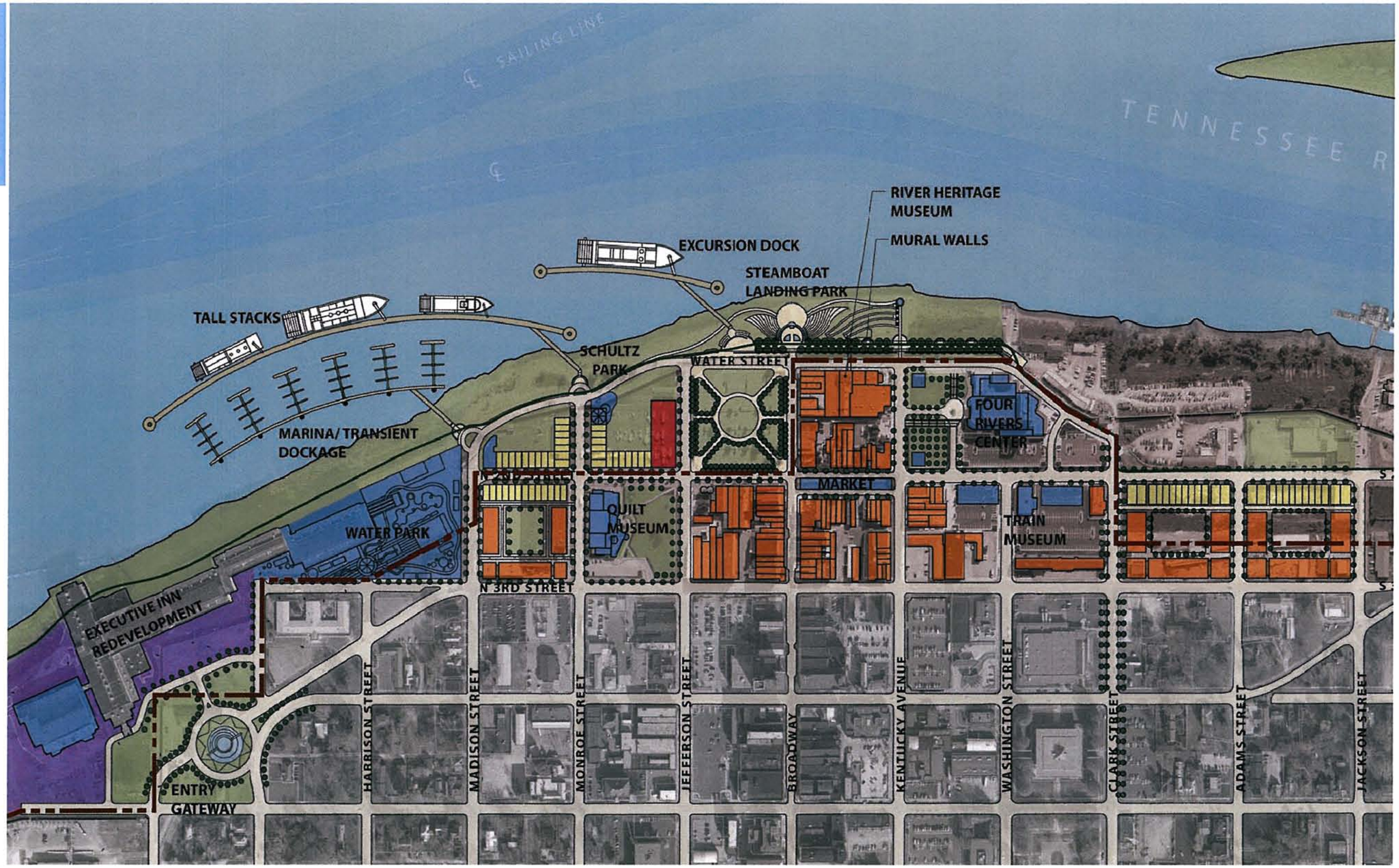
Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
E-3. Pursue Catalytic Projects Schultz Park, Floating Pier, and Transient Marina	1. Complete Preliminary Site Plan for Schultz Park Plaza, Floating Breakwater Pier, and Marina. 2. Establish development program and priorities 3. Establish budget and funding plan 4. Complete final design and engineering for following elements: • Plaza and Overlook • Walkway/Ramp and Gangway • Floating Pier/Dockage/Breakwater Structure • Marina Dockage and Facilities • River Edge Improvements and Shore Protection • Auto Access 5. Construct Improvements 6. Maintenance	Administration Planning, Design, Engineering, Construction Management	City Planning and Engineering Departments; Project Steering Committee	Grossly Estimated at $15 -20 million Plaza and Overlook Est. $0.5 million Walkway Ramp and Gangway Est. $1.0 million Large Floating Pier/ breakwater Est. $4.5-5.0 million Marina Dockage and Facilities Est. $6.0-8.0 million River Edge Improvements Est. $3.0-5.0 million	Possible Funding Sources include: City; Private Contributions; Federal Transportation Funding; State Bonding; City Sales Tax; Boat Licensing; Marina Improvements Supported by Revenues	Various projects could be completed over next 3 to 10 years

Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
E-4. Pursue Catalytic Projects Movable Floodwall and Greenway Recreational Trail	1. Initiate and Complete Greenway Trail Alignment and Movable Floodwall Feasibility Study 2. Establish development program and priorities 3. Obtain necessary trail easements from participating adjoining property owners 4. Complete financing plan and actively seek grants and contributions 5. Complete Design and Engineering for Project 6. Construct Improvements 7. Maintenance	Administration Planning, Design, Engineering, Construction Management	City Planning and Engineering Departments; Project Steering Committee	Grossly Estimated at $8-18 million	Possible Funding Sources include: City; Private Contributions; Federal Appropriations/Transportation Funding; State Bonding; DNR Trail Grants; and City Sales Tax	Project could be completed in next 1 to 20 years
E-5. Pursue Catalytic Projects City Entry "Rotary" (west of Executive Inn)	1. Contact DOT regarding Rotary to assess initial feasibility 2. Conduct initial road design Feasibility Study 3. Establish development program and priorities 4. Obtain necessary road easements from participating adjoining property owners 5. Complete financing plan and actively seek grants and contributions 6. Complete Design and Engineering for Project 7. Construct Improvements 8. Maintenance	Administration Planning, Design, Engineering, Construction Management	City Planning and Engineering Departments; Project Steering Committee	TBD	Possible Funding Sources include: City; Federal Appropriations/Transportation Funding; State Bonding;	Project could be completed in next 3 to 20 years

IMPLEMENTATION MATRIX

Action	Tasks to Accomplish	Type	Responsibility	Cost	Potential Funding	Comments
E-6. Pursue Catalytic Projects RFQ/RFP for Downtown Hotel/Riverfront Residential Development	1. Establish development program and priorities 2. Complete financing plan and actively seek grants and contributions 3. Complete Design and Engineering for Project 4. Construct Improvements 5. Develop Design Guidelines 6. TIF	Administration Planning, Design,	City Planning Department; Project Steering Committee	TBD	Possible Funding Sources include: City; Private Contributions; Federal Appropriations/Transportation Funding; State Bonding; Develop TIF District and City Sales Tax	Project could be completed in next 3 to 10 years
E-7. Pursue Catalytic Projects Downtown Parking Study	1. Commission Parking Study	Administration Planning, Design, Engineering,	City Planning and Engineering Departments;	TBD	Possible Funding Sources include: City; Federal Appropriations/Transportation Funding; State Bonding; and City Sales Tax	Parking Study could be initiated and completed in next 1 to 2 years
E-8. Pursue Catalytic Projects Reuse of Historical Market as year-round market (with relocation of current user).	1. Establish Relocation Strategy 2. Commission Redevelopment Study 3. Renovate Structure	Administration Planning, Design,	City Planning Department; Project Steering Committee	TBD	Possible Funding Sources include: City; Federal Appropriations/Transportation Funding; State Bonding; and City Sales Tax	Project could be completed in next 1 to 3 years
E-9. Pursue Catalytic Projects Design and implementation of Public Square	1. Develop Design/Planning Strategy based on outcome of parking study	Administration Planning, Design, Engineering, Construction Management	City Planning and Engineering Departments; Project Steering Committee	Grossly Estimated at $3-5 million	Possible Funding Sources include: City; Federal Appropriations/Transportation Funding; State Bonding; and City Sales Tax	Project could be completed in next 2 to 10 years

07
APPENDIX


℄ SAILING LINE
TENNESSEE R
RIVER HERITAGE MUSEUM
MURAL WALLS
EXCURSION DOCK
STEAMBOAT LANDING PARK
TALL STACKS
SCHULTZ PARK
WATER STREET
FOUR RIVERS CENTER
MARINA/ TRANSIENT DOCKAGE
MARKET
QUILT MUSEUM
TRAIN MUSEUM
WATER PARK
N 3RD STREET
EXECUTIVE INN REDEVELOPMENT
ENTRY GATEWAY
HARRISON STREET
MADISON STREET
MONROE STREET
JEFFERSON STREET
BROADWAY
KENTUCKY AVENUE
WASHINGTON STREET
CLARK STREET
ADAMS STREET
JACKSON STREET

AERIAL PHOTOGRAPH AND LIST OF AVAILABLE DOCUMENTS

AVAILABLE DOCUMENTS

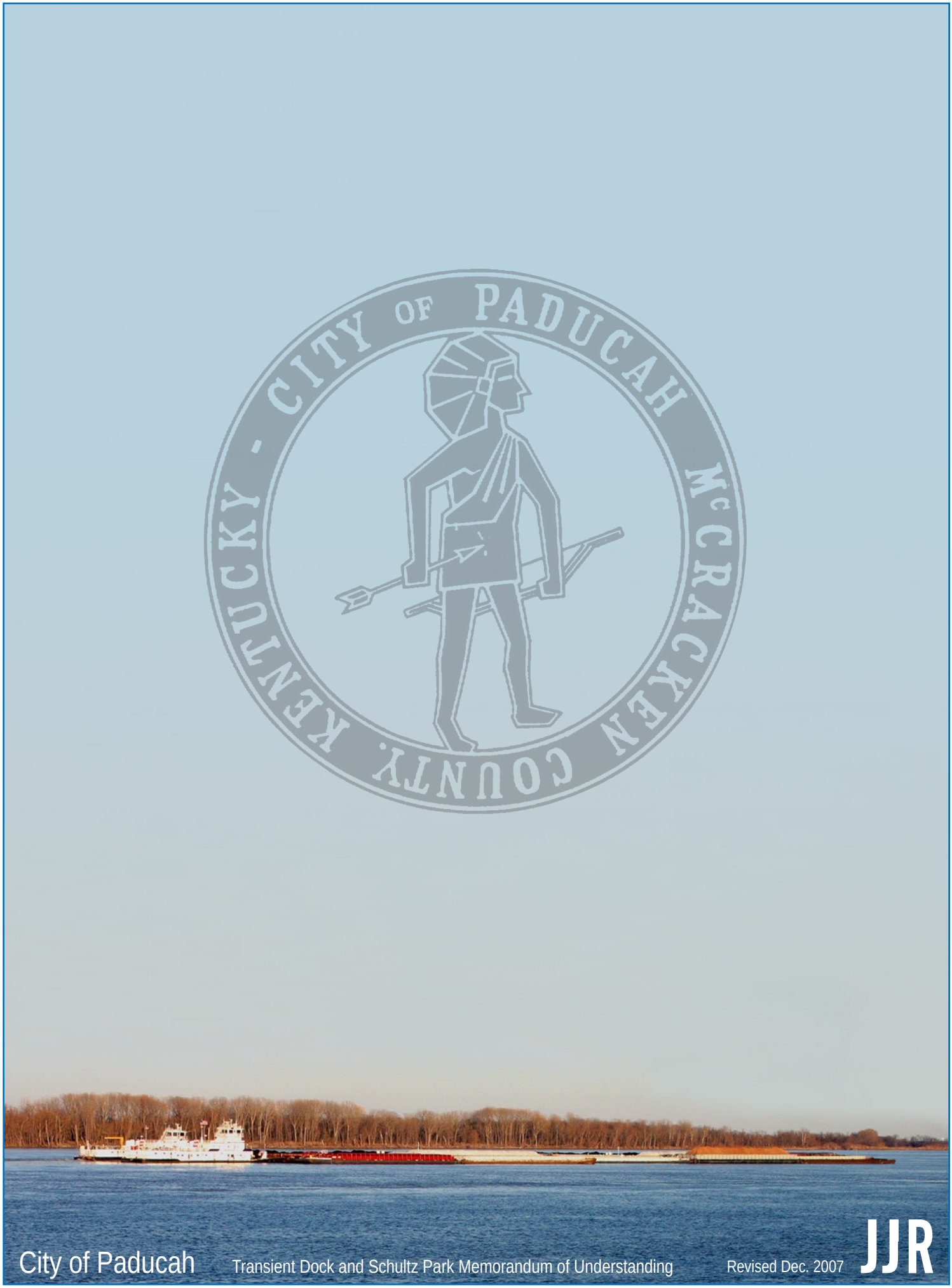
The following list of items was produced as part of the Riverfront Redevelopment Plan Each item is available for use and reference from the City of Paducah. Information includes site reconnaissance/detailed descriptions of riverfront edge conditions; a photographic inventory of the river edge in the project area with location and descriptions noted; river hydraulic data; and general descriptions of the utility infrastructure along the waterfront. These items are available under the following titles (listed in italics):

1. Site Reconnaissance Information
   - *Technical Memorandum - Site Reconnaissance*
   - *Digital Photographic Inventory*
   - *Photographic Inventory Key Map*
   - *Photographic Inventory Description*

2. River Hydraulic Data
   - *Ohio River Data Memorandum*
   - *Historic River Stages – 1966 to Present*
   - *USGS Daily Stage Information – 1995 to Present*
   - *Ohio River Navigation Chart No. 11 (West tip of Owens Island to west of Highway 45)*

3. Riverfront Project Area Utilities Information
   - *Technical Memorandum - Utilities*

APPENDIX O



City of Paducah

Transient Dock and Schultz Park Memorandum of Understanding

Revised Dec. 2007

JJR

Acknowledgements:

Mayor - City of Paducah

William F. Paxton, III

Board of Commissioners - City of Paducah

Robert Coleman
Gayle Kaler
Gerald Watkins
Robert “Buz” Smith

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Ben Peterson	City Planner

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Coastal & River Engineering
Water Resources & Environmental Hydraulics

Stu Seabrook	Project Engineer

Table of Contents:

Aerial Photo of the Paducah Riverfront:

Purpose:

The purpose of this Memorandum is to define the final scope of the Transient Boat Dock and Schultz Park and verify the program elements and associated design considerations as they relate to the approved Riverfront Redevelopment Plan.

Project Introduction and Overview:

A transient dock and improvements to Raymond C. Schultz Park have been identified by the City of Paducah as the catalyst for future improvements to the city's riverfront in accordance with the approved Riverfront Redevelopment Plan. Schematic development of the Transient Dock and Schultz Park emphasized goals and objectives identified in the master plan, including:

- Create or provide the highest and best use of the riverfront
- Ensure community involvement and use of the river by maximizing visual and physical access to the river
- Develop a vibrant riverfront that becomes an asset to downtown
- Provide a financially manageable phased implementation plan
- Create momentum through the implementation of catalytic projects
- Provide interface of commercial and recreational boating
- Establish a place for public gathering and celebration of Paducah.

The redevelopment of Schultz Park represents the inaugurating transformation of Paducah's entire riverfront. It is imperative that the final design respects the city's collective vision for their riverfront, which includes its role as primary contributor to the creation of a sustainable community in which to live, work and play, resulting in a better quality of life for future generations.

Process:

The City of Paducah's vision was preserved through a deliberate process of schematic design development that included the establishment of a design program, detailed analysis of project constraints and considerations, the provision of alternative concepts and consistent interface with city representatives. The attached appendices graphically illustrate this process as it evolved from the approved Riverfront Redevelopment Plan (appendix A) through development of the Context Diagram (appendix B), the design program (appendix C) and three alternative concepts for Schultz Park (appendix D) to the final consensus plan (appendix E). Character sketches (appendix F) were provided to help convey some of the ideas shown in plan. Additional illustrations (appendix G) show how the design of Schultz Park fits in context with the approved master plan. Finally, an AutoCAD drawing and opinion of probable construction cost is attached (appendix I). The final consensus plan for Schultz Park represents a culmination of efforts from every team member, including City of Paducah Elected Officials and Staff, Florence and Hutcheson, Inc., HCCL, and JJR.

JJR participated in design meetings with the city engineer and planners on September 7, 2007 and October 10, 2007. After each meeting, JJR incorporated comments from the city into the evolving schematic plan, which resulted in the Final Consensus Plan as shown in the attached appendices. The information provided in this Memorandum of Understanding illustrates this collaborative process and the resulting products. Minutes from the above meetings and the permitting meetings are included (appendix H) for reference.

The following report includes the design program, project considerations, conclusions and a signature page. Once signed, this document will provide the guidelines for implementation of this project.

Schematic Development of Transient Dock and Schultz Park: Design Considerations

The formation of the design program (appendix C) was a product of the September '07 meeting with Paducah representatives. This program was an essential tool used throughout schematic development of the project, providing a clearly defined approach to the inclusion of desired attributes. Program elements were separated into three categories, including Schultz Park, the transient boat dock and the marina.

As the program evolved through schematic design, influential design and construction considerations were identified and will need to be addressed throughout project implementation. These items, listed below, will continue to influence how the project evolves.

Park Access

- All public access to the riverfront is closed when flood gates are installed. Portions of park will be submerged during all flood events.
- 24-hour access will be provided when the park is open

Fill material

- Clean fill material, meeting Kentucky DEP water quality requirements will be used. Dredge materials may be investigated for use in some areas of the project.
- Delivery and placement to be based on the most economic method (barge, truck).
- Material will be placed with a maximum slope of 3:1. This may be adjusted as the geotechnical data becomes available and the fill material is determined.
- Soft river bottom soils are predicted under the fill area. A pre-boring projection by the geotechnical engineer indicates that 6- to 24-inches of settlement could occur. To protect the City's investment, this land mass should remain in place for a period before creating the amenities. The soils report will clarify timeline.
- The top elevation of the land mass will match existing elevations of the base of the floodwall and grade will slope away.
- Fill material quantities are based on 3:1 slopes.

Phasing of Construction

- Public access to Schultz Park will be closed during construction
- Install initial erosion control measures
- Install piles for gangway support (pre-drilling will likely be required)
- Place fill material
- Install gangway system
- Install first phase of floating wave attenuator (up to 400-ft)
- Timing for construction of park amenities will be based on geotechnical recommendations regarding the time period required for consolidation (settlement) due to the fill material.
- No construction will take place on the property leased by Executive Inn.
- Laydown areas are minimal until land mass is constructed. Water based access may be required for early phases of construction.

Phase 1 Items

- Gangway system for access to Transient Boat Dock
- Up to 400-ft of Transient Boat Dock with center rail, lighting, seating, and conduits for future utilities
- Landmass fill and design for pathways, lighting, stairs, bioengineered slope protection and seating areas.
- Parking area, access road and associated lighting

Schedule

- All scheduling items are based on permitting approvals and funding availability.
- Material availability and delivery schedule may dictate schedule for land mass construction.
- Target bid date for Phase 1 is early June 2008, pending permits and funding availability
- Target construction completion for Phase 1 is the end of 2009, pending permits and funding availability

Roadway

- One-way vehicular access will be maintained via Water Street in the same direction as existing, with egress at existing location adjacent to lease property of Executive Inn.
- Width of asphalt roadway with curb ang gutter will be 16-ft face to face.

Parking

- Up to 36 parking stalls, some may be signed with restricted time limits for marina drop off
- Curb will be provided around the parking areas.
- Parking stalls will be 18-ft long, 10-ft wide and angled at 30° with 18-ft aisle widths
- No overnight parking, trailer parking, or long-term parking for marina users will be provided with this portion of the project. Marina parking will be determined at a later date.

Pathways, Staircases and Amenities

- The Levee trail will be 10-ft wide concrete as it traverses the site.
- Other sidewalks will be concrete and range in width between 6-ft and 8-ft.
- Stairs will be concrete and maintain a minimum width of 8-ft, with 6-inch risers and 12-inch treads.
- Indigenous limestone blocks will be used for terraced seating areas
- Existing concrete structures (piers) have been incorporated into the design. These structures may be used by future riverfront projects.
- Specifics of the amenities (benches, picnic tables, trash/recycling receptacles) will be determined by client.
- Schematic design of Schultz park accommodates the inclusion of Sculptural artwork and/or public art exhibits

Gangway System

- A gangway system (potentially will include three 80-ft gangway sections at 11.25% slope at normal pool) will provide access to the Transient Dock.
- Gangway sections will fluctuate vertically with different water levels. A 5th wheel connection will exist at the head of each gangway. The lower end of each gangway will slide as the floating platforms rise and fall.
- The gangways will be approximately 9-ft wide, with an 8-ft interior clearance.
- Preliminary size estimates for the platforms are 30-ft wide by 50-ft long due to flotation requirements
- Each floating platform will be connected to four piles that will act as guides for the platforms. Preliminary pile size is 22-inches.
- The gangway will be designed to support golf carts in addition to pedestrians.
- Electric power and potable water will be run under the gangway and conduits and/or available attachment points will be provided to facilitate future sewer, gasoline and diesel pipes.
- During severe flood events, the gangway will float higher than the adjacent ground elevation

Floating Wave attenuator – Transient Dock

- 20-ft wide floating wave attenuator/transient dock with a chain and anchor system
- Anchors will be piles driven into the river bed
- A handrail will be provided along the center of the dock; and at the end the dock.

- Periodic gaps will be provided in the railing to allow golf cart maneuverability.
- Cleats will be provided every 30-ft on either side of the dock
- Up to 400-ft of this wave attenuator/floating transient boat dock is included in the initial phase.
- Power pedestals will be included every 60-ft along the marina side of the transient boat dock
- Freeboard will be determined based on the final numerical modeling and dock design (current estimate is 2-ft)

Flooding/Hydraulic Considerations

- The transient dock/wave attenuator, marina and gangway system will be designed to accommodate water fluctuations up to 341.8 ft (500-yr return flood event).
- The remaining park areas will submerge as water levels rise.
- This project will maintain a buffer of 300-ft from the sail line shown on USACE, Ohio River Navigation Chart 11 (which includes both Ohio and Tennessee Rivers).
- The land mass will act as the initial deflector for debris and provide an area of calmer water for the transient dock and marina basin
- Navigation Aids will be determined by the US Coast Guard

Lighting

- Pole-mounted pedestrian lights will be provided along the access road and around the Grand Lawn.
- Pathway lighting will be provided along the transient boat dock.
- Down-lighting mounted onto piles will provide light for gangways.
- Submersible inset lighting will be provided for stairways.
- Lighting is not proposed in other areas of the park.

Shore protection

- Bio-engineered slope stabilization alternatives will supplement more conventional application of stone revetment. Viable options need to account for flow velocities, extreme water level fluctuations and extended periods of inundation. Inherent risks are associated with 'green' approaches to slope stabilization. As design proceeds, JJR will provide the city with additional information.

Vegetation

- Plant material determinations will be based on zones of flood inundation and velocities. Survival of trees, shrubs and other woody species will improve when located at higher elevations. For lower elevations, some perennials, annuals and other herbaceous species are viable options.

Elevation

- Landmass protector will be designed for initial protection up to the 50-yr return interval (336.5 msl)
- The lowest elevation of the trail system is designed to ordinary high water (310.3 msl)
- Portions of Schultz Park will be underwater as the river level fluctuates.
- The "rock outcropping/stairs leading to water" are planned to be 'stepped revetment/seatwalls' rather than stairs. These are planned to have a rise of 18-inches and a run of 2-ft or greater. These will end above normal pool because algea is known to build up in areas that are constantly inundated.

Future items (to be included in future phases of project design/implementation):

- Marina, marina services building and extension of transient boat dock/wave attenuator
- Fuel system and fuel tanks; sanitary pumpout station
- Sculpture/public art

Hydraulic Impact Analysis (as provided by HCCL):

Flows and Water Levels

The hydraulic modeling predicts local flow velocites associated with flood conditions to be in the order of 3- to 6-ft/s in the area of the land mass and 1-ft/s in the marina basin area, while it is protected by the land mass.There is a considerable range of flood stage on the Ohio River, and it is necessary to consider the impacts of the proposed works on the local hydraulics, and the associated hydraulic stresses on the proposed works, under the full range of flood conditions. Typical key flood and low flow stage elevations and their descriptions are provided in the following Table.

Table - Key River Stages at Paducah (mean sea level and gauge based on NGVD 29)

Stage	Elevation (msl)	Comment
0	285.924	Gage Zero
13.08	299.0	Ordinary Low Water
16.08	302.0	Normal Pool
24.38	310.3	Ordinary High Water
44.58	330.5	10-year return interval
50.58	336.5	50-year return interval
52.88	338.8	100-year return interval
55.88	341.8	500-year return interval
60.94	346.86	Max. Historic Flood

Waves

Fetches range from 3 miles from the northwest, 5 miles from the southeast and 0.6 miles across river (to the northeast). Wind generated wave conditions were estimated based on USACE Coastal Engineering Manual methodologies. Wind conditions at Paducah were analyzed with respect to direction and magnitude. Vessel induced wave conditions are expected to be in the order of 2 ft +/-, and therefore extreme wind generated wave conditions are expected to govern. Barge traffic can generate a long period drawdown which is reported to be in the order of a foot vertically on the Ohio.

Maximum (100 year) wind generated wave heights in this area are estimated to be in the order of 2.5 ft (from NE) to 2.7 ft (from SW). Wave periods are estimated to be less than 3.5 s. Shoreline protection requirements under such conditions, and assuming a revetment slope of 3H : 1V could involve placement of 2 layers of rock protection with a W50 of approximately 175lb assuming a relatively widely graded revetment stone W15=70 lbs, W85=350 lbs. If a more uniform gradation is proposed for aesthetics, a W50 in the order of 300 lbs (gradation between 225 and 375 lbs) could be considered. This is expected to be adequate for the vessel generated waves and a relatively conservative estimate of the wind generated waves. These are initial recommendations; pending review of locally available material, the depth and gradations will be reviewed.

Debris

Debris should be assumed to move with the currents and may impact structures at the speed of the currents. Debris consideration should be based on local experience with regard to the size and weight of material that may be transported with the flow under certain stages.

Conclusion:

The following are the conclusions of the transient dock and Schultz Park schematic design process. The success of the project is dependent upon a mutual understanding of every component of the impending design and future implementation.

Cost:

The cost of the entire schematic design concept will exceed $13 million. The first phase of implementation (existing engineering agreement) will include: design engineering and one set of bidding documents for the gangway, earth fill, transient boat dock, pathways, lighting, potable water supply, roadway improvements, shore protection and landscaping as shown on the consensus schematic design.

Phase 1 includes the construction of the gangway system, a portion of the transient boat dock and the land mass fill. The extent of transient boat dock construction will depend on the price for the fill material and the type of shore protection required based on gradation of the ultimate fill material. As additional funding becomes available, the land side amenities, roadway and parking at Schultz Park could be completed. Future phases could include extension of the transient boat dock, creation of portions of the marina, utility/fuel services, marina services building, and/or public art enhancements.

The funds available for this project are in flux. At this time, approximately $4.5 million are available to be used for the Ohio River Boat Launch and Transient Boat Dock project. The funding remaining after the implementation of the Ohio River Boat Launch will be available for use on this project. Additional applications for Federal Funding have been and will continue to be requested. Allowing for a phased approach to implementation of the Transient Boat Dock and Schultz Park will facilitate construction within various budgets while enabling catalytic projects to begin.

Elevation and Water Level:

The transient boat dock will be operational from water elevation 299 up to the point that the upper most gangway system begins to float (approximately 326). The entire gangway and transient dock will continue floating up to the water elevation of the 500-year recurrence interval flood of elevation 341.8, repairs may be necessary to the structures in extreme flood events.

Because of the constant fluctuation of the river, portions of the Schultz Park improvements, including pathways and staircases will be under water. This will inherently include risks such as portions of staircases being submerged, pathways being submerged and the gangway floating above the adjacent sidewalk elevation.

Maintenance:

The gangway and dock system will need to be evaluated annually. Shore protection systems need to be evaluated after large storms and flood events.

Bow thrusters and prop wash could severely impact the fill slopes

Establishment of plant materials will be a critical issue and dependent on the weather and water elevations during establishment. Annual planting beds will be available along the central stair case. The annual planting beds will need to be maintained by the City, or their assignee.

Maintenance dredging will be required in the Marina development and potentially in other areas over time.

The land mass will act as the initial deflector for transient boat dock and marina against flood debris. After flood events,

Conclusion:

debris removal from the land mass and park may be necessary. The transient boat dock and marina will be most vulnerable to debris impacts when the water level rises above the land mass.

When the water surface exceeds the height of the land mass, the piles supporting the gangway as well as the gangway itself and all elements with stature (trees, light poles, etc.) will encounter the largest impact from debris and act as deflectors for the remaining elements. In higher flood events, damage may occur to the gangway, piles and/or transient boat dock and marina.

Graphics: The final consensus plan illustrative is included in the attached appendices, along with supplemental CAD documentation. Character sketches were also added to provide a visual perspectives of the plan. Additionally, a 3-Dimensional computer model was provided for enhanced visualization of the proposed design.

Additional information:

Schultz Park will be inaccessible during construction. Barges may be used to place material and drive piles within the river. A staging area outside the existing Schultz Park may be necessary.

Velocities in the transient boat dock and marina area will be reduced to around 1-ft per second from the land mass. Wave heights in the marina basin will be reduced by the land mass and concrete floating wave attenuator. During normal events, the design condition is to maintain less than a 1-ft wave in the marina basin.

ADA Accessibility will be provided to the various elevations of Schultz Park by a pathway system with a maximum continuous grade of 5%, allowing occasional ramps up to 8.33%. The gangway system's accessibility is based on a series of 80-ft gangways, which follows the Access Board's accessible boating recommendations.

Railing will only be included along the center of the transient boat dock. Gaps will be provided in the railing to allow pedestrians and golf carts to turn around.

Amenities lighting will be provided in Schultz Park and along the gangway and transient dock system. Under consideration are pedestrian scale lighting along Water Street and the riverside edge of the Grand Lawn; gangway lighting provided by canopy lights in the gangway platform structures; staircase lighting provided by submersible lights embedded in the cheek walls of the staircases and pedestrian accent lighting along the center of the transient dock.

Client Authorization:

City of Paducah Representative:

By:_____

Title_____

Printed Signature:_____

Date:_____

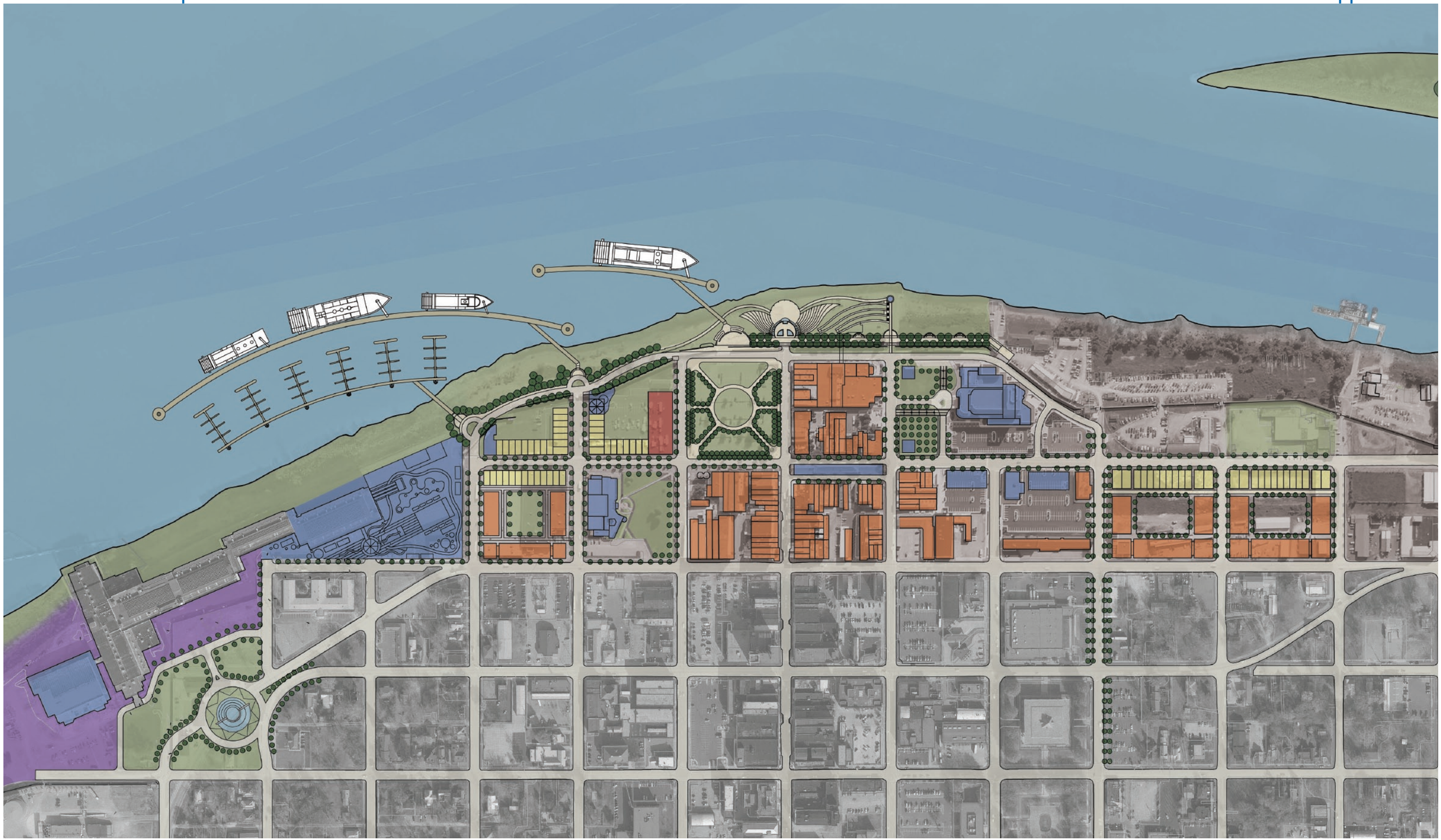
JJR Representative:

By:_____

Title_____

Printed Signature:_____

Date:_____



Transient Dock/Schultz Park Context Diagram

The Transient Dock/Schultz Park Context Diagram was used to facilitate discussion during the September 7, 2007 meeting in an effort to provide clear direction for JJR to proceed with design development of the Transient Dock and Schultz Park, which were identified as the catalytic project for Paducah's Riverfront Redevelopment Plan.

The design addresses elements originally proposed in the approved master plan including the marina and transient boat dock, and the redevelopment zone bounded by Broadway, 3rd and Madison Streets.

The Marina is strategically placed in a location that reduces impact from the imposing Ohio River in conjunction with the Tennessee's influence over the direction of flow at their confluence. The transient boat dock parallels the rivers direction of flow to limit current forces and serves as a wave attenuator for the marina. The land mass is intended to protect the transient dock, marina and related facilities from current impacts and debris during periodic flooding. The land mass also provides a unique opportunity for additional park space along the riverfront, which is addressed in the schematic development of Schultz Park.

The transient dock and marina would be a floating system which would be held in place by a chain and anchor system. Access between it and the adjacent landmass would be by a pile-supported gangway with a series of 80-ft sections. Some dredging of the river basin may be necessary within the proposed marina location to accommodate boat drafts. Rip-rap along the river's edge adjacent to the marina would minimize erosion and maintenance requirements.

On the land side of the flood wall, the diagram proposes the potential of closing of vehicular access to 2nd Street between Monroe and Broadway. This corridor could become an artisans/pedestrian mall with shops and restaurants anchored by a new hotel, conference center and the Quilt Museum. The pedestrian mall would then turn on Monroe Street and connect with Schultz Park through the existing opening in the floodwall. The hotel and parking garage would flank the mall and extend commercial opportunities. The concept diagram also proposes integrating the existing remnant support structures located on the river side of the floodwall as supports for a hotel restaurant deck system. The restaurant could be located on the second floor with commanding views of the Ohio River.

The formation of a design program was a product of the September '07 meeting with Paducah representatives. This program was an essential tool used throughout schematic development of the project, providing a clearly defined approach to the inclusion of desired attributes. Program elements were separated into three categories, including Schultz Park, the transient boat dock and the marina.

Schultz Park:

- Facilitate the creation of and adherence to a 'Vision' for the waterfront
- Emphasize the Paducah waterfront as an inherently public asset to be shared by everyone
- Establish Schultz Park as 'Gateway' to the Paducah riverfront and catalyst for future development
  - Use Monroe Street as a pedestrian link between town and waterfront
- Celebrate the confluence between the Tennessee and Ohio rivers with an interpretive waterfront experience
  - The Levee Trail
  - Open space/park/greenway
  - Gardens
- Seamlessly integrate Schultz Park into proposed redevelopment upstream
- Preserve and enhance existing viewsheds
- Reconfigure roadway alignment to provide landscape buffer along floodwall without encroaching upon pedestrian use of waterfront
- No substantive improvement to the floodwall
- No trees or deep foundations within the floodwall right-of-way
- Provide limited 'day-use' parking
- Allow 24-hour driving access
- Create a pedestrian promenade that serves as the unifying theme and connective tissue of the Paducah riverfront experience.
  - Create public focal points and gathering areas that facilitate a multitude of uses and users
  - Clearly delineate all paths and trails with appropriate signage/markers
  - Establish spatial and visual separation amongst automobile, pedestrian and bicyclist to avoid potential circulation conflicts
  - Maximize public accessibility at different elevations along waterfront to accommodate normal water fluctuations
  - Provide multiple destinations along paths and trails to create a dynamic riverfront experience and continuity throughout the site
  - Provide ADA accessibility as required, including applicable exceptions
- Limit proposed improvements to the area that is not currently leased to the Executive Inn.
- Establish a hierarchy of plant material to reflect anticipated water fluctuations
- Allow area for placement of fuel storage tanks
- Include park amenities such as benches, trash/recycling receptacles and bike racks
- Provide pedestrian lighting where applicable
- Incorporate the reuse of existing concrete structures
- Incorporate the reuse of historic cobbles
- Provide opportunities for public art and sculptural enhancements
- Develop a riparian buffer with clearly defined zones of impact
- Design shore protection to accommodate river flow velocity, wave/wake conditions and water level fluctuation
  - Explore bioengineered alternatives to supplement more conventional slope stabilization applications

Transient Boat Dock:

- Design for expansion and phased installation
- Create a floating system which is accessible for water elevations between 299 mean sea level (msl) and 322 msl
- Design as a wave attenuator
- No dockage for excursion vessels
- Dockage for transient vessels on both sides of the dock
- One gangway system (potentially will include three 80-ft gangway sections at 11.25% slope, or two gangway sections at 14% maximum slope or longer gangway sections.)
- Walking path and public access along gangway and dock
- Golf cart access and maneuverability on floating dock
- Provide fishing opportunities but no fish cleaning amenities
- Include fixed ladders
- Include potable water and electrical pedestals
- Include lighting, handrail, benches along center of dock

Marina:

- The financial analysis included in the master plan shows revenue projections for 200 slips and recommends phasing installation of the marina to test the market. A portion of the slips will be reserved for transient boaters.
- A fuel dock with gasoline and diesel fuel located along the dock
- Two above ground fuel storage tanks and enclosure located at the foot of floodwall.
- Marina Administration building with, showers and store.
- Marina/dock utilities: fuel, potable water, electric, sanitary pumpout
- Marina will share a gangway entrance with the transient boat dock but will have a secure entrance.

Schultz Park Concept Alternatives

Schultz Park -Concept 1

Plan

Schultz Park -Concept 2

Plan

Schultz Park - Concept 3

Plan

Appendix D

Schultz Park - Concept 1

Opinion of Probable Construction Costs

Landform and Shore Protection	$2,170,000
Roads and Path	$450,000
Overlook Structure	$440,000
Miscellaneous*	$710,000
Gangway/Ramp System	$930,000
Transient Dock	$2,440,000
Marina and Marina Building	$5,600,000
Total	**$12,740,000**

*Includes $250,000 Public Art Allowance

Schultz Park - Concept 2

Opinion of Probable Construction Costs

Landform and Shore Protection	$2,900,000
Roads and Path	$600,000
Overlook Structure	$440,000
Miscellaneous*	$850,000
Gangway/Ramp System	$930,000
Transient Dock	$2,440,000
Marina and Marina Building	$5,600,000
Total	**$13,760,000**

*Includes $250,000 Public Art Allowance

Schultz Park - Concept 3

Opinion of Probable Construction Costs

Landform and Shore Protection	$2,710,000
Roads and Paths	$970,000
Overlook	$130,000
Miscellaneous*	$840,000
Gangway/Ramp System	$930,000
Transient Dock	$2,440,000
Marina and Marina Building	$5,600,000
Total	**$13,620,000**

*Includes $250,000 Public Art Allowance

Opinion of Probable Construction Costs

Landform and Shore Protection	$2,580,000
Roads and Paths	$830,000
Miscellaneous*	$740,000
Gangway/Ramp System	$930,000
Transient Dock	$2,440,000
Marina/Utilities/Fuel	$5,600,000
Total	$13,120,000

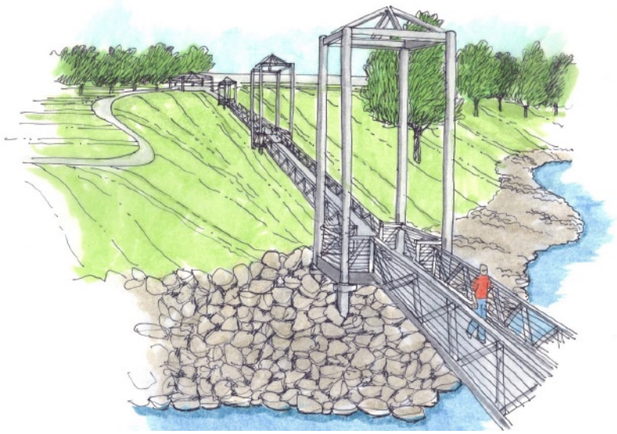
*Includes $250,000 Public Art Allowance

ROAD AND PATH THROUGH INTERPRETIVE LANDMARKS

TERRACED GARDEN & OVERLOOK

TERRACED LAWN & INFORMAL SEATING

ROCK OUTCROPPING LEADING TO WATER



GANGWAY LEADING TO TRANSIENT BOAT DOCK

TRANSIENT BOAT DOCK

Schultz Park Schematic overlaid with approved Master Plan

Aerial Photograph of the Paducah Waterfront

Aerial Photograph of the Paducah Waterfront overlaid with Master Plan

Details from Meeting Discussions: Appendix H

The following text summarizes critical meetings during the schematic design process:

Transient Boat Dock Meeting
Friday, September 7, 2007
JJR No. 24757.200

The following are items discussed and decisions reached during this meeting and/or in subsequent emails.

- The transient boat dock shall allow for seasonal day use for boats of a variety of sizes (johnboat to 90') Commercial Craft are not compatible (even if compliance with size) with the Transient Boat Dock Facility.
- Fishing from the dock is desired, but is not specific to dock design.
- The marina mix will be determined by the market. The Market Analysis completed by Bob Lewis of Development Strategies states that a maximum of 25 transient slips be provided.
- City is investigating private partner for the marina. The investigation process has begun, but there are no qualified applicants at this time.
- We will not incorporate the excursion vessels into this project, but excursion vessels should be taken in to consideration the "foot print/place holders" associated with the Excursion Dock Facilities so they blend seamlessly together.
- The floating docks will likely be on a chain and anchor system with gangways and floating platforms.
- The Schultz Park, transient dock project will set the stage for the rest of the riverfront (Broadway area.)
- The additional Federal money is in the pipeline, but availability for this project may be doubtful.
- Although materials will be determined in the future, the bulkhead floating docks will (likely) have a concrete surface.
- Golf cart access and maneuverability are desired. The City desires a transient dock width of 18' to 20' (minimum).
- The floodwall should not be aesthetically improved in a way that reduces the likelihood of future changes but the wall should be aesthetically pleasing.
- For design and permitting, this project includes only the transient dock and Schultz park area. Actual implementation portions will be based on available funding.
- For programming, we will look at a floating building for the head dock. This building should include a minimum of bathrooms, showers, food and beverage and area where sales of "souvenirs routine boating items" can occur.
- Parking shall face the river. Specifically, the sequence of features from river to floodwall; 10' Greenway Trail, parking facing the river, though traffic isle and floodwall.

- A fuel dock should be sited/included. The City's preference would be above ground storage tanks (AST). The City would like JJR to evaluate options.
- The levee bike path will continue through this project corridor and should be accounted for in the design.
- Bike racks, garbage and recycling facilities should be available. The size and location of the refuse containers are to be carefully considered with respect to their aesthetics, convenience, and serviceability.
- Lighting is important and because the actual lighting requirements are not specified, an illumination array will need to be completed as part of this project.
- The land mass will be designed at an elevation of 335 (this was modified multiple times during conceptual design)
- The requirement of a minimum of 300-ft from sail line is maintained. The master plan includes 250-ft of setback.
- Enhancements/improvements to the river bank near the Executive Inn will not be included, but consideration will be given to blending these in the future.
- The transient dock will be parallel to the sail line to allow easy extension.

Additional Comments provided by the City after the original meeting:

It has been determined that every effort should be given to maintain, enhance, and to be objectively creative with the large abandoned square concrete silos previously discussed. They offer more valuable returns in the event they are/ can be converted into foundation supports for overlooks and/or other creative uses. Their potential can be appreciated by other quality of life design elements integrated into this project.

The Ohio River Gage needs to be carefully considered regarding its integration into the project.

The existing "Gangway Buttresses" are to be incorporated into the Excursion Landing Phase associated with "Ultimate" Riverfront Development Plan.

A number of storm sewer structures previously constructed on the river side of the floodwall. The City desires surface flow of storm drainage to the river without the need for storm sewer.

Details from Meeting Discussions: Appendix H

Meeting Subject: Paducah Transient Boat Dock and Schultz Park Schematic Design

Location: Teleconference

Meeting Date: October 10, 2007

Issue Date: October 25, 2007

Participants: Rick Murphy, Tom Barnett, Steve Ervin, Ben Peterson, Kathy Lake, Bob Jones, Bill Brose, Joe Porter, Brett Oftedahl

Prepared By: Kathy Lake

DISCUSSION:

The purpose of this teleconference was to discuss the potential schematic design options. The following items are noted from the discussions:

1. Broadway and Kentucky Avenue should be shown on JJR's drawings/mapping. This will enable the public to see how the project fits into the community.
2. Concept 1 shows the least cost/least amenities.
3. The current analysis/flow analysis indicates how the landmass will affect flow. It shows that there are lower velocities behind the land mass. The hydraulic modeling is still in progress and will take all water levels into account.
4. There is a potential impact to the type of the docking that the excursion vessels could enjoy based on the development of Schultz Park. JJR will keep the various excursion vessels in mind to allow the City future flexibility.
5. The City would like to see the cost differential between Concepts 1 and 3. Bill stated that without pile supported structure, there would likely be savings on Concept 3 even though their will be more fill for option three.
6. Largest cost for the project will be the cost of fill. Rick noted that he has information about a project upstream of Paducah that will have a large quantity of fill that will need to be wasted in the 18- to 24-month time period. The material is overburden that would be moved out and may be able to be used for our project. He will continue following this lead and pass along any pertinent information to JJR. Ultimately, JJR will need to know the makeup of the material. Bill noted that leads like this can make projects happen and asked that the City keep their ears open for opportunities.
7. Tom asked what the gangway and overlook structure could look like. JJR has been evaluating options. In general, it could look like the previously submitted cross-section of gangway and overlook, but without the large bollard and overlook. In addition, JJR is investigating architectural elements for the piles.
8. We discussed the operation of the gangway. It will be a floating system such that each platform will float as the water rises to its level and at high water all gangway sections would be horizontal above the water. There is a 5th wheel connection at the head of the gangway and the lower end of the each gangway slides as the platforms rise and fall.
9. In general, if it doesn't inhibit the queens and river barge and the budget can handle the cost, everyone on the call likes Concept 3 and the concept drawings.
10. JJR plans to provide the City a SketchUp model of the agreed upon schematic design that the City can use with their existing downtown model.

11. The City would like to put up a big weather-proofed sign near the project site and at the mall that shows graphics that will help the public to see what is being considered.
12. JJR is working on the costs. Rick will provide a budget number for fill material. Based on our current quantity takeoffs, there are 190,000cy for Concept 1, and 225,000 cy for Concept 3.
13. During the City's on-site meeting, they used a tape measure to determine that 18 to 20-ft feels more comfortable with the golf cart access and turn around requirements.
14. Bill Brose stated that approximately $70/sf for the wave attenuators. This attenuator will be required for the entire length of the transient dock. A curtain on one side would cause design/operation problems.
15. Safety, railing issues, ladders were discussed. Bill noted that this is always an issue: risk, legal issues, one side/both sides/middle, life rings, ladders, services. Bill also noted that a railing is not required and that from the other side, there have been cases where rubrails have been placed and people have sued due to pinched fingers, legs, arms as well as the fact that some people tie off to railings. Tom noted that the current is also an issue at this location. Rick noted difficulty boarding the transient boats when a railing is in place. The City will review with their legal experts.
16. We discussed various options for railings; including a system that included a design for a railing that may or may not be placed. One complicating factor is that these docks are made from post-tensioned concrete. Another item that was discussed was whether a rail could be placed down the center.
17. Other safety items discussed included signage, call box, life rings, and ladders. Also, we discussed curbs, but it was noted that a curb could cause a tripping hazard.
18. Rick noted that the City wants an adequate number of power pedestals on the dock.
19. The City noted that the only people that will have a golf-cart would be the red coats and harbor master.
20. After some calculations, it was determined that there is an approximately 10% increase to expand from an 18- vs. 20-ft transient boat dock, JJR will check on any cost economies for size increase. The width of the wave attenuator is being considered in the hydraulic modeling. The modeling may recommend a specific width.
21. The building shown is 40x60 feet. Steve notes that his research shows that restrooms, showers, laundry are absolutely necessary. There was discussion regarding a rough basic space needs and floor plan. The summary was that once you get into the design of the marina, there will be time to get into size of the building, etc. This is a place holder for an item that is not in this implementation phase, when it comes time to design the marina, we can change the shape/size, and programming can be worked out in the future.
22. Parking: skew it so the one-way access will be maintained and mistakes will not be encouraged. Directional parking, you can only come in one way and angled parking, to force exit in the same direction as entrance.
23. Parking access to gangway was discussed. The summary was to look at the area that states, "floodwall" on the drawing and add some parking up along the floodwall, slight angled parking facing river and floodwall and pull in by floodwall is drop off for marina.
24. The arrow noting the position of fuel tank projected into the marina is the end of Executive Inn leased property. The roadway layout needs to be modified to exit before this and landscaping needs to end at this line. There will be a trail at some point, but it doesn't need to show up now. Rick will draw lines that show, 'design from here back' and 'from here ahead' and send them to JJR.
25. The master plan shows 250-ft setback from the sail line, we have been using 300-ft during this design.
26. Are there specific elements that area liked/disliked? The only red flags from Concept 3 are cost and landbased Queen landing. The City wants the Queen landings seamlessly integrated.
27. Erosion prevention systems: there are good looking vs. bad looking systems. JJR noted that we have been approaching this from both the standpoint of vegetation that can survive inundations as well as protection from currents.
28. The discussion determined that the paths will not be along equal contours because they are providing ADA accessible to various levels and therefore most of the paths are on a grade.
29. Landings ADA accessibility. Lower walkway is at river's edge so could that walk be under water

30. The City currently block off their entrances and close riverfront at 36-ft (+286 = 322 feet).
31. At the location of the oversized asterisks, the City would like character sketches at these locations from various directions (gangway, switchback, overlook, etc.) that show other opportunities that are available (public art included, seating, lighting).
32. Tom noted that at some point, he would like to include kids (could a tot-lot, climbing structure, sand lot, be included on this side or floodwall side?)
33. We discussed barricades and attractive gate like elements (toll booth analogy, fixed post with gate.) JJR and the City will investigate possibilities.
34. JJR was asked to keep the sizes of the Excursion Vessels: 55-ft by 777-ft Riverbarge Explorer (midship service area) and 70-ft by 425-ft American Queen (back end service) footprint in mind during the design process. Also, soot could be an issue from the stacks. Paducah will discuss this with the excursion vessels (ie: stacks blown in the middle of river).
35. Rick continues to be the main point contact. The City will hold more regular meetings will occur within the City to aide keeping this project rolling smoothly.
36. Reuse of disturbed historic cobbles as interpretive, historical elements, is imperative.
37. We discussed potential uses for the concrete pillars (observation deck, painted, lit - historic photos may help). Paducah will try to locate some. These pillars were formerly owned by Federal Materials Concrete Yard and the pillars supported a rail line. They moved in the late 1970's. Rick noted that these pillars have 8-inch concrete walls and are 12-ft square filled with DGA and that these were constructed much like river pylons for barge traffic.

Permitting Meetings (October 30, 2007 and August 30, 2007)

On October 30, 2007, Kathy Lake met with both the floodplain and water quality permitting groups from the Kentucky Department of Environmental Protection, Division of Water. The following are the information gathered regarding permitting for this project:

Floodplain:

Meeting with Art Clay, Branch Manager and Ron (Ramendra) Dutta, Supervisor. Ron will be the primary reviewer, Art is his boss. They are both located at the same office and telephone number:

Kentucky Department for Environmental Protection
Water Resources Branch
14 Reilly Road
Frankfort KY 40601-1189
502-564-3410
Art.clay@ky.gov
Ron.Dutta@ky.gov

They are solely concerned only about 'no net rise' certification. They opened up Panel #3, 2101520003, 1982, which covers Paducah, Kentucky and noted the project is in the floodplain and floodway. They stated that it would be best to complete the permitting before the FEMA maps are revised (predicted in 2-years) in case the floodwall is not certified. If there are no upstream impacted properties that are not owned by the City, they stated that we should investigate having the area removed from the floodplain (floodway) by a map revision request. This would allow easier permitting for future portions of the project. The permit application is joint with the water quality branch, called "stream construction permit" and located at: http://www.water.ky.gov/NR/rdonlyres/431DB9FD-7662-47EC-A575-A73D91E3822A/0/Stream_Construction_Application_2_28_07.pdf Along with the standard application, they want a CD with the HEC RAS that shows no net rise; good location and site maps and the City Floodplain Coordinator will need to sign the application. As long as there is no net rise, they do not foresee any problems getting this project permitted. If we construct any building for human occupancy, the first floor will need to be above the flood elevation.

Water Quality Certification Staff:

Kentucky Department for Environmental Protection
Water Resources Branch
14 Reilly Road
Frankfort KY 40601-1189

Joyce Fry, Project Manager
Frankfort Office
502-564-3410, ext. 452

Barbara Scott, Project Manager
Frankfort Office
502-564-3410, ext. 485

Alan Grant, (boss of Barbara and Joyce)
Frankfort Office
502-564-3410, ext. 565

Joyce will be our assigned reviewer, but she was out of town during the meeting. Barbara and Al attended the meeting. Barbara stated that if any threatened or endangered species are encountered, it could hurt the project. Otherwise, they are mainly concerned that the material we put in the river will not adversely affect the water quality.

Their concerns:

1. Fill Material: they want to know what it will be and that there will be no leachable contaminants.
2. They want to know if there are mussel populations that will be disturbed by the fill. Unless a study has been completed in the area, this will likely be required. The entire footprint of the fill will need to be reviewed. The window to complete this is almost past therefore, if necessary, this work will likely need to be completed in the spring.
3. If there are any current or future dredge materials, they would like to have the existing sediments analyzed. They noted that it may be good to sample at this time to allow the City to predict future expenses due to disposal. Our permit would not cover dredging at this time. Before dredging, a full metals scan and suite of materials scan would need to be completed. If the sediments are contaminated, they will need to be disposed of on upland location.

As far as timing goes, Barbara noted that when we have enough information to go out for the USACE public notice, we should submit their permit application. Review will take a while. They are unable to give us any review windows. There is one joint application for both Division of Water permits (see above). The Water Quality Staff would also like a copy of the USACE permit application submitted with their application. Most of the information that USACE and Water Quality need are the same. We should submit separately to USACE. Barbara noted that the USACE is looking for disposal areas for their dredge materials and we should contact them regarding material for this project. Her contact is Kent Browning (Huntington) and her example project was Big Sandy Park.

USACE

In addition to yesterday's meetings, Kathy Lake had telephone and email conversations with Michael Ricketts, 812-853-1472, michael.s.ricketts@usace.army.mil, on August 30, 2007. He will be the USACE reviewer for the Paducah Transient Boat Dock Project. Mr. Ricketts' main concern on this project (and he states 'our biggest hurdle') is navigation. He said that most of the public comments will likely come from the navigation interests and most of those from the barge companies (Crounse, Ronnie James – James Marine and Ingram Barge.) He said that USACE sees their role as that of judge and arbitrator. They receive comments and then based on those comments, decide whether to issue a permit.