



**US Army Corps  
of Engineers**

## **Peer Review Plan**

**Metropolitan Louisville, Mill Creek, KY  
Flood Risk Management Project  
Interim Feasibility Study**

**May 2009**

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## Peer Review Plan Metropolitan Louisville / Mill Creek, KY Flood Risk Management Project Interim Feasibility Study

### Introduction

The Mill Creek basin lies entirely in Jefferson County, Kentucky, and has a drainage area of approximately 34 square-miles at its juncture with the Ohio River. Less than 10% of this drainage area lies within the boundaries of the former City of Louisville corporate limits, but the entire area lies within the limits of the new Metro Louisville corporate boundaries. The study area lies in the southwest portion of Jefferson County, Kentucky, and is protected from flooding from the Ohio River by the Southwest Jefferson County Flood Protection system (primarily consisting of a long levee along the Ohio River). This system was completed in the 1980's. However, this existing Ohio River flood levee system does not protect the Mill Creek basin from interior flooding (due to local storms which exceed flow capacities of the above-listed stream reaches). Sometime prior to 1950, the natural 34 square mile basin was effectively cut nearly in half with the construction (by local government agencies) of the Mill Creek Cut-off. The Mill Creek Cut-off provides a shortcut channel for drainage from the upper portions of Mill Creek to flow directly into the Ohio River, thereby reducing water flows in the "lower" Mill Creek (i.e., the Mill Creek generally south of Lower Hunters Trace).

The Sponsor, the Louisville and Jefferson County Metropolitan Sewer District, has indicated a preference for concentrating at this time only in the "upper" Mill Creek – now a complete hydrologic basin in itself, with a drainage area of approximately 19 square miles. The previous 905b Analysis focused only on this area. The upper Mill Creek flows towards the west from its origin (in the Hazelwood Ave. area of Louisville) until it intersects the Ohio River at about Ohio River Mile 616.5. (via the Mill Creek Cut-off). The upper Mill Creek basin (watershed) includes several sub-reaches and major tributaries, including:

- Mill Creek Cutoff
- Big Run Diversion
- Cane Run Ditch
- Boxwood Ditch
- East Branch Boxwood Ditch
- Lynnview Ditch
- Heatherfield Ditch
- City Park Ditch
- Big Run Creek

All of these tributary areas will be considered in the feasibility study.

Authority for the Mill Creek, Kentucky, Interim Feasibility Study is contained in a resolution adopted on 5 May 1987 by the Committee on Environment and Public Works of the United States Senate. This resolution reads as follows:

***“RESOLVED BY THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors, created under Section 3 of the Rivers and Harbors Act, approved June 12, 1902, be, and is hereby requested to review the report of the Chief of Engineers of the comprehensive flood control plan for the Ohio and lower Mississippi Rivers, published as Flood Control Committee Document Numbered 1, 75th Congress, and other pertinent reports, with a view to determining the advisability of providing***

*additional improvements for flood control and allied purposes in the Metropolitan region of Louisville, Kentucky, with particular reference to existing and potential flooding problems in the Pond Creek, Mill Creek, Beargrass Creek, and Floyds Fork drainage basins.”*

The above authority provides the Corps broad authority to review water resources issues throughout the metropolitan Louisville area. As a result of this authority, the Corps has received various Congressional appropriations and begun (and/or already completed) work on several individual interim Feasibility studies, including:

- Pond Creek Interim Feasibility Study, completed in May 1996;
- Beargrass Creek Interim Feasibility Study, completed in 1997.
- Southwest Louisville Flood Damage Reduction Feasibility Study (focusing on drainage issues within the former City of Louisville city-limits, including the Churchill Downs area), still underway; and
- The Mill Creek Feasibility Study (this effort).

The Metropolitan Sewer District (MSD) stated in a letter, dated 11 September 1997, that they were interested in cost sharing a feasibility study of the Mill Creek basin with the U.S. Army Corps of Engineers. The signatures by MSD and Corps’ executives of the Feasibility Cost Sharing Agreement (FCSA) on August 2, 2005 initiated this most-recent feasibility study. This feasibility study will culminate in an interim report (focusing on the Mill Creek basin only) under the broad authority of the Metropolitan Region of Louisville study.

The review plan (RP) presented below is a collaborative product of the project delivery team (PDT) and the USACE Flood Damage Reduction Planning Center of Expertise (FRMPCX). The FRMPCX shall manage the PRP, which for this study includes only an Agency Technical Review (ATR) and not an Independent External Peer Review (IEPR).

## **Decision Document Review**

In compliance with the Information Quality Act (Public Law 106-554, section 515), as well as the Office of Management and Budget’s Peer Review Bulletin, Engineering Circular 1105-2-410 establishes procedures for the independent review of U.S. Army Corps of Engineers Decision Documents. This supplements the review process described in EC 1105-2-408 of May 2005, and incorporates provisions of the Water Resources Development Act of 2007 for strengthened peer review. The independent review process is designed to ensure the quality and reliability of USACE products by providing independent assessment and review of the economic, engineering, environmental and other models, assumptions and methodology used.

The review process is to be customized to the needs of individual studies and efforts, and encompasses three levels of review, District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR). All decision documents are required to undergo both DQC and ATR, and those for which there are significant public safety concerns, a high level of complexity, novel or precedent setting-approaches, controversy, significant interagency interest, is expected to have significant social, economic or environmental effects on the nation, or a total cost in excess of \$45 million, will additionally be required to undergo an IEPR.

District Quality Control is a review of the science and engineering work to be performed in the home district by personnel not involved in the study. District Quality Control is the effort to meet prescriptions of the Quality Control Plan (QCP) as defined in the Project Management Plan (PMP). The Quality Control Plan for the Mill Creek, Kentucky Interim Feasibility Study can be found in section 7 of the PMP.

Agency Technical Review (formerly Independent Technical Review) is an in-depth review performed within USACE by staff from outside of the home district. ATR is performed by senior personnel; Regional Technical Specialists (RTS) or other subject matter experts in their respective fields who will analyze corresponding aspects of the study or effort. To ensure independence, the ATR lead must come from outside of the MSC.

Independent External Peer Review is the most independent level of review, performed outside of USACE by Outside Eligible Organizations (OSE) that have no interest in federal water resource projects and have experience in establishing and administering IEPR panels. IEPR guarantees the highest level of independence and the greatest insurance of accuracy and credibility.

## **The Review Plan**

This review plan will describe the anticipated review process and levels of review for the Mill Creek, Kentucky Interim Feasibility Study. This Review Plan is a standalone document to accompany the Project Management Plan. The DQC will be managed from within the district in accordance with the PMP. The ATR team members, identified by the PCX, will come from outside the home district and the ATR team lead will be selected from outside the MSC. At this time no IEPR is required. The following paragraphs correspond to paragraphs 4a through 4k in Appendix B of the Engineering Circular on the review of decision documents (EC 1105-2-410), which describe the content of Review Plans.

### **A. Description**

The decision document shall be the *Metropolitan Louisville / Mill Creek, Kentucky Interim Feasibility Study Report*. This report shall present measures to reduce flood damages in the Mill Creek, Kentucky, basin. To learn specifics of the plan, inquiries may be made to the following team members and designated points of contact from the responsible District and PCX:

The project manager for the feasibility study is:

Project Mgr., Mill Creek, Louisville Interim Study  
ATTN: CELRL-PM-PF  
P.O. Box 59  
Louisville, KY 40201-0059  
**Fax:** (502) 315-6864

The Agency Technical Review Leader is:

ATR Leader., Mill Creek, Louisville Interim Study  
ATTN: CESPD-PDS-P  
San Francisco, CA 94103-1398  
**Fax:** (502) 315-6864

The peer review manager is:

Peer Review Mgr., Mill Creek, Louisville Interim Study  
ATTN: CELRL-PM-P  
P.O. Box 59  
Louisville, KY 40201-0059  
**Fax:** (502) 315-6864

**B. Proposed Level of Review**

The Mill Creek, Kentucky, Interim Feasibility Study shall identify needs and opportunities (particularly regarding flood risks) within the study area. It is not likely to create new influential scientific information or be a highly scientific assessment. The models, methodology and approach of the study do not deviate from the standards of Flood Risk Management studies and the study itself presents no extraordinary challenges. An Environmental Assessment (EA), as well as (if applicable) a Finding of No Significant Impact (FONSI) is to be included in the Draft Feasibility Report. The Feasibility Study is unlikely to possess significant interagency interest, and does not involve any significant threats to human life or safety assurance issues. At this time it is also not anticipated that any request for project authorization from Congress would involve a project of a complex, controversial, or excessively costly nature. It is not expected now that implementation costs will exceed the \$45 million cutoff for IEPR requirement. If in the future it would appear this report will identify costly, complex or controversial structural measures for implementation, the need for an IEPR will be reconsidered. For this reason, the interim reevaluation report shall be subjected to only an Agency Technical Review (ATR), and not an IEPR. LRD has concurred with this approach, as of September 2008.

**C. Sequence of Review**

The Product Delivery Team (PDT) is listed in **Exhibit A**. During the development of the Mill Creek, Kentucky Interim Feasibility Study report, the study team shall have an initial meeting with other Federal agencies, state agencies and interested stakeholders. Coordination will continue with MSD, the U.S. Fish and Wildlife Service, Kentucky agencies, and other interested parties throughout the course of the study process. The Feasibility Scoping Meeting (FSM), Alternative Formulation Briefing (AFB), Draft Report and Final Report products will be reviewed by the ATR team. The expected review dates are shown below in the study schedule:

**Basic Study Schedule (Major Milestones as of September 2008)**

<b>Activity Name#</b>	<b>Description</b>	<b>Scheduled Date</b>
PA01	Feasibility Kick-Off Meeting	Oct 2005
JA1\$R	ATR FSM package	Dec 2008
JA1M	Complete Stage 1 Initial Screening & Formulation Scoping Meeting	Jan 2009
JA2m	Complete Stage 2 Optimization	May 2009
KA3d	ATR AFB package	Jan 2010
KA3M	Alternative Formulation Briefing (AFB)	Feb 2010
KA3s	DRAFT Report ATR + Revision	Apr 2010
KA3t	Mail Draft Interim Report	Apr 2010
KA3y	Final Public Workshop	May 2010
KA4\$R	ATR Final Report	Jun 2010
M04j	Complete Washington-Level Review	Aug 2010
LC4\$Kp	Mail Final Interim Report	Sep 2010
LA4M	Division Commander's Notice of Report Completion	Sep 2010

These dates assume continuous and optimal Federal and Sponsor funding for the study.

## **D. Public Involvement**

Throughout the course of the study, two general public meetings/workshops will be held as well as approximately six meetings with local officials/agencies, environmental interests, and other interested agencies. Public notices will also be prepared responding to inquiries from the general public.

## **E. Public Comments**

During the public review period of the draft Mill Creek, Kentucky, Interim Feasibility Study report, comments will be provided to the ATR team as available. Public comments received throughout the course of the study will be provided to ATR reviewers, in complete or summary form, before the initiation of each scheduled ATR.

## **F.-G. Review Team**

The ATR team will be comprised of eleven technical experts. Those selected to date are listed in Exhibit B. The ATR team will be comprised of individuals with experience in hydraulics and hydrology modeling, real estate, economics, engineering, NEPA/ecosystem restoration and an ATR Team leader with flood damage reduction plan formulation expertise. Cost estimates, contingencies and construction schedules will be reviewed by the Cost Engineering Directory of Expertise. In accordance with EC 110-2-410, the ATR team lead will come from outside the MSC.

## **H. External Reviewers**

As indicated in the paragraph “c” above, an IEPR shall not be conducted on the Mill Creek, Kentucky, Interim Feasibility Study report.

## **I. Model Certification**

The planning model used for economic analysis for the Mill Creek, Kentucky Interim Feasibility Study, which centers around the risk-based Flood Damage Analysis software developed at the Hydrologic Engineering Center (HEC-FDA), is set to undergo the model certification process described in EC 1105-2-407 upon completion of version 1.4 of the software. Version 1.4 is currently under development, and earlier versions of the HEC-FDA software have been in widespread use since 1996. The currently available version is 1.2.4, which was released in November of 2008.

## **J. Sponsor In-Kind Contributions**

In-kind contributions from the sponsor (MSD) will primarily be administrative costs related to MSD participation in all decision-point meetings regarding the screening / selection of alternatives, review of all versions of the AFB package and the draft and final reports, preparation of maps for use in the main report as well as GIS mapping for computational purposes, reproduction, assembling, and mailing of the draft and final reports.

## K. Execution Plan

Individual members of the ATR team shall review technical products as they are completed, submitting comments to the PDT, receiving responses, and resolving and certifying individual products, including the draft Mill Creek, Kentucky, Interim Feasibility Study report. The FSM package, including surveying & mapping, hydraulics & hydrology, and average annual damage computations, shall be subject to ATR prior to the scoping meeting. The AFB package, as well as the Draft and Final Reports will also undergo ATR.

The draft report ATR review is planned for FY10, subject to availability of funds, as is the Final Report ATR. The AFB package ATR, Formulation Scoping Meeting ATR, draft report ATR, and final report ATR will use Dr. Checks software to facilitate review and documentation of revisions. A tentative cost estimate for the reviews including estimated durations, broken down by discipline, is provided below:

### Review Cost Estimate

<b>Discipline</b>	<b>Est. Cost</b>	<b>Est. Duration (Days)</b>
Economics	\$ 3,618	60
Cultural Resources	\$ 900	15
Environmental	\$ 1,887	45
Real Estate	\$ 943	60
HTRW	\$ 5,000	270
Hydraulics	\$ 3,512	45
Geotechnical	\$ 3,300	300
Civil Design	\$ 5,724	60
Electrical Design	\$ 842	30
Mechanical Design	\$ 943	30
Structural Analysis	\$ 943	20
Value Engineering	\$ 1,400	45
Cost Estimating	\$ 3,370	45
<b>Total</b>	<b>\$ 32,382</b>	



# EXHIBIT A

Primary Disciplines and Sub-Teams	Leader's Discipline	General Responsibilities	Address or Corps Mail Dropcode
<b>Project Manager</b>	Economist	Schedule and execution; project, technical and financial management; primary liason with sponsor, LRD and Corps' HQ	CELRL-PM-PF
Project Management Systems Support (as needed)	P2 Coordinator	Maintenance of District's project management information systems (P2)	CELRL-PM
<b>Local Sponsor</b>  Louisville and Jefferson Co. Metropolitan Sewer District	Civil Engineer, MSD Project Manager	Local coordination; coordination of MSD technical products (in-kind work)	-
	Civil Engineer	"Beargrass Area" team leader	-
	GIS	Project mapping	-
<b>Engineering</b>	Civil Engineer	Integration and execution of engineering tasks	CELRL-ED-TH
Geotechnical Engineering	Civil Engineer	Soils and foundations	CELRL-ED-TG
Tech Checker	Civil Engineer		
Hydraulics and Hydrology	Civil Engineer	Hydrologic and hydraulic modeling and design	CELRL-ED-TH
Tech Checker	Civil Engineer		
Civil Design (Plan Layouts)	Civil Engineer	Civil engineering design, layouts and cross sections	CELRL-ED-TC
Tech Checker	Civil Engineer		
Structural engineering	TBD	Structural design and analysis	CELRL-ED-DS
Tech Checker	TBD		
Cost Engineering	Engineering Tech.	Alternatives cost estimating	CELRL-ED-MC
Tech Checker	Civil Engineer		

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<b>Planning</b>	Civil Engineer	Execute planning work per ER 1105-2-100 and other regs	CELRL-PM-PF
LRL Planning Executive Management	Chief, Planning	Planning policy and review	CELRL-PM-P
Plan Formulation	Civil Engineer	Definition of plans; overall data integration for comparison of plans	CELRL-PM-PF
Tech Checker	Civil Engineer		
Economics	Economist	Benefit/cost calculation; socio economic impacts	CELRL-PM-PE
Tech Checker	TBD		
Environmental and HTRW	Biologist	Enviromental assessment and HTRW	CELRL-PM-PF
Tech Checker	Biologist		
Cultural Resources	Archaeologist	Coordinate cultural resource needs; coordination with SHPO	CELRL-PM-PE
Tech Checker	Archaeologist		
<b>Real Estate</b>	Real Estate Specialist	Determine RE interest, requirements, and costs; relocation cost estimates	CELRL-RE-C
<b>Office of Counsel</b>	Attorney-at-Law	Legal certification of study products	CELRL-OC
<b>Construction</b>	Civil Engineer	Review of plans for constructability	LCD-CD-Q

# EXHIBIT B

**AGENCY TECHNICAL REVIEW TEAM**  
**Metropolitan Louisville Metropolitan Region Study / Mill Creek Interim Feasibility Study**  
**Jefferson County, Kentucky**

<b>Primary Area of Review Responsibility</b>	<b>Name</b>	<b>Office Symbol</b>	<b>Unusual or Special Requirements Y / N</b>
ITR Leader	TBD	TBD	N
Civil / Site Engineering	TBD	TBD	N
Cost Engineering	TBD	TBD	N
Economics	TBD	TBD	N
Environmental and Cultural Resources	TBD	TBD	N
Geotechnical	TBD	TBD	N
HTRW	TBD	TBD	N
Hydraulics	TBD	TBD	N
Plan Formulation	Civil Engineer	LRN-PM-PF Nashville	N
Real Estate	TBD	TBD	N
Sponsor	Civil Engineer	MSD	N