

SUMMARY

Levisa Fork (Pike County, Kentucky) Flood Damage Reduction Project

This section provides a summary of the Purpose and Need for agency action, the alternatives under consideration, and the impacts of each alternative on the human and natural environment.

Purpose of and Need for Agency Action

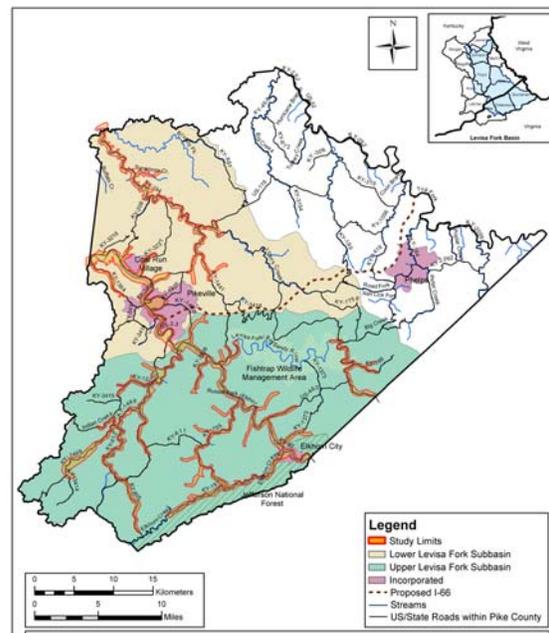
The purpose of agency action is to provide flood protection measures to protect residents and properties within the floodplain of the Levisa Fork and its tributaries within Pike County, Kentucky. Agency action is needed to comply with Federal legislation as discussed below, in order to limit loss of life and property within the study area from future flood events, unlike the area's history of damaging flood events.

A contemporary recurrence of the April 1977 flood would result in damages to over 4,770 structures in the basin, approximating \$282 million in 2004 dollars. In addition to structural damages, flooding damages to transportation facilities within the Levisa Fork basin would approach approximately \$10.8 million in 2004 dollars.

US Army Corps of Engineers, Huntington District (USACE) is the lead agency for this action. Flood damage reduction would be accomplished by implementing a number of structural and non-structural measures.

Study Area

Pike County is located within the Appalachian Mountains of Eastern Kentucky, in the watershed of the Levisa Fork of the Big Sandy River. The study area includes incorporated areas of Pikeville, Coal Run, Elkhorn City, and unincorporated areas in Pike County subject to flood damage from the potential



reoccurrence of flooding similar to that which occurred in April 1977. Also included are the floodplain areas located along tributaries of the Levisa Fork that would be affected by backwater flooding from a recurrence of the April 1977 flood.

Authority

Section 202 of the 1982 Water and Energy Development Appropriations Act authorized agency action. A cost/benefit analysis was set aside as a means of Section 202 project justification. However, the USACE Ohio River Division is required under Corps of Engineers Ohio River Division Regulation (CEORD-R) 1105-2-4 to identify the “most cost-effective” alternative that also meets project objectives. In addition, the USACE is required to consider social, economic, environmental, health and welfare aspects of the affected communities and residents in the project study area. The Water Resources Development Act (WRDA) of 1986, as amended by WRDA 1996 (PL 104-303), 12 October 1996, Section 202 (a)(1)(A), requires project cost sharing with an eligible non-Federal sponsor at a 65 percent Federal / 35 percent non-Federal ratio. In addition, a minimum of five percent cash for structural measures in flood control projects, including those constructed under Section 202, is required.

Scoping

A Notice of Intent (NOI) to prepare an EIS was given to the public and was published by the USACE in the *Federal Register* on September 5, 2003. A series of public scoping meetings were held in the fall of 2003 to receive public comments on the proposed actions with the purpose of assisting in defining the scope of analysis in the EIS. Approximately 265 persons attended the four public scoping meetings. The public scoping process for this EIS identified that interested parties were primarily concerned about the potential for relocation, impacts to property values, loss of community cohesion, the potential for induced flooding, hardships from raising residences, potential impacts to habitat for the Indiana bat (an endangered species), and impacts to streams, including the Levisa Fork. Additional concerns included impacts to watershed and access to the Levisa Fork. In response to these concerns, the DEIS has placed increased focus on those topics of local concern.

Connected, Cumulative, and Similar Actions

The Proposed Agency Action is part of a larger action, i.e., flood damage reduction throughout the Levisa Basin as provided by Congressional Authorization. The various projects, however, including the Proposed Action, are not interdependent, and each could be implemented effectively on its own. Cumulative actions with respect to the Proposed Action are considered to be past flood control actions within the Levisa Fork Basin, including Russell Fork, and reasonably foreseeable future flood control actions within the Levisa Fork Basin, as well as development within the basin. Current or reasonably foreseeable actions include ongoing or planned Local Protection Projects (LPPs) and non-structural flood control measures outside Pike County but within the Levisa Fork Basin, including Russell Fork.

Alternatives

The basin-wide target level of protection is the higher of either the April 1977 flood levels or the 1% chance flood (100-year frequency). This ensures consistency with National Flood Insurance Program (NFIP), which requires flood insurance for structures not protected for at least the 1% chance flood (100-year frequency). Within Pike County, the 1977 flood event was of a higher magnitude than the 1% chance flood (100-year frequency), and the 1977-level flood event was set as the minimum level of protection.

The results of the Pike County reevaluation indicated that the most economically feasible and socially acceptable alternative for reducing flood damages in Pike County may include a combination of structural and non-structural measures. Four basic alternatives are evaluated in this DEIS, as shown in the Table below. Two of these alternatives contain structural components at North Pikeville and Coal Run Village, combined with non-structural measures in the remainder of the project area. A third alternative consists of completely nonstructural measures throughout the Pike County study area. The fourth alternative is the No Federal Action or the “Without Project” Alternative. Under the No Action alternative the USACE would not implement flood damage reduction measures in the study area.

Table 2-1. Alternative Agency Actions

Alternative	Pike County Study Area	North Pikeville Study Area	Coal Run Village Study Area
No Federal Action	No action		
Alternative 1	Nonstructural measures as described in Section 2.3	North Pikeville LPP	Coal Run Village LPP “A”
Alternative 2	Nonstructural measures as described in Section 2.3	North Pikeville LPP	Coal Run Village LPP “B”
Alternative 3	Nonstructural measures as described in Section 2.3		

North Pikeville LPP. The North Pikeville LPP would consist of a floodwall designed to protect approximately 45 structures in an area north of downtown Pikeville along Mayo Trail, the access road along US 23/80/460. Structures between the river and the west side of the highway would be protected if the North Pikeville floodwall and levee system is constructed. The floodwall would have a gate closure at Mayo Trail to the north of Pikeville High School, thus providing protection to the school and associated athletic fields as well as several commercial structures and a residential area of approximately 30 structures.

The proposed floodwall would be approximately 4,475 feet in length, with 3,585 feet directly facing the Levisa Fork. The wall height would be on average approximately 18 feet. An approximately 850-foot long sheet-pile retaining wall would be constructed as part of the floodwall behind Pikeville High School, because the school annex is located close to the river bank.

An existing 5.5-foot high gate closure is located at the southern terminus under US 23. An additional 16-foot high gate closure would be constructed at the northern terminus to close Mayo Trail during flood events.

A 48-inch diameter interceptor line would be installed to collect interior drainage and a 93,000 gallon per minute (GPM) pump station would be located at the existing Kentucky Transportation Cabinet (KTC) maintenance facility on Mayo Trail to pump the interior stormwater over the floodwall during flood events. The KTC facility would be demolished and a ponding area created to store interior drainage during flood events..

A floodwall gate is proposed behind the athletic fields to preserve existing access to the Levisa Fork corridor during non-flood periods. Existing stairways, ramps, and walkways would be preserved or restored to at least their existing condition. No access to the river itself is planned.

During construction, staging areas would be located at the Kentucky Transportation Cabinet's maintenance center area and in the area immediately south of the athletic fields near Pikeville High School. Preliminary cost for the floodwall is \$103 million (M). Damages that would be prevented by this floodwall during a 1977-level flood event are estimated at \$10M.

Coal Run Village LPP "A". The Coal Run Village LPP "A" consists of a floodwall and levee combination. The Coal Run Village LPP "A" is shown in Figure 2-2. The LPP would protect approximately 100 structures in Coal Run on the west side of US 23/80/460. Structures between the highway and the Levisa Fork River and between the Rax Restaurant and American Electric Power (AEP) would be protected if the optimized short floodwall and levee system is constructed.

The proposed floodwall is approximately 4,877 feet in length, with approximately 2,871 feet directly facing the Levisa Fork. Approximately 2,275 feet of the LPP would consist of a levee with a small floodwall on top, with the remainder of the total length being entirely floodwall. The average height is 27 feet.

Two gate closures would close Mayo Trail and US 23 during flood events. Both would be located at the downstream terminus of the project. The gates would be 12.5 and 17.5 feet tall, respectively. The upstream terminus of the floodwall would tie into the bank of US 23.

A 54-inch diameter interceptor line would be installed to collect interior drainage, and a 105,000 GPM pump station would be located at Ratliff Branch to pump the interior stormwater over the floodwall during flood events. In order to stabilize the existing streambanks and provide adequate storage for temporary ponding upstream of the pump station, most of the Ratliff Branch riparian area would be cleared of vegetation and lined with stone slope protection.

During construction, a staging area would be located adjacent to the American Electric Power facility on the east side. Preliminary cost for the floodwall is \$103M. Damages prevented by this floodwall during a 1977-level flood event are estimated at \$14M.

Coal Run Village LPP "B". The Coal Run Village LPP "B" also consists of a floodwall and levee combination. This alternative was developed due to significant comment

received during public scoping requesting the extension of proposed protection to the Scott Addition area. The extension would also allow for the protection of currently undeveloped, flood susceptible acreage, allowing for additional flood-free developable land.

The Coal Run Village LPP "B" is shown in Figure 2-3. The LPP would protect approximately 137 structures in Coal Run Village on the west side of US 23/80/460. The "B" LPP has the same alignment as the "A" LPP except that the "B" extends further south to protect additional structures upstream of AEP, including the residential area known as Scott Addition.

The LPP "B" would be approximately 7,400 feet in length, with 5,800 feet directly facing the Levisa Fork. Approximately 3,950 feet of the LPP would consist of a levee with a short floodwall on top, with the remainder of the total length being entirely floodwall. The average height would be 27 feet.

Two upstream gate closures would close Mayo Trail and US 23 during flood events. Both are located at the downstream terminus of the project. The gates would be 12.5 and 17.5 feet tall. Downstream, an additional gate will close US 23 just west of the rail line overpass.

A 54-inch diameter interceptor line would be installed to collect interior stormwater which would occur within the protected area. Two 105,000 GPM pump stations would be installed to pump this stormwater over the floodwall during flood events. One pump would be located at Ratliff Branch and the second nearer to the railroad line at the eastern end of the project. In order to stabilize the existing streambanks and provide adequate storage for temporary ponding upstream of the pump station, the most of the Ratliff Branch riparian area would be cleared of vegetation and lined with stone slope protection.

During construction, two staging areas would be used. The first is located adjacent to the AEP facility on the east side, and the second would be behind the Best Buy Homes Repo Outlet adjacent to Walters Toyota.

Preliminary cost for the floodwall is \$150 M. Damages prevented by this floodwall during a 1977-level flood event are estimated at \$17M.

Borrow Areas. The two identified potential borrow areas are located within a few miles of the North Pikeville and Coal Run Village LPPs on the Mossy Bottom USGS Topographic Quadrangle, as shown on Figure 2-4. Up to four feet of surface soil would be removed from the selected borrow area. In addition, the USACE will be coordinating with the KTC and local companies to identify alternate sources for borrow material that could satisfy suitability and timing requirements for this project. These materials could include excavated soil and rock from roadway construction or mine overburden.

Comparison of Alternatives

Item	ALTERNATIVE			
	No Federal Action			Alternative 3
Physical Resources				
Land Use/Land Cover	If development in the floodplain continues, damages associated with future flooding will increase.	Temporary loss of approximately 55 acres, permanent loss of 20 acres Land use patterns may change due to number of voluntary relocations.	Temporary loss of approximately 72 acres, permanent loss of 25 acres Land use patterns may change due to number of voluntary relocations.	Land use patterns may change due to number of voluntary relocations.
Topography and Drainage	No impact.	Change in drainage patterns due to interceptor at North Pikeville and Coal Run Village. Upland area development possible, depending on voluntary participation rate.	Change in drainage patterns due to interceptor at North Pikeville and Coal Run Village. Upland area development possible, depending on voluntary participation rate.	Upland area development possible, depending on voluntary participation rate.
Geology and Soils	Continued bank erosion due to periodic flooding, and continued beneficial deposition of sediments in floodplain.			
Air Quality	Continued periodic minor fugitive air quality impacts from post-flood cleanup activities.	Temporary impacts due to construction (diesel emissions and fugitive dust).	Temporary impacts due to construction (diesel emissions and fugitive dust).	Localized temporary impacts due to construction (diesel emissions and fugitive dust).
Noise	Continued periodic equipment noises from post-flood cleanup.	Temporary impacts due to floodwall/levee construction. Adverse impact to residences near floodwall/levee footprint as well as residents along Mossy Bottom and Wagner Station Roads (fill haul route).	Temporary impacts due to floodwall/levee construction. Adverse impact to residences near floodwall/levee footprint as well as residents along Mossy Bottom and Wagner Station Roads (fill haul route).	Localized temporary impacts due to individual structure demolitions.
Ecological Resources				
Terrestrial Habitat	No impact.	Overall beneficial impact in county by returning floodplain areas to passive use open to wildlife. Minor adverse impact from loss of vegetated land in footprint of floodwall/levees and borrow area.	Overall beneficial impact in county by returning floodplain areas to passive use open to wildlife. Minor adverse impact from loss of vegetated land in footprint of floodwall/levees and borrow area.	Beneficial impact to wildlife by returning floodplain areas to passive use open to wildlife.
Wetlands	No impact	Potential impact to adjacent wetlands in borrow areas.	Potential impact to adjacent wetlands in borrow areas.	No impact

Item	ALTERNATIVE			
	No Federal Action			Alternative 3
Aquatic Resources	No impact	Temporary impacts to Levisa Fork habitat during construction. Increases in stream velocity would have minor effect on existing stream characteristics. Permanent loss of aquatic habitat in portion of Ratliff Branch.	Temporary impacts to Levisa Fork habitat during construction. Increases in stream velocity would have minor effect on existing stream characteristics. Permanent loss of aquatic habitat in portion of Ratliff Branch.	No impact
Riparian Resources	Continued degradation of Levisa Fork banks due to highly variable flow	Continued degradation of Levisa Fork banks due to highly variable flow. Permanent loss of portion of Ratliff Branch due to pump station.	Continued degradation of Levisa Fork banks due to highly variable flow. Permanent loss of portion of Ratliff Branch due to pump station.	Continued degradation of Levisa Fork banks due to highly variable flow.
Wildlife	No impact	Temporary minor impact due to noise and activity during construction. Minor impact due to loss of habitat used for construction of floodwall/levees. Impacts offset by addition of open land through revegetation of floodplain on the riverward side of levee and nonstructural program in balance of study area.	Temporary minor impact due to noise and activity during construction. Minor impact due to loss of habitat used for construction of floodwall/levees. Impacts offset by addition of open land through revegetation of floodplain on the riverward side of levee and nonstructural program in balance of study area.	Temporary minor impact due to noise and activity during demolitions or floodproofing activities. Overall beneficial impact from addition of open land through nonstructural program.
Threatened and Endangered Species	No impact	Loss of roosting habitat for Indiana bat due to clearing trees within construction work limits.	Loss of roosting habitat for Indiana bat due to clearing trees within construction work limits.	Potential loss of roosting habitat for Indiana bat due to clearing trees adjacent to residences.
Cultural Resources				
Architecture/Historic Resources	No impact	Some potentially eligible structures may be removed as part of the structural and non-structural components.	Some potentially eligible structures may be removed as part of the structural and non-structural components.	Some potentially eligible structures may be removed as part of the non-structural component.
Archaeological Resources	No impact	Some potentially significant resources could be impacted as part of the floodwall/levee construction and excavation for	Some potentially significant resources could be impacted as part of the floodwall/levee construction and excavation for	No impact.

Item	ALTERNATIVE			
	No Federal Action			Alternative 3
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Socioeconomic Resources				
Demographics	Existing trends in population decline likely to continue.	Additional population decline could result from lack of available relocation locations.	Additional population decline could result from lack of available relocation locations.	Additional population decline could result from lack of available relocation locations.
Community Cohesion	Minor adverse impact do to continued periodic flooding and effects on human population.	Potential lack of available, affordable, safe and sanitary housing due to number of relocations county-wide. Outmigration and/or fragmented development resulting from relocations could weaken community cohesion.	Potential lack of available, affordable, safe and sanitary housing due to number of relocations county-wide. Outmigration and/or fragmented development resulting from relocations could weaken community cohesion.	Potential lack of available, affordable, safe and sanitary housing due to number of relocations county-wide. Outmigration and/or fragmented development resulting from relocations could weaken community cohesion.
Economics and Employment	Continued periodic flooding may discourage investment and business growth.	Protected areas within floodwall areas could encourage business investment.	Protected areas within floodwall areas could encourage business investment.	If suitable business relocation sites not available, could result in business relocation outside study area.
Housing	Continued flooding may discourage investment and maintenance and contribute to decline of housing stock countywide.	Number of relocations could result in temporary housing shortage. This could either spur construction or encourage outmigration.	Number of relocations could result in temporary housing shortage. This could either spur construction or encourage outmigration.	Number of relocations could result in temporary housing shortage. This could either spur construction or encourage outmigration.
Education	No impact.	Number of relocations could affect student distribution, bus routes, and school funding.	Number of relocations could affect student distribution, bus routes, and school funding.	Number of relocations could affect student distribution, bus routes, and school funding.
Environmental Justice	No impact.	No impact. Project impacts are not disproportionately borne by low income or minority populations.	No impact. Project impacts are not disproportionately borne by low income or minority populations.	No impact. Project impacts are not disproportionately borne by low income or minority populations.
Recreation	No Impact.	Adverse impact to church recreational area (loss of picnic shelter). Beneficial impacts countywide by returning more of floodplain to passive use that could be used for recreation.	Adverse impact to church recreational area (loss of picnic shelter). Beneficial impacts countywide by returning more of floodplain to passive use that could be used for recreation.	Beneficial impacts by returning more of floodplain to passive use that could be used for recreation.
Aesthetic and Scenic Resources	Minor adverse impact of deterioration of existing housing stock	View of Levisa Fork will be blocked in floodwall areas.	View of Levisa Fork will be blocked in floodwall areas.	Visual impact from elevated structures.

Item	ALTERNATIVE			
	No Federal Action			Alternative 3
Hazardous, Toxic, and Radioactive Wastes	No impact.	Beneficial impact due to excavation/cleanup of contaminated soils and structures for all acquired sites.	Beneficial impact due to excavation/cleanup of contaminated soils and structures for all acquired sites.	Beneficial impact due to excavation/cleanup of contaminated soils and structures for all acquired sites.
Health and Safety	Continued periodic flooding with associated adverse effects on community health and safety	Beneficial because fewer people living in areas prone to flooding. Adverse impact of flood gate closures impeding emergency vehicles. Temporary potential for safety issues during construction.	Beneficial because fewer people living in areas prone to flooding. Adverse impact of flood gate closures impeding emergency vehicles. Temporary potential for safety issues during construction.	Beneficial because fewer people living in areas prone to flooding.
Infrastructure	Utilities and public services will continue to be damaged and destroyed by floods.	Potential utility relocations in North Pikeville and Coal Run Village areas will need coordination with local providers.	Potential utility relocations in North Pikeville and Coal Run Village areas will need coordination with local providers.	Limited potential utility impacts as structures are removed. Coordination with local providers required.
Traffic and Transportation	Continued periodic flooding with corresponding impacts to roadway conditions and imperiled access.	Adverse impact of flood gate closures impeding emergency vehicles.	Adverse impact of flood gate closures impeding emergency vehicles.	Continued periodic flooding with corresponding impacts to roadway conditions and imperiled access.