



## Elkhorn Lake Project

# SCOPING, EVALUATION, AND MONITORING PLAN

## *HEALTH IMPACT ASSESSMENT*

Kentucky River Area Development District

October 26, 2018

# **Elkhorn Lake Project**

## **Scoping, Evaluation and Monitoring Plan**

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## **Executive Summary**

Jenkins, Kentucky has a proud tradition in the coal mining industry that extends over 100 years. Jenkins motto is “A City Built on Coal”. This phrase is apt because in 1912 a coal company bought the surrounding 100,000 acres and constructed the city along with Elkhorn Lake, the city’s park, and dam. Since then Jenkins has used the lake as the water reservoir to serve its community. Presently the city and its residents are challenged by multiple determinants to their health and well-being. Now Elkhorn Lake’s contents and the dam’s structural design and integrity pose a threat to this community’s people while remaining a vital resource. Jenkins also has challenges to its economic, environmental and social health. Collectively these health determinants are known to produce shorter life expectancy and serious health conditions.

The City of Jenkins has sought solutions to this dilemma for the past decade. This has led Kentucky River Area Development District (KRADD) in partnership with the Jenkins city officials to examine solutions using a tool from the public health arena known as Health Impact Assessment (HIA). This planning document is part of the six step HIA process to identify, influence and recommend policy decisions which will help address the multiple dilemmas contributing to the Jenkins health challenges.

The goals include 1) providing new information from a broader health perspective; 2) increase citizen participation in the planning process for the Elkhorn Lake Project, 3) development of successful funding resources, 4) inform decision makers about the potential health impacts of public policy decisions they make as community leaders and 5) support longer term community development strategies which impact upon health.

Likely health issues to be assessed are: actual and perceived injury, mortality, and public safety because of dam structural improvements; behavioral health risks associated with community stress and social isolation; chronic disease risk factors associated with physical activity levels in Jenkins; environmental health issues related to water quality; better nutrition among Jenkins residents; housing quality and availability; and improved educational attainment within Jenkins with more educational opportunities. Moving forward we expect to see increased involvement of Jenkins community residents and KRADD in establishing a health in all policies perspective on public improvement projects.

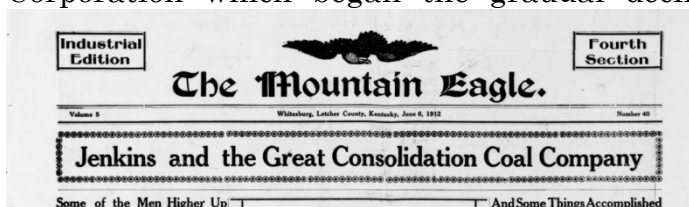
## Introduction to the Elkhorn Lake Project



The Health Impact Assessment (HIA) for the Elkhorn Lake Improvement Project will inform the City of Jenkins, the Kentucky River Area Development District, Inc. (KRADD) and their 40 member Board of Directors, which consists of community members, on the health impact of their policy decisions. Elkhorn Lake is not just a reservoir for the city's water supply, it also impacts upon the entire health, social, and economic development of the community. Quality water is the most essential building block for an individual's survival and a community's ability to survive and grow. The City of Jenkins plans a major upgrade to the lake, dam and surrounding park land. The initial goal of the Elkhorn Lake Improvement Project was to improve the reservoir capacity, improve the structural integrity of the dam, and landscape around the dam and reservoir. This Scoping Plan will seek to emphasize additional environmental and social health determinants as priority goals. Paul Nesbitt, the City Engineer for Jenkins and Mayor Todd DePriest has long sought Elkhorn Lake improvements as a matter of public health and safety.

### How does the history of Jenkins, Kentucky influence the HIA?

Jenkins, Kentucky was carved out of 100,000 acres of the southeast Appalachian mountain wilderness by the Consolidation Coal Company in 1911. Consolidation Coal purchased the area to mine the plentiful coal where Kentucky, Virginia, and West Virginia converge. Jenkins thrived for half a century partly because the coal company built Elkhorn Lake, made possible by constructing a 40 foot high dam on Elkhorn Creek. In 1956 Consolidated Coal sold its interests to Beth Elkhorn Corporation which began the gradual decline of the mines. Jenkins, with a



population of over 2,000, is unusual because it did not develop as a town gradually, but it was constructed entirely as a coal camp for the miners who worked in the underground coal mines below

Jenkins. The local coal reserves have gradually become depleted and coal mining no longer is the major economic force it once was. Elkhorn Lake which sits above the City of Jenkins has changed little since Consolidated Coal built it in 1912. The 19<sup>th</sup> century dam construction standards used for the Elkhorn Dam do not compare to the standards of the 21<sup>st</sup> century. Now fierce torrents overtopping the dam during rainstorms and the ongoing water seepage at the dam face is a growing matter of concern. The relief pipes through the dam base were created to feed a long gone hydroelectric plant but are now dysfunctional crumbling derelicts. In addition potentially noxious vegetation and possibly toxic sediments from the upstream surface mines may have contaminated the reservoir over the past 106 years. The

history is important to this scoping because 1) it makes the project eligible for Abandoned Mine Lands (AML) funding, and 2) the single industry nature of the town's development from its inception has contributed to some serious health challenges, which require a broad-based approach and to address a new way of thinking about the public health, the HIA tool, which may be fruitful.

### **Overarching goals and anticipated outcomes of the HIA**

The Elkhorn Lake Health Impact Assessment will:

1. Inform the Elkhorn Lake Project Plan and revisions to the corresponding AML Pilot Project application with new information from a broader human health perspective which otherwise might not be included through environmental or other assessments.

Associated desired outcome: Funding support for Elkhorn Lake Project is secured and final plans consider recommended actions that maximize the community's health.

2. Provide opportunities for public engagement with, and citizen participation in, the planning process for the Elkhorn Lake Project and the development of the AML Pilot Project proposal.

Associated desired outcome: This HIA approach serves as a model for community and stakeholder engagement for future projects in the region.

3. Assist KRADD members and partners to see the potential health impacts of public policy decisions they make in their roles as governmental and community leaders.

Associated desired outcome: A "Health in All Policies" philosophy becomes a regular part of decision making and results in measurable population health improvements.

4. Place into context potential health impacts within longer term community development strategies and opportunities, such as community, economic development, and housing.

Associated desired outcome: Improved alignment of development practice and health promotion.

### **Scoping Plan for conducting the HIA**

The public policy decisions and decision alternatives that may impact upon health will be studied. Among those public policy decisions are:

1) Proposed Elkhorn Lake Project decisions on the various project alternatives based upon the health impacts of these policy decisions outlined in the Elkhorn Dam Study by Nesbitt Engineering in June 2010 and Jenkins AML application of 2017. These included: "geotechnical

investigation to insure the integrity of the bedrock under the dam; grouting of the abutments to reduce the leakage; closing one pipe penetration through the dam, lining the other pipe and placement of a valve; rehabilitation of the concrete face as well as the principal spillway system; dredging of the impoundment which includes removal of water lilies; rehabilitation of the stream above and below the impoundment; and construction of a walking trail and landscaping around the lake to aid in erosion control.”

- 2) Examine additional project elements that improve upon community access to opportunities, activities, education, behaviors and community characteristics that influence public health.
- 3) Support and participate in decisions and possible new funding alternatives for expenses incurred by the proposed project elements developed and for application to Abandoned Mine Land pilot projects; Promise Zone funding; USDA Rural Development programs, and other possible sources.

### **Health issues and health outcomes that will be studied:**

#### 1) Health related risks and behaviors:

- Actual and perceived public safety because of dam structural improvements
  - *Related Health Indicator- Injury Mortality for unintentional injury in Letcher County is 92.5/100,000 population, more than twice the national figure and a third higher than Kentucky. [www.communitycommons.org](http://www.communitycommons.org)*
- Mental and behavioral health risks associated with community stress and social isolation
  - *Related Health Indicator – Deaths of Despair Letcher rate 76.6/100k, US rate 38.5/100k. 288/100k heart disease USNEWS*
- Chronic disease risk factors associated with physical activities levels in Jenkins
  - *Related Health Indicator – 15.3% adults have diabetes; 0.0% walkable destinations. USNEWS,*
- Environmental health i.e. improved water quality
  - *Related Health Indicator – 13.2% have unsafe drinking water in Letcher County. USNEWS*
- Nutrition among Jenkins residents
  - Letcher County obesity rate 38.4%; U.S. rate 31.0%.
  - Adults without enough fruits or vegetables; 82%; U.S. rate 79.2%; USNEWS

#### 2) Health Equity and Health Determinants:

- High Poverty Rate 39.5% in Jenkins census
- Housing quality and availability (24.6% substandard in county, *Community Commons.org*)
- Low educational attainment 75.6% of adults on Jenkins have high school attainment or higher. US Census

### **Geographical and temporal boundaries for impact analysis;**

The city of Jenkins, Kentucky proper and area surrounding the city in Letcher County, Kentucky is the geographic area in the study. The demographics of Jenkins and Letcher County residents are fairly homogenous racially and ethnically. The population is aging and slowly shrinking because the coal mining based economy, poverty, education challenges, and health aspects limit local opportunities. While the HIA Project began in January of 2018 and extends into the fall of 2020, the potential health impacts extend through the next decade. As a small town in a small county the availability of health indicators is limited due to statistical sampling restrictions. So we may have to assess health impact and issues based upon the larger county data availability.

### **Specific demographic groups that may be impacted:**

Whenever possible the health impacts upon various sub-populations will be studied. Some of the vulnerable sub-pops are listed below. Jenkins is in Letcher County, Kentucky. The overall County population is 24,519. Jenkins is about 10% of the overall county with a population of 2,016 in the city limits. Included in the attachments are a listing of health indicators from the US New and World Report Healthy Communities List. Those example health indicators are all from the totals for the whole of Letcher County. Whether or not the Jenkins data is reflective of the Letcher County totals we can only surmise at this point: 1) Customers of the city of Jenkins municipal water system; (800 customers) 2) Older adults and seniors; (16.7% ages 67 and older); 3) School age children and youth; (16.8% ages 5-19) 4) Unemployed persons; (20.9%) 5) Impoverished persons (39.5%) living below the dam or living in substandard housing; 6) Persons with health issues and other disabilities (30.5% estimated from older data.).

### **Research questions for impact analysis**

**1. Research question:** How does the structural integrity of the dam impact public safety risks and the perception thereof?

- How does public confidence change in dam safety, structure and function.
- Does the public perceive the threat of dam collapse?
- What are the injury risks associated with dam collapse?
- How does the public perceive the threat of dam collapse?
- How does the public safety rating influence public confidence?
- How does any dam-induced stress relate to overall mental health and stability in the community?

2. *Research question:* What are the differential impacts on water quality in Elkhorn Lake based on decision alternatives?

- Does the water quality of the city of Jenkins water supply improve as a result of removing vegetation and dredging biohazard sediments from Elkhorn Lake as measured by weekly and monthly samples collected by Jenkins water department personnel and analyzed as required by Kentucky water quality monitoring using an approved laboratory?
- Does consumption of the water supply increase in terms of gallons used and number of customers as reported by the Jenkins Water Department? What contaminants currently exist in Elkhorn Lake and what are the associated risks to human health?
- How does any contamination influence water consumption?
- How does water quality influence use of the lake for recreation?

-

3. *Research question:* How are potential changes to park amenities around Elkhorn Lake likely to influence people's behavior in terms of physical activity and/or social interactions compared to current activity levels?

- Do picnic and fishing areas, walking and biking trails and lake access for non-motorized boats change level of physical activities?
- Does the community recreational use of the Elkhorn Lake Park increase from current levels as measured by the direct observation of number of persons accessing the lake for water sports such as kayaking and fishing?

Key Health outcomes: chronic disease and behavioral health

4. *Research question:* How will proposed improvements to the dam, lake, and/or surrounding park space influence broader determinants of health in the context of promoting community development?

- How do changes to the structural integrity of the dam influence development potential for Jenkins?
- How has water quality limited economic development potential in the past and how might that change with lake improvements?
- How much do park improvements contribute to the area's attractiveness for local or outside investment in the housing stock and/or businesses
- What needs exist in the community in terms of education and how might changes proposed by the Elkhorn Lake Project impact them?

<b>Scoping Worksheet</b>					
<b>Project:</b>	<b>Elkhorn Lake Project Health Impact Assessment</b>				
<b>Focus Area</b>	<b>Social and environmental health determinants related to park, lake and dam improvements in city of Jenkins</b>				
<b>Potential vulnerable populations</b>	<b>Older adults and seniors</b>	<b>School aged children</b>	<b>Unemployed &amp; lower income persons</b>	<b>Those with fragile health and disabled</b>	
<b>Geographic Scope:</b>	<b>Jenkins, Kentucky and area around Jenkins in Letcher County</b>				
<b>1. Background Questions</b>	<b>Data Sources</b>	<b>Indicators</b>	<b>Methods</b>	<b>Priority</b>	<b>Notes</b>
How does the structural integrity of the dam impact public safety risks and the perception thereof by each vulnerable population?	Literature review and dam safety reports	Rating by dam safety experts	Field examination by KY dam safety officials	Extremely High	See damsafety.org
Does public confidence increase in dam safety, structure and function and reduce stress and anxiety?	KRADD surveys and focus groups	Changes over baseline surveys	Community survey	Extremely High	resurvey
Does the improved dam safety of Elkhorn Lake impact health?	KRADD surveys and focus groups	Increased over baseline surveys	Community survey, & epidemiology	Extremely High	Long term effects
<b>2. Background Questions</b>	<b>Data Sources</b>	<b>Indicators</b>	<b>Methods</b>	<b>Priority</b>	<b>Notes</b>
Does the water quality of the city of Jenkins water supply change as a result of removing lily pads and	Kentucky water quality monitoring using an approved laboratory	Weekly and monthly water samples	Onsite collections by Jenkins water department personnel	Moderately High	Monitor reporting

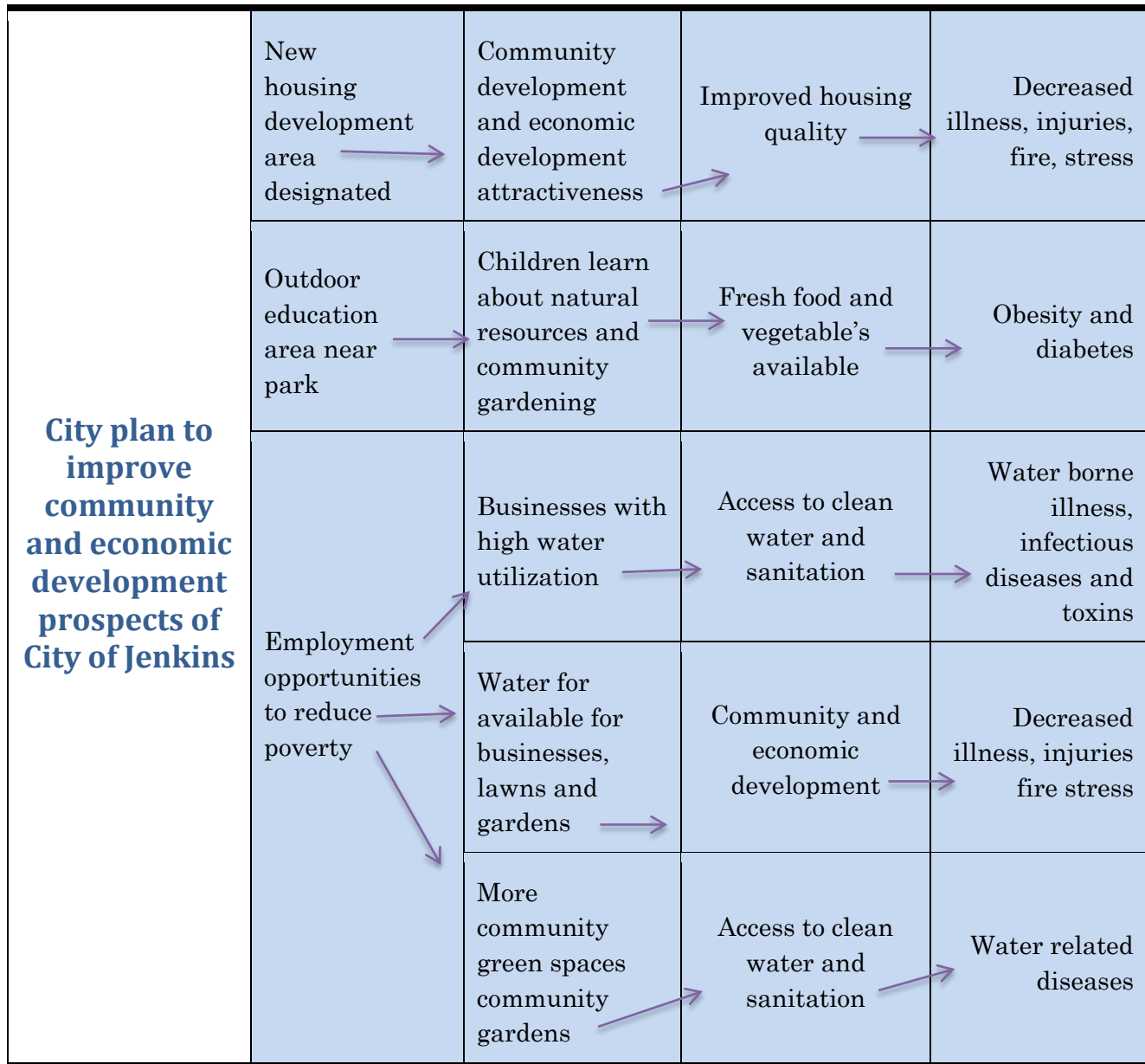
<i>vegetation from Elkhorn Lake?</i>					
<i>Does dredging cause sediments to change water quality?</i>	<i>Jenkins water department reports</i>	<i>Concentrations of contaminants in water</i>	<i>Test samples before during and after dredging</i>	<i>Extremely High</i>	<i>Monitor during all phases</i>
<i>Does utilization of the water supply change?</i>	<i>Jenkins Water Dept.</i>	<i>Gallons of water used and number of customers</i>	<i>Reports to city by water dept.</i>	<i>Moderately High</i>	<i>Monitor</i>
<b>3. Background Questions</b>	<b>Data Sources</b>	<b>Indicators</b>	<b>Methods</b>	<b>Priority</b>	<b>Notes</b>
<i>Does the community recreational use of the Elkhorn Lake change?</i>	<i>City of Jenkins park report</i>	<i>Number of persons using park for recreation and water sports fishing, kayaking, swimming canoeing versus baseline.</i>	<i>Observation of number of persons in park using standard instrument</i>	<i>High</i>	<i>Use place making assessment or other park assessment instrument</i>
<i>Does outdoor exercise change in Jenkins park and lake after the Elkhorn Lake Project?</i>	<i>City of Jenkins recreation and park personnel</i>	<i>Number of persons exercising such as running, walking, biking</i>	<i>Direct observation using standard instrument</i>	<i>High</i>	<i>Create or Identify instrument</i>
<b>4. Background Questions</b>	<b>Data Sources</b>	<b>Indicators</b>	<b>Methods</b>	<b>Priority</b>	<b>Notes</b>
<i>How might the condition of Elkhorn Lake (including the dam, the lake, and the surrounding park space) influence city</i>	<i>Literature review</i>	<i>Experts opinion</i>	<i>Interviews and prior research</i>	<i>High</i>	<i>Examine relevant HIA in literature and public health literature</i>

<i>and county economic development?</i>					
<i>Does relocation of the debris below the dam and the public works facility result in increased community attractiveness, pride and developers interest?</i>	<i>Literature review and community survey</i>	<i>Community pride indicator</i>	<i>Community surveys and prior research</i>	<i>Moderately High</i>	
<i>Does improving the integrity of Elkhorn Lake dam influence persons interested in business development.</i>	<i>Lit review about dam and business owners investments</i>	<i>Change in attitudes toward business in Jenkins</i>	<i>Focus group</i>	<i>Extremely High</i>	<i>Explore: Do Insurance ratings change?</i>
<i>How much do park improvements contribute to the area's attractiveness for local or outside investment in the housing stock and/or businesses</i>	<i>Analysis of business attitudes</i>	<i>Community pride and health indicator</i>	<i>Lit review</i>	<i>Moderate</i>	<i>Survey possible indicators</i>
<i>What needs exist in the community in terms of education and how might changes proposed by the Elkhorn Lake Project impact them?</i>	<i>Review educational needs with school leadership</i>	<i>Health and education success</i>	<i>School strategic plans</i>	<i>Moderate</i>	<i>Survey possible indicators</i>

## Elkhorn Lake Project Pathway Diagrams

Action	Policy Decision	Immediate Impact	Health Determinant	Health Outcome
<b>Nesbitt plans to design, fund and implement a plan to bolster Elkhorn Lake structurally and reduce leakage.</b>	Grout and resurface Elkhorn Lake Dam	Perception of safety	Stress reduction benefits	General health Status
		Physical safety	Injury risk reduction	Injury, or, death
	Remove public works debris below dam	Improved city and park appeal to residents	Physical activity, fitness and socialization	Reduced Diabetes, obesity cardiovascular diseases, stroke cancer
		Increased attractiveness of Elkhorn Lake to visitors	Economic opportunity and financial access to wellness and healthcare	
<b>Nesbitt plan to fund and implement a public works project to dredge Elkhorn Lake to remove sediments and unwanted vegetation</b>	Dredge Elkhorn Lake to remove most lily pads and noxious vegetation	More oxygen and less decaying vegetation in reservoir	Fewer bio toxins in public water supply	Water borne illness, possible carcinogens
	Remove sediments from Elkhorn Lake	Elkhorn Lake Capacity increased	Increased water consumption	Improved heart health
		Fewer Environmental Hazards	Water quality improved	Reduced obesity cardiovascular diseases,

<b>Nesbitt plan to fund and implement plan to improve park lands surrounding Elkhorn Lake</b>	Create walking and biking trails around Park	Park more accessible for exercise	Physical Exercise	Reduced stress and depression
	Connect trails to amphitheater and other trails	Increase utilization of amphitheater	More visitors to community and decreased isolation	Diabetes, obesity cardiovascular diseases
	Improve lake shore access	Fishing increase	Physical Activity	
	Improve lake water access	More water sports	Healthy physical activity	Reduced stress and isolation
	Replace park benches and picnic tables	Park attractiveness	Increased Socialization	Improved mood, reduced depression,
	Fence removal & safety improvements	Shoreline access		



## Stakeholder Engagement

The HIA Project staff seeks to involve a variety of community stakeholders although key stakeholders are Jenkins residents. Our first step after screening was to walk the project site and have discussions with the Mayor and the City Manager. We envision that residents in the area of the dam might be a separate stakeholder group so a survey of area residents asked about location in relation to the dam. The coal town tradition is low rates of participation in community planning by local stakeholder groups. Mine operators and miners have had a tumultuous and violent history of conflict. Recently this conflict history reversed as the community, miners and mine operators have worked together to save the coal industry. This recent interest in community advocacy presents an opportunity to engage Jenkins residents in the Elkhorn Lake project. We have identified about 17 persons willing to become involved with the HIA in some fashion.

Focus groups of these local persons may shed additional light on the Elkhorn Lake project decision making and priorities. Groups with possibly differential impacts that are targeted for focus groups are: 1) Older adults less likely to use park, 2) High school students of both genders and children likely to use park. 3) Persons who live below dam's public safety versus those wealthier people who live above dam 4) Persons with lower income located below dam.

Since 1969 Letcher County has associated with it the creation of an arts community. The major newspaper in Letcher County is called the Mountain Eagle (see [www.themountaineagle.com](http://www.themountaineagle.com)), There are no newspapers, radio or television stations in Jenkins. We may seek assistance from local media production resources for video presentations about the project to foster stakeholder involvement. KRADD has sent letters to several foundations interested in Appalachian issues to fund the production of a video documenting the current condition of Elkhorn Lake. The Workgroup has also identified organizations and persons who have knowledge, authority, and interest of the HIA topic. Organizations which have been identified are University of Kentucky faculty, Kentucky Environmental advocates, and Kentucky national dam safety operatives and technicians.

Stakeholder recruitment and involvement activities included the following:

- Identified key stakeholders from the KRADD Board of Directors and staff as well as natural allies such as the University of Kentucky Center of Excellence in Rural Health, Breathitt County Health Planning Council for Children, Health Departments and Juniper Health.
- Created a work group which will serve as a committee to provide guidance and advise the Health Impact Project. Maintained regular correspondence with work group including face to face meetings. Workgroup members were offered the opportunity to review and comment on the scoping document. Comments received were included in the final version.
- Presented at the District's Board of Director's meeting to provide a synopsis of the Health Impact Project and to enlist their support and interest.

- Provided training to KRADD Board members and Health Department personnel on health impact assessment.
- Continued to identify other individuals and agencies with specific interest to the Elkhorn Lake Improvement Project such as staff from: Jenkins water and sewer departments, City of Jenkins, Kentucky Infrastructure Authority, KRADD's Water and Wastewater, Fish and Wildlife, tourism, and parks and recreational.
- Jenkins is geographically and politically isolated within Letcher County. This isolation has historical roots back to the city property ownership. Thus Jenkins is the main focus of this HIA and not Letcher County.
- Established an HIA project Facebook page and email list to provide a forum for discussion and recruitment of interested participants.

The survey below was distributed to 800 Jenkins water district customers with nearly 100 surveys returned, including participation by Jenkins city personnel. The survey asked for and received persons interested in serving on an Elkhorn Lake Advisory Committee. Local residents said they were willing to become involved who have knowledge and interest in water, tourism, and parks and recreation. As the survey results are analyzed more stakeholder needs and priorities will be added.

According to preliminary analysis the priorities of the Water customers the top five improvements for Elkhorn Lake are 1) Removing the lilies; 2) Fixing the dam; 3) Improving water quality; 4) A walking trail around lake; and 5) Restrooms near park. All of these lake, dam and park improvements were endorsed by a majority of the respondents. There were variations by age group with the types of improvements such as removing the lilies and restrooms endorsed by older persons. There was also more agreement among older persons that Jenkins supports city improvements and younger persons believed the Elkhorn lake needed improvements; although there was near 95% agreement overall that the improvement decisions discussed to this point needed to occur.

## City of Jenkins Community Survey Elkhorn Lake Improvement Project Survey

The City of Jenkins currently plans to make improvements to Elkhorn Lake and Dam. While the Elkhorn Lake improvements may provide local economic benefits, the other major interests are improving the health and safety of city residents. Please complete this survey to help us plan our Improvements.

What is the Elkhorn Lake Project? Mayor DePriest and Jenkins city officials currently seek funding from the Abandoned Mine Lands pilot project and other sources to improve Elkhorn Lake city reservoir, and the area surrounding Elkhorn Lake. This would involve major improvements to this vital community resource. The questions below are designed to help the planners make recommendations so the city officials are selective about the types of improvements *should the resources become available*. **If you wish to make additional comments about any question use the back of the survey.**

- 1) Is Jenkins a place that supports city improvements? Yes ☐; Unsure ☐; No ☐
- 2) Would Elkhorn Lake benefit from major improvements? Yes ☐; Unsure ☐; No ☐
- 3) Which of these Elkhorn Lake improvements do you think Jenkins residents would benefit from most should additional resources become available? Mark as many as you please)

Walking trail around lake ☐; Biking trail around lake ☐; Fishing access around lake ☐;  
Relocation of public works buildings ☐; Fix dam leakage & safety ☐; Removal of water lilies ☐;  
More access for canoes and kayaks ☐; Improved city water quality ☐; Outdoor education area ☐; Community  
garden ☐; Restrooms ☐; Park benches ☐; Picnic tables ☐; Bandstand ☐. More lake area  
housing ☐; Park exercise equipment ☐; Other: \_\_\_\_\_.

- 4) Which **three** Elkhorn Lake Improvements are most vital to the interests of the City of Jenkins residents should additional resources become available. (Mark no **more than three** below)?

Walking trail around lake ☐; Biking trail around lake ☐; Fishing access around lake ☐;  
Relocation of public works buildings ☐; Fix dam leakage & safety ☐; Removal of water lilies ☐;  
More access for canoes and kayaks ☐; Improved city water quality ☐; Outdoor education area ☐; Community  
garden ☐; Restrooms ☐; Park benches ☐; Picnic tables ☐; Bandstand ☐. More  
lake area housing ☐; Park exercise equipment ☐; Other \_\_\_\_\_.

- 5) Do you think Jenkins should connect with area hiking trails? Yes ☐; Unsure ☐; No ☐.
- 6) Are you a Jenkins resident or land owner? Yes ☐; No ☐.
- 7) Do you live at Elkhorn Lake or below dam? Yes, near lake ☐; Yes, below dam ☐; No ☐.
- 8) Do you believe Elkhorn Lake improvements would attract more people to park area resulting in health benefits to the residents and improve the local economy?. Yes ☐; Unsure ☐; No ☐.
- 9) How old are you? Less than 18 ☐; 18-35 ☐; 36-55 ☐; 56-70 ☐; 71+ ☐.
- 10) Would you be willing to serve on an Elkhorn Lake Advisory Committee? Yes ☐; No ☐  
If yes, contact information: Name: \_\_\_\_\_ phone: \_\_\_\_\_ email: \_\_\_\_\_
- 11) Would you volunteer in other ways to help with the Elkhorn Lake Project? Yes ☐; No ☐  
If yes, how might you help and contact information: \_\_\_\_\_

Other Comments: \_\_\_\_\_

Thank you for your participation in this City of Jenkins Community Survey.  
Please return to City Hall by October 10, 2018.

<b>Jenkins Community Survey Summary (800 surveys sent with bills to city water customers)</b>							
22-Oct-18	Age Range				86 responses		
	<b>18-35</b>	<b>36-55</b>	<b>56-70</b>	<b>71+</b>	Sig.	Total	
Jenkins supports city improvements	83.3%	81.3%	86.1%	87.5%	p<.000	84.9%	
Elkhorn Lake Improvements Needed	100.0%	100.0%	94.4%	91.7%	p<.000	94.2%	
Types of Improvements Needed							
	<b>Rank</b>	<b>18-35</b>	<b>36-55</b>	<b>56-70</b>	<b>71+</b>	<b>Sig.</b>	<b>Total</b>
<b>Remove Water Lilies</b>	<b>1</b>	<b>66.7</b>	<b>75.0</b>	<b>97.2</b>	<b>91.7</b>	<b>P&lt;.005</b>	<b>88.4%</b>
<b>Fix Dam</b>	<b>2</b>	<b>50.0</b>	<b>75.0</b>	<b>80.6</b>	<b>79.2</b>		<b>75.7%</b>
<b>Water Quality Imp.</b>	<b>3</b>	<b>50.0</b>	<b>37.5</b>	<b>72.2</b>	<b>58.3</b>		<b>58.1</b>
<b>Walking Trail</b>	<b>4</b>	<b>66.7</b>	<b>68.8</b>	<b>58.3</b>	<b>41.7</b>		<b>53.5</b>
<b>Restrooms</b>	<b>5</b>	<b>50.0</b>	<b>56.3</b>	<b>61.1</b>	<b>20.8</b>	<b>P&lt;.05</b>	<b>47.7</b>
Fishing Access	6	33.3	68.8	41.7	37.5		43.0
Picnic Tables	7	16.7	50.0	41.7	37.5		38.4
Park Benches	8	33.3	37.5	44.4	37.5		39.5
Canoes and Kayaks	9	16.7	50.0	27.8	20.8		27.9
Bike Trail	10	16.7	50.0	23.2	25.0		26.7
Relocate Public Works	11	16.7	31.3	27.8	20.8		27.9
Outdoor Education	13	16.7	12.5	19.4	12.5		15.1
Community Gardens	13	0.0	18.8	13.9	16.7		15.1
Park Exercise Equip.	14	33.3	12.5	16.7	4.2		12.8
Bandstand	15	0.0	12.5	11.1	12.5		10.9
Housing	16	16.7	12.5	2.8	8.3		7.0

## **Plan for Evaluation and Monitoring**

### **Process and Impact Evaluation Components**

The HIA may be evaluated in terms of process, outcome, and impact. Process evaluation attempts to determine the effectiveness of how the HIA was designed and undertaken, including preparation, research, reporting, participation, and follow-up.

The Elkhorn Lake Project HIA outcome evaluation is likely beyond the timely reach of this HIA. The Elkhorn Lake improvements may take years to become funded and additional years to be completed. While a good case can be made based upon the research literature that the HIA can make recommendations that will improve the project impact, the actual time involved for these impacts to materialize could be a decade or more. Should funding become available in the future, priority should be given to evaluation of this HIA. If KRADD staff does not have the capacity, the additional funds should lead to hiring a staff person, student or outside consultant for the sole purpose of conducting the evaluation.

Evaluation of HIA process will be adopted including examining process variables by surveying project participants and stakeholders, examination of actual project components versus expected planned components; water quality measurements, park utilization measurement; etc. Each of the expected impacts will be assessed according to the level of magnitude planned and realized.

Since evaluation is often not conducted after the fact in an HIA, but could yield information valuable for the current and future HIA, this Evaluation section and the following section about monitoring are presented here as possible plans for the future. The process evaluation of the HIA will be conducted on the Screening, Scoping, Assessment and Recommendation steps in the Elkhorn Lake HIA. The Reporting and final Evaluation and Monitoring steps are likely beyond the temporal reach of this HIA. Participants in the preparation of the first four steps will be asked to provide feedback through focus groups, structured interviews or online surveys to assess the design, preparation, research, reporting community participation in the HIA. KRADD will appoint staff to conduct the process evaluation which will be added to the HIA report as an addendum. Feedback about the HIA process will also be sought from the funding sources, the HIA workgroup members and the consultants to the project. Members of the KRADD Board of directors will be queried about what they have learned about the value and content of an HIA. Attention will be given to whether or not the elected officials are more or less likely to incorporate health issues in all policies decisions.

Impact evaluation seeks to understand the impact of the HIA itself on the decision and the decision-making process, and the extent to which the HIA influenced various stakeholders, and the extent to which the HIA recommendations were accepted and implemented.

### **Preliminary Plan for Monitoring**

This HIA aspect tracks the effect of the proposed policy, project, or program on health outcomes and/or determinants of concern. Monitoring the implementation and outcomes of a decision is properly the responsibility of the project proponent or an authorizing, funding, or implementing public agency. Comprehensive monitoring is not the responsibility of, and usually not within the capacity of, HIA practitioners. Nonetheless, the HIA should, where possible, propose a monitoring plan.

The grantee in this HIA is KRADD, the Kentucky River Area Development District. It is incumbent upon KRADD to designate an internal department committee, and/or officials by role and name, to monitor the implementation of the Elkhorn Lake Project through the lens of the HIA recommendations. The monitoring plan should commence upon release by KRADD to the public and the monitoring continues follow through the completion of the Elkhorn Lake Project Improvements. Regrettably this may take several years after the HIA report is made public but could be incorporated into the duties of the project assignments for the KRADD or Jenkins project coordinator.

### **Short and Long Term Goals of Monitoring Plan**

- a) The first short term goal (90 days) is to ascertain that KRADD designated organizational responsibilities and roles for internal monitoring. Additionally the other short term goals identified in the Elkhorn Lake HIA report shall be used to guide the development of monitoring data collection reports.
- b) Monitors shall determine if the completed report is accessible to those responsible for the monitoring, KRADD Board of Directors, and other stakeholders including the media and general public.
- c) On the long term, Monitors shall assure the data collection plan formats and reports associated with the HIA Goals and Recommendations are implemented.

**Indicators for monitoring:** For each recommendation related to the identified decisions, issues and impacts performance criteria will be identified.

### **Plan for Monitoring Information to be Made Public**

Elkhorn Lake Project Facebook page and KRADD website will show the results of the monitoring reports. The KRADD Board of Directors will receive hardcopies and digital copies will be made available to the general public and the media immediately upon approval of the KRADD Board. The Elkhorn Lake HIA report will list policy actions based upon features of the Elkhorn Lake Project. If funding, engineering, political climate, or other issues arise, the Workgroup will make decisions about the adaptations or changes to HIA.

### **Workgroup Team Members and Stakeholders**

**Todd DePriest, Project Director** for Elkhorn Lake Project: Mayor, City of Jenkins; Role: Elkhorn Lake Project Leadership and final decision maker for city.

**David Mathews, Ph.D., KRADD HIA Project Director:** Role: Project Leader for the Health Impact Assessment aspect of the Elkhorn Lake Project

**Donna Hardin, MBA, KRADD HIA Project Coordinator:** Role: Coordinator and lead communicator for HIA project.

**Karen Back, Workgroup Member;** Program Manager; Kentucky River Regional Prevention Center; Role: Research and analysis

**Scott Lockard; Workgroup Member:** Kentucky River Area Health Department Director; Role: Technical Advisor research and analysis

**Bennie McCall;** Workgroup Member, City Administrator; Role: City Government

**Angie Raleigh;** Workgroup Member: Breathitt Health Department Director; Role: Technical Advisor and analysis

**Melissa Slone, MSW;** Workgroup Member: University of Kentucky Center of Excellence in Rural Health; Role: Liaison with Rural Health Community

**Cale Turner,** Workgroup Member: Owsley County Judge Executive; Role: Technical Advisor and analysis

### **Other Stake Holders and Advisors**

**Jimmy Dills, MUP, MPH,** Technical Advisor: Georgia State University; Role PEW Technical Consultant

**Paul Nesbitt, PE Project Engineer:** Nesbitt Engineers, Lexington, KY Role: Engineer for city and technical expert on all matters related to dam and lake rehabilitation and reconstruction.

**Emily Bever; HIA Project Funder:** PEW Charitable Trusts, Role: Lead contact with funder for HIA project Elkhorn Lake Project:

**Robert Scott; Abandoned Mine Lands Project Director** with Kentucky Department for Local Governments; Role: State Advisor

**Andrea Begley, Congressman Hal Rogers Field Liaison; Role:** AML Liaison

**Gail Brion, Ph.D.,** University Of Kentucky, School of Engineering/ Dept. Civil Engineering College of Public Health/Dept. Environmental Health

**Deborah Payne,** Kentucky Environmental Foundation, Berea, Kentucky Deborah has a BA in Biology with a minor in Sustainability and Environmental studies from Berea College and a Masters of Public Health at the University of Kentucky with a focus on Environmental and Occupational Health.

**Logan Harris,** Health Impact Partners is a resource provided by the PEW Charitable Trusts, funders of the HIA.

## References and Resources

- 1) Abandoned Mine Lands grant application by City of Jenkins, 2017.
- 2) A Roadmap for Health in All Policies: Collaborating to Win the Policy Marathon; ChangeLab Solutions.org, 2018
- 3) Bright Spots and Health Disparities in Appalachia, Appalachian Regional Commission 2018
- 4) COE Phase 1 Inspection Report; National Dam Safety Program, U.S. Army Corps of City of Jenkins Community Survey, 2018
- 5) Delbarton West Virginia Announcements: Investment in Water Infrastructure Leads to Economic Development, News Release, Manchin Senate, 2011.
- 6) Department of Water Letter 2008Engineers; Engineer District Louisville; 1977
- 7) East Aldine Districts' Town Center Development: A Health Impact Assessment;
- 8) Elkhorn Lake Dam Study, Nesbitt Engineering, Inc. June 2010
- 9) Elkhorn Lake Improvement Abandoned Mine Lands Application, KRADD, 2017.
- 10) Emergency Action Plans for Dam Owners, FEMA Fact Sheet
- 11) Federal Guidelines for Dam Safety, FEMA 2004
- 12) Monitoring and Evaluation Plan, Health Impact Assessment Demonstration Project; Built Environment & Health Impact Assessment Unit, Environmental Public Health Division, Harris County Public Health & Environment Services, September 2015
- 13) Fixing sewers and local economies: an integrated approach to address water infrastructure concerns in smaller cities; Brookings Institution, Shalini Vajjhala and Ellory Monks, Tuesday, April 4, 2017
- 14) US News and Health Reports: How Healthy is Letcher County Kentucky?
- 15) Minimum Elements and Practice Standards for HIA 3.0; Bhatia R, Farhang L, Heller J, Lee M, Orenstein M, Richardson M and Wernham A. Minimum Elements and Practice Standards for Health Impact Assessment, Version 3. September, 2014
- 16) Place making Assessment Tool; Michigan State University Land Policy Institute
- 17) Promise Zone funding resources: USDA, Rural Development, Economic and Community Development, Anthony Hollingsworth Water Division Director. Commonwealth of Kentucky, Environmental and Public Protection Cabinet,
- 18) Value of Water Campaign: The Economic Benefits of Investing in Water Infrastructure; US Water Alliance, 2017
- 19) World Health Organization definition of HIA includes those things that impact upon how we are born, grow, live and play.

How Healthy is Letcher County, Kentucky? US NEWS and World Report: Selected Ratings of Healthiest Counties, 2018		
<b>Health Determinants</b>	<b>U.S. rate</b>	<b>Letcher County (24,519 pop.)</b>
<b>Overall Score (rating 0 to 100 best)</b>	<b>52.3</b>	<b>24</b>
<b>Population Health</b>		<b>15</b>
- Life Expectancy	77.9 years	72.4 years
- Poor or Fair Health	16.1%	23.2 %
- Deaths of Despair	38.5/100,000	76.6/100,000
- Adults without Leisure Time Activities	24.3%	32.7%
<b>Education</b>		<b>25</b>
- Idle Youth not in school or working	2.9%	8.1%
- Per pupil expenditures	\$11,730	\$10,368
<b>Public Safety- Fire Police</b>		<b>45</b>
- Per Capita Spending	\$239	\$58
- First Responders	0.7/1000	0.4/1000
<b>Economy</b>		<b>22</b>
- Poverty Rate	16.0%	28.4%
- Business Growth Rate	8.3%	9.1%
- Unemployment	5.0%	11.9%
<b>Environment</b>		<b>65</b>
- Unsafe Drinking Water	1.1%	13.2%
- Population near park	14.6%	20.6%
- Walkability Index	6.10	4.32
- Walkable Destination	4.8%	0.0%
<b>Housing</b>		<b>39</b>
- Net migration	+1.0%	-3.2%
- Vacancy Rate	2.6%	10.2%
- Flood Zone Housing	3.8%	14.1%
<b>Food &amp; Nutrition</b>		<b>30</b>
- Obesity	31.0%	38.4%
- Diabetes	9.3%	15.3%
- Access to large grocery	21.6%	0.0%
- Adults without enough fruits & vegt..	79.2%	82.0%