

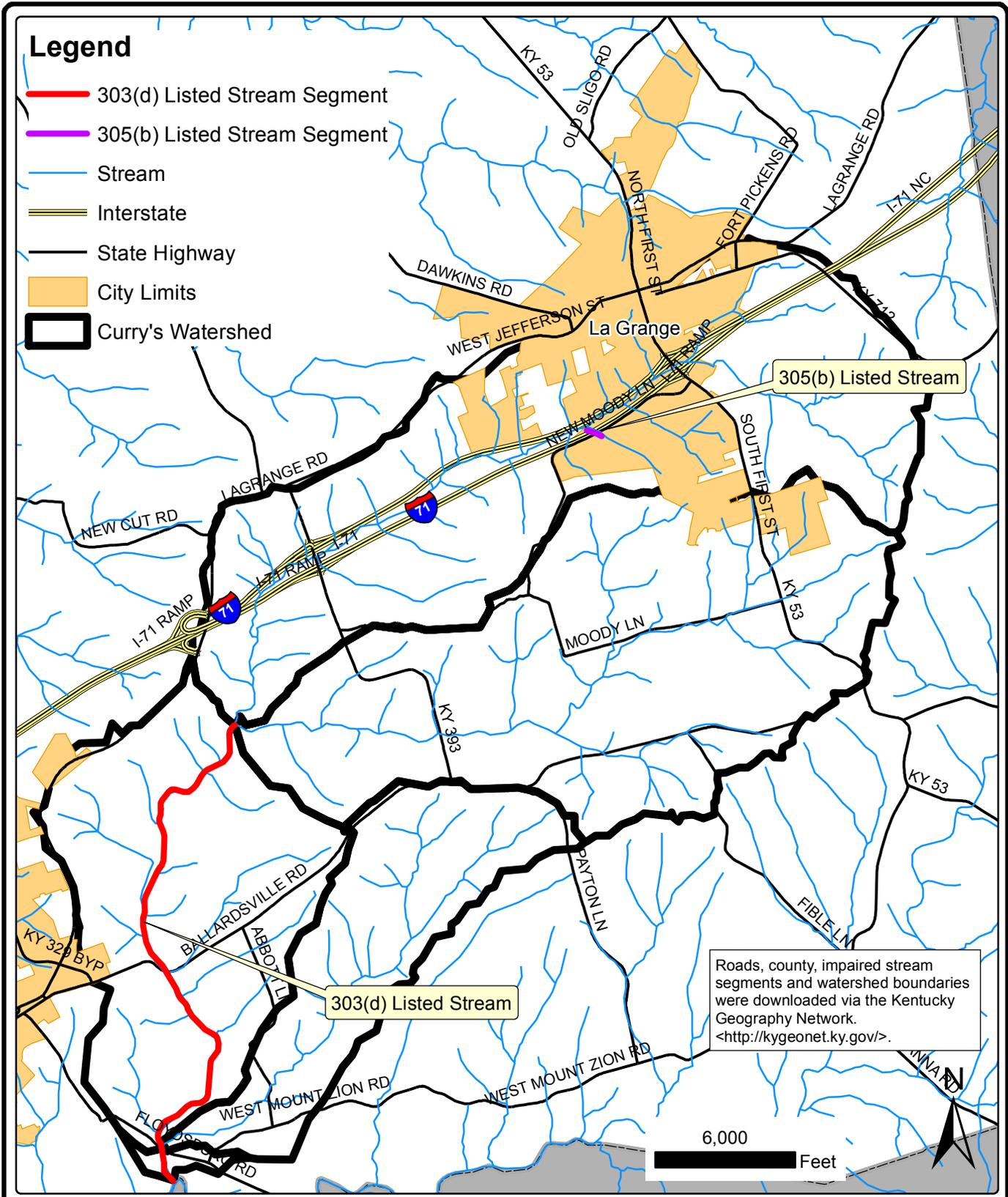
SECTION 1
INTRODUCTION

1.01 PROJECT BACKGROUND

This Watershed Plan (WP) focuses on the Curry's Fork watershed in Oldham County, Kentucky and its subwatersheds: Curry's Fork [Hydrologic Unit Code (HUC) 05140102180140 and 05140102180120], North Curry's Fork (HUC 05140102180100), South Curry's Fork (HUC 05140102180110), and Asher's Run (HUC 05140102180130). The Curry's Fork watershed was selected by Kentucky Division of Water (KDOW) and United States Environmental Protection Agency (USEPA) to receive FFY2006 Clean Water Act Section 319(h) Nonpoint Source Funding to address the pollutants that cause designated use impairments. Curry's Fork is listed as a first priority stream on the Clean Water Act (CWA) 303(d) List of Impaired Waters 2008 [303(d) List] with pollutants of fecal coliform, nutrients/eutrophication biological indicators, dissolved oxygen (DO), and sedimentation/siltation. Curry's Fork has one stream segment listed on the 303(d) List. Table 1.01-1 show the impairment status as it is listed in the 303(d) List.

<u>Curry's Fork–Miles 0.0 to 4.8 Into Floyds Fork</u>	Oldham County Segment Length: 4.8 miles
Impaired Use(s):	Warm Water Aquatic Habitat (Partial Support); Primary Contact Recreation Water (Nonsupport)
Pollutant(s):	Fecal Coliform; Nutrient/Eutrophication Biological Indicators; Oxygen, Dissolved; Sedimentation/Siltation
Suspected Sources:	Agriculture; Discharges from Municipal Separate Storm Sewer Systems (MS4); Habitat Modification–other than Hydromodification; Highway/Road/Bridge Runoff (Nonconstruction Related); Municipal (Urbanized High Density Area); Package Plant or Other Permitted Small Flows Discharges
Table 1.01-1 Curry's Fork 303(d) 2008 Listing	

The Curry's Fork watershed also has one additional stream segment listed in the 2010 305(b) Report. Table 1.01-2 shows the additional stream segment 305(b) Report listing in the Curry's Fork watershed. Figure 1.01-1 shows the location of the 303(d) and 305(b) stream segments in the Curry's Fork watershed.



**CURRY'S FORK
303(d) AND 305(b) STREAM SEGMENT LOCATIONS**
CURRY'S FORK WATERSHED PLAN
OLDHAM COUNTY FISCAL COURT
OLDHAM COUNTY, KENTUCKY



FIGURE 1.01-1
5994.100

Name	Unnamed Tributary to North Curry's Fork
County	Oldham
Segment Length	0.1 Miles (0.0 to 0.1)
Basin	Salt River
8-Digit Hydrologic Unit Code	5140102
WAH / CAH	5-NS ¹
PCR	3 ²
SCR	3 ²
Fish Consumption	3 ²
DWS	3 ²
Assessment Date	9/28/2005
Designated Uses	WAH, FC, PCR, SCR

WAH–Warm Water Aquatic Habitat
CAH–Cold Water Aquatic Habitat
PCR–Primary Contact Recreation
SCR–Secondary Contact Recreation
FC–Fish Consumption
DWS–Drinking Water Supply
NS–Nonsupport

1.) A report category of 5-NS on the 305(b) List indicates the stream segment is not supporting the designated use and a Total Maximum Daily Load report (TMDL) is required.
2.) A report category of 3 on the 305(b) List indicates the designated use has not been assessed because of insufficient or no available data.

Table 1.01-2 Curry's Fork 305(b) 2010 Report Listing

The purpose of the WP is to improve water quality to meet water quality standards in the watershed. Section 319(h) funding for the Curry's Fork WP was used to complete the following tasks:

1. Form a Technical Committee (TC) of local agencies and organization leaders.
2. Organize and involve stakeholders.
3. Compile and analyze existing information and data about the watershed.
4. Collect additional water quality data.
5. Analyze sampling data.
6. Quantify pollutant loads.
7. Identify pollutant sources.
8. Determine measurable goals.
9. Implement actions needed to meet those goals.
10. Implement a stream restoration project.

1.02 PROJECT AREA

Curry's Fork watershed covers approximately 28 square miles and is located within Oldham County, Kentucky. A portion of the City of La Grange (La Grange) is located in the northeastern part of the watershed. Refer to Section 2 for a detailed description of watershed characteristics.

1.03 PROJECT GOALS

Three community roundtable events were held to discuss the community's concerns within the watershed and to identify project goals for the WP. Input from the first roundtable event, held September 24, 2009, was used to establish goals for the watershed and WP. A detailed summary of the first roundtable appears in Appendix A. The four primary goals of the watershed are:

1. Improve and protect water quality for our generation and future generations.
2. Promote a safe, healthy, and accessible watershed for recreation and wildlife.
3. Utilize programs and practices to decrease potential flooding impacts.
4. Develop and implement a cost-effective watershed plan that economically utilizes funds.

The second and third community roundtables were held on July 15, 2010, and February 2, 2011. The July 2010 roundtable focused on bacteria data and the February 2011 roundtable focused on Warm Water Aquatic Habitat (WAH) data. The purpose of the bacteria and WAH roundtables was to share the results from the sampling and assessment program with the Curry's Fork watershed community and collect feedback on proposed solutions and remediation activities. Detailed summaries of the bacteria and WAH roundtables are located in Appendix B and C, respectively.

1.04 PLANNING AND DECISION MAKING PROCESS

A. Planning Guides

Two primary planning guides were used in the development of the WP: (1) USEPA's *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* and (2) Kentucky Waterways Alliance (KWA) and KDOW's *Draft Watershed Planning Guidebook for Kentucky Communities*. The KWA and KDOW guidebook was created to help Kentuckians work together to improve waterways and provide a step-by-step process that Kentucky communities may use to create effective WPs. Although the final version of the *Watershed Planning Guidebook for Kentucky Communities* is now available, significant changes were made to it from the draft version and it was not available until the near the end of the Curry's Fork WP development process. Therefore, the final version was not used to guide the development of this WP. The USEPA handbook has a similar purpose but is not specific to Kentucky. Both provide information to help communities meet the Section 319(h) grant requirements and the required nine key elements of WPs as defined by the USEPA. These elements include:

1. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions and any other goals identified in the watershed plan.
2. An assessment of the load reductions expected from management measures.
3. A description of nonpoint source management measures that will need to be implemented to achieve required load reductions and a description of the critical areas in which those measures will be needed to implement this plan.

4. A projection of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement the plan.
5. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures.
6. A schedule for implementing nonpoint source management measures identified in this plan that is reasonably expeditious.
7. A description of interim measureable milestones for evaluating whether nonpoint source management measures or other control actions are being implemented.
8. A set of criteria that can be used to assess whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.
9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against criteria established under Item 8.

B. Decision-Making Process

The Oldham County Fiscal Court (OCFC) was the lead organization in developing the WP. OCFC was responsible for making recommendations and providing oversight of the planning and implementation process using its local knowledge of the community and the watershed. An independent Watershed Advisor provided project guidance, oversight, and review. Strand Associates, Inc.[®] (Strand) provided technical services that included collecting and analyzing stream sampling, drafting the WP, and organizing stakeholder activities. These parties comprised the Curry's Fork Internal Project Team and met at least bimonthly to achieve the objectives of the project. Additional contractors were also utilized, including Third Rock Consultants, LLC (Third Rock), which provided biological sampling and habitat assessments. The University of Louisville (UL) Stream Institute provided a fluvial geomorphology study and designed the stream restoration projects. WP recommendations were contributed by these organizations and others. Three roundtable events were also held to allow the community to express their concerns and provide feedback on potential best management practices (BMPs).

Available data was compiled and reviewed by the Internal Project Team. The Internal Project Team used its knowledge of the watershed and geographical information system (GIS) to develop a list of preliminary pollutant sources and priority restoration and protection areas based on the data. The TC used its local knowledge of the watershed to verify pollutant sources, priority restoration/protection areas, and develop the list of proposed solutions. Proposed solutions were evaluated and rated based on their effectiveness by the TC. Proposed solutions that ranked high were presented to the Curry's Fork community through two community roundtable events where residents ranked their top solutions. The community input was then reviewed and incorporated into the solutions. The Internal Project Team then reviewed the compiled list of solutions and reviewed its estimated costs, feasibility, and if any existing programs were already working on similar programs. From this evaluation, the Internal Project Team formed the final solutions list.

1.05 PARTNERS AND STAKEHOLDERS

The following local entities, agencies, and organizations have participated in the development of this WP:

1. Eagle Resource Conservation and Development Program
2. Home Builders Association of Louisville
3. Independent Watershed Consultant
4. Kentuckiana Regional Planning and Development Agency
5. Kentucky Department of Fish and Wildlife Resources
6. Kentucky Division of Water (Frankfort Office)
7. Kentucky Division of Water (Local Field Office)
8. Kentucky Nature Preserves Commission
9. La Grange Stormwater Program
10. La Grange Utilities Commission
11. Oldham County Board of Education
12. Oldham County Citizens
13. Oldham County Conservation District
14. Oldham County Department of Health
15. Oldham County Environmental Authority (new entity comprised from Oldham County Sewer District and Oldham County Municipal Separate Storm Sewer System (MS4))
16. Oldham County Extension Office
17. Oldham County Fiscal Court
18. Oldham County Planning and Development Services
19. Oldham County Sewer District (now OCEA)
20. Oldham County Solid Waste and Recycling Department
21. Oldham County Water District
22. Salt River Watershed Watch
23. Strand Associates, Inc.[®]
24. Third Rock Consultants, LLC.
25. United States Army Corps of Engineers
26. United States Geological Survey
27. University of Louisville Stream Institute
28. United States Department of Agriculture Natural Resources Conservation Service
29. Veolia Water

Numerous agencies, organizations, and entities were invited to become members of the Curry's Fork TC. The TC was formed in August 2008 and is comprised of over 70 members from over a dozen of the local agencies and organizations listed above. The TC met 20 times during the WP development process to discuss sampling and assessment results, identify pollutant sources, and develop proposed solutions.

1.06 ACRONYMS AND ABBREVIATIONS

201	Section of the Clean Water Act requiring facilities planning.
303(d) List	Clean Water Act 303(d) List of Impaired Waters
304(a)	USEPA requirement to develop water quality criteria to protect environmental and human health based on scientific data and assessment.
305(b) Report	A National Water Quality Inventory Report required to be submitted to Congress by the USEPA.
319	Section of the Clean Water Act established the Section 319 Nonpoint Source Management Program to provide technical and financial assistance to mitigate nonpoint source pollution.
402 (p)	Section of the Clean Water Act establishing phased approach to permitting certain stormwater discharges.
404 and 401	Sections of the Clean Water Act that regulates impacts to the waters of the United States
AWQA	Agriculture Water Quality Authority
BEHI	bank erosion hazard index
BMPs	best management practices
BOD	biochemical oxygen demand
CFR	Code of Federal Regulations
col/100mL	colonies (bacteria) per 100 milliliters
CWA	Clean Water Act
DMRs	discharge monitoring reports
DO	Dissolved oxygen
<i>E. coli</i>	<i>Escherichia coli</i>
E-Waste	Electronic waste such as TVs, stereos, and computers
EPPC	Kentucky Environmental Public Protection Cabinet
EPT	<i>Ephemeroptera, Plecoptera, Trichoptera</i> Index
Extension Office	Oldham County Cooperative Extension Service
FEMA	Federal Emergency Management Agency
FSA	United States Department of Agriculture, Farm Service Agency
FWS	United States Department of Agriculture, Fish and Wildlife Service
GeoWEPP	geospatial water erosion prediction project model
GIS	geographical information system
GPP	groundwater protection plan
HUC	Hydrolic Unit Code
IBI	Index of Biological Integrity
I/I	inflow and infiltration
KAR	Kentucky Administrative Regulation
KDFWR	Kentucky Department of Fish and Wildlife Resources
KDOW	Kentucky Division of Water
KGS	Kentucky Geologic Service
KOWA	Kentucky On-site Wastewater Association
KPDES	Kentucky Pollutant Discharge Elimination System
KSNPC	Kentucky State Natural Preserves Commission

KSR	Kentucky State Reformatory
KWA	Kentucky Waterways Alliance
KYTC	Kentucky Transportation Cabinet
La Grange	City of La Grange, Kentucky
LDC	load duration curve
LG&E	Louisville Gas & Electric
LUC	La Grange Utilities Commission
MBI	Macroinvertebrate Biotic Index
mgd	million gallons per day
mg/L	milligrams per liter
mi	mile
mm/h	millimeters per hour
MS4	municipal separate storm sewer system
MSD	Louisville and Jefferson County Metropolitan Sewer District
N	Nitrogen
NAI	No Adverse Impact
NBS	near-bank stress
NH ₃ N	Ammonia Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NRCS	Natural Resources Conservation Service
OCBE	Oldham County Board of Education
OCEA	Oldham County Environmental Authority
OCFC	Oldham County Fiscal Court
OCHD	Oldham County Health Department
OCPDS	Oldham County Planning and Development Services
OCSD	Oldham County Sewer District
OCWD	Oldham County Water District
ORSANCO	Ohio River Valley Sanitation Commission
OWA	Onsite Wastewater Authority
P	phosphorus
PCR	Primary Contact Recreation
PCS	Permit Compliance System
PDR	Purchase Development Rights
POC	pollutants of concern
PTP	package treatment plant
QAPP	Quality Assurance Project Plan
RBP	Rapid Bioassessment Protocols
RC&D	Resource Conservation and Development
Strand	Strand Associates, Inc. [®]
SCR	Secondary Contact Recreation
SD1	Sanitation District No. 1 of Northern Kentucky
SIC	standard industrial classification
sq mi	square mile
SWQMP	Stormwater Quality Management Plan

SRF	State Revolving Fund
SRWW	Salt River Watershed Watch
STP	sewage treatment plant
TC	Technical Committee
Third Rock	Third Rock Consultants, LLC
TMDL	total maximum daily load
TSS	total suspended solids
UL	University of Louisville
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WAH	Warm Water Aquatic Habitat
WP	Watershed Plan
WQ	water quality
WQDR	Curry's Fork Water Quality Data Report
WQDAT	Curry's Fork Water Quality Data Analysis Team
WQS	Water Quality Standards
WWTP	wastewater treatment plant
yr	year

1.07 REFERENCES

References are denoted by number in superscript. The following list of references pertain to the superscript notations throughout this report.

¹Kentucky Geography Network GIS, Various Dates

²Beth Stuber, Oldham County Fiscal Court, 2009

³United States Geological Survey GIS, 2000

⁴www.uky.edu/KGS/water/library/gwatlas/Oldham/Geology.htm, 2004

⁵Soil Survey of Oldham County, Soil Conservation Service, 1978

⁶*Water-Resources Engineering*, David A. Chin, 2006

⁷Oldham County Comprehensive Zoning Ordinance, 2007

⁸*2007 Census of Agriculture*, United States Department of Agriculture and Kentucky Agricultural Statistics Service, 2007

⁹*Kentucky Cattle County Estimates*, National Agricultural Statistics Services, 2010

¹⁰*Outlook 2020–Oldham County Comprehensive Plan*, 2002

- ¹¹2000 *Census of Population and Housing*, United States Census Bureau, 2000
- ¹²<http://cfpub.epa.gov/npdes/stormwater/swbasicinfo.cfm>.
- ¹³<http://www.epa.gov/waterscience/standards/about/imp.htm>
- ¹⁴<http://www.epa.gov/waterscience/standards/about/crit.htm>
- ¹⁵McMurray, Steve, Rodney Pierce, and John Brumley. *Qualitative Mussel Survey of the Floyds Fork Watershed*. Kentucky Division of Water, 2003.
- ¹⁶Ohio River Valley Sanitation Commission (ORSANCO). *Ohio River Water Quality Fact Book*. 1994.
- ¹⁷Kentucky Division of Water. *Standard Methods for Assessing Biological Integrity of Surface Waters in Kentucky*. 2002 and 2008.
- ¹⁸United States Environmental Protection Agency. *Permit Compliance System (PCS)*. 2010.
- ¹⁹United States Environmental Protection Agency, 2008. *Handbook for Developing Watershed Plans to Restore and Protect our Waters*. EPA 841-B-08-002.
- ²⁰Kentucky Waterways Alliance and Kentucky Division of Water. *Draft Watershed Planning Guidebook for Kentucky Communities*.
- ²¹Kentucky Division of Water. *2008 Integrated Report to Congress on the Condition of Water Resources in KY, Vol II, 303(d) List of Surface Waters*.
- ²²Federal Emergency Management Agency. Flood Insurance Rate Map. Various dates.
- ²³Croasdaile and Parola, Jr., *Sediment and Geomorphic Assessment of the Curry's Fork Watershed*, University of Louisville Stream Institute, 2011.
- ²⁴Kentucky Department of Environmental Protection, Division of Water, Groundwater Branch. *Groundwater Sensitivity Regions of Kentucky*. 1994.
- Masters, Gilbert. *Introduction to Environmental Engineering*. 1998.