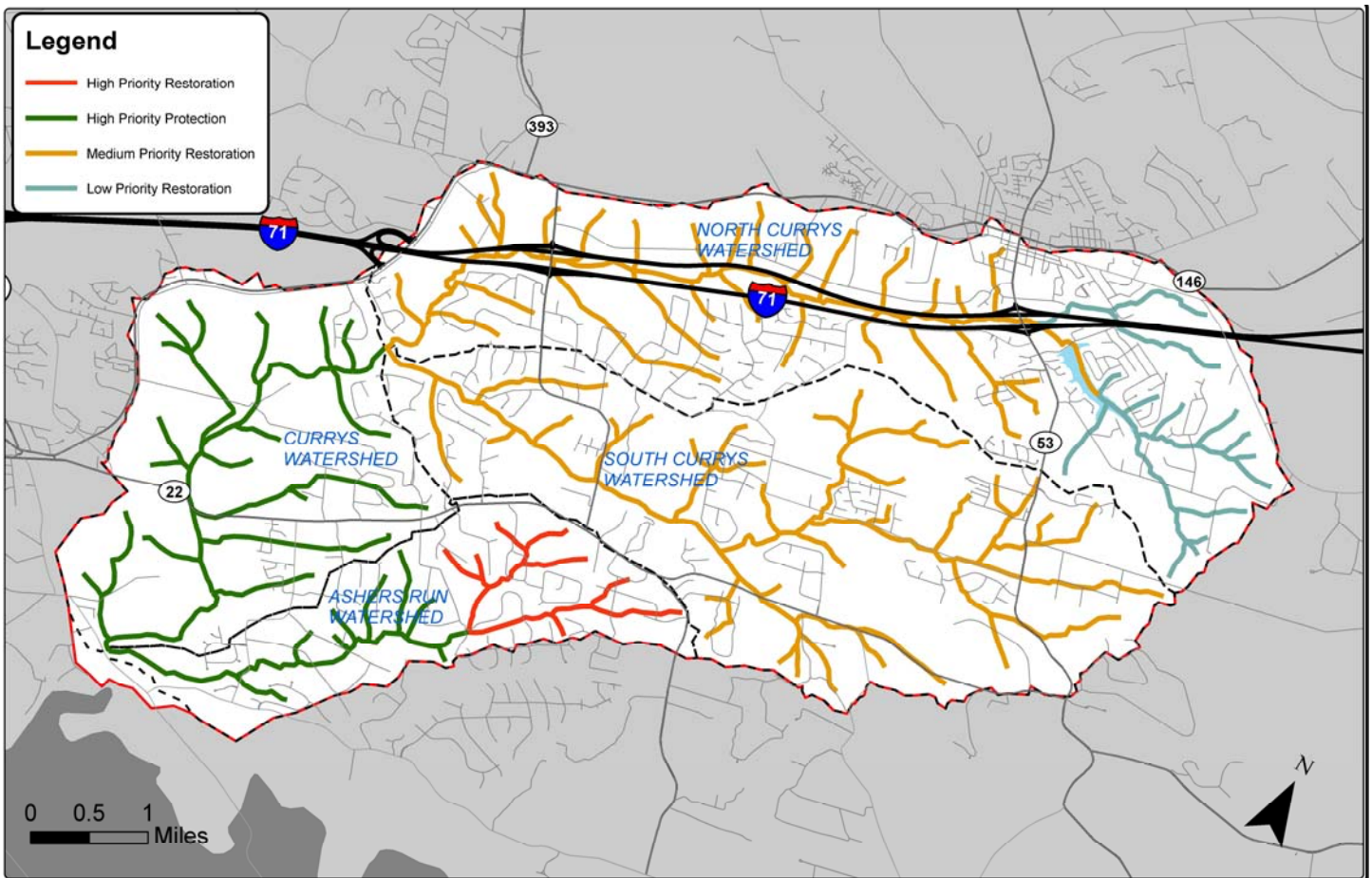


# Curry's Fork Technical Committee Proposed Bacteria Solutions Survey Results

Throughout the course of this project, the Curry's Fork Watershed Technical Committee has been an integral part of the development of a Watershed Plan. In July of 2010, a survey of remediation and protection solutions developed through the Committee was sent out to the Technical Committee to solicit feedback on the relative effectiveness of these solutions for each subwatershed. Because of the large number of remediation and protection solutions that were proposed during the development process, some solutions were combined or solutions were presented in the survey that were representative of a suite of similar solutions in order to make the survey length and detail manageable.

The results of the survey are presented on the following pages. For reference, sub-watershed maps and identified probable pollution sources are listed. An overall watershed map is below:



The results of the survey are being used to prioritize solutions for further investigation into their cost, feasibility and effectiveness. This investigation will be presented at the September 2010 Technical Committee meeting to finalize recommended solutions in the Watershed Plan.

# Upper Ashers Run Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

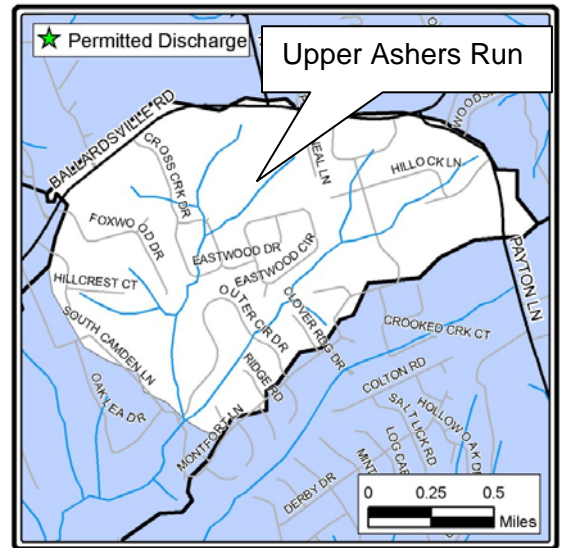
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Upper (headwaters) Area of Ashers Run is high priority restoration.

## Pollutant Sources

The more probable bacteria pollution sources in the Upper (headwaters) Area of Ashers Run are Listed in no particular order or rank:

- Low-intensity animal operations (small numbers of goats, horses, etc. as well as some 'non-traditional' livestock on relatively small properties)
- Septic Systems
- Wildlife



## Proposed Solutions / Remediation Activities Survey Results

Bacteria Remediation Activity	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Expand Use of Riparian Buffers/Filter Strips	12	49	4.1	50%	33%	0%	8%	8%	0%
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	12	48	4.0	33%	50%	8%	0%	8%	0%
Replace Aging/Failing Septic Systems	12	48	4.0	33%	33%	33%	0%	0%	0%
Enhance 'No-Disturb' Ordinance Around Streams to Require Creating Designed Buffer/Filter Strips Instead of Just Open Space	12	46	3.8	58%	17%	0%	8%	8%	8%
Educate owners of non-traditional animals on appropriate BMPs for pathogen reduction	12	45	3.8	42%	8%	33%	17%	0%	0%
Increase/require the number of inspections of septic systems.	12	44	3.7	33%	33%	8%	17%	8%	0%
Ensure All Applicable Farms have Developed and Implemented individual Ag. Water Quality Plans	12	42	3.5	17%	33%	33%	17%	0%	0%
Educate livestock owners on appropriate BMPs for pathogen reduction	12	41	3.4	25%	17%	33%	25%	0%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	12	39	3.3	25%	25%	25%	0%	25%	0%
Encourage Farms to Register to be Eligible for USDA Programs/Assistance	12	34	2.8	25%	0%	42%	8%	17%	8%

# Lower Ashers Run Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

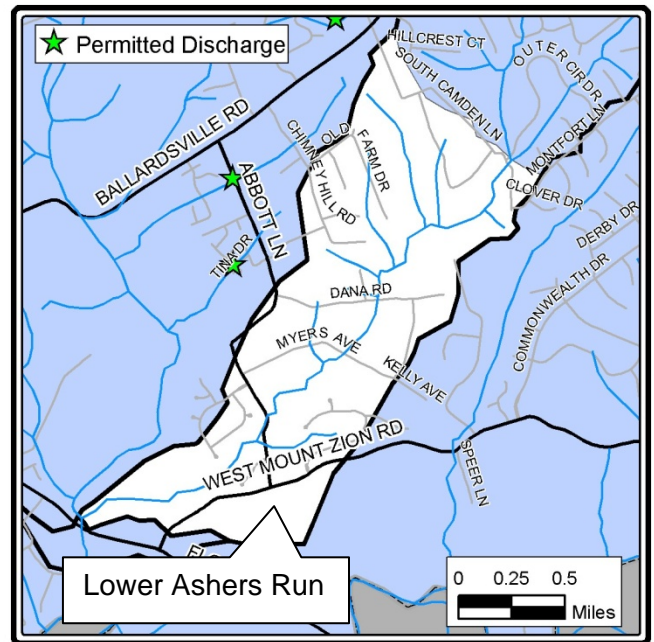
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Lower (downstream) Area of Ashers Run is high priority protection.

## Pollutant Sources

The more probable bacteria pollution sources in the Lower (downstream) Area of Ashers Run are ( Listed in no particular order or rank):

- Upstream Contributions
- Wildlife



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Protect Riparian Zones	11	46	4.2	45%	36%	9%	9%	0%	0%
Expand Use of Riparian Buffers/Filter Strips	11	45	4.1	36%	45%	9%	9%	0%	0%
Purchase (or Place in Conservation Easements) Properties Along Creek to Preserve/Make into Parks	11	43	3.9	45%	18%	27%	0%	9%	0%
Explore Purchase Development Rights (PDR) type Programs	11	39	3.5	36%	9%	36%	9%	9%	0%
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	11	38	3.5	18%	45%	9%	18%	9%	0%
Enhance 'No-Disturb' Ordinance Around Streams to Require Creating Designed Buffer/Filter Strips Instead of Just Open Space	9	35	3.9	44%	22%	22%	0%	11%	0%
Replace Aging/Failing Septic Systems	10	33	3.3	20%	20%	30%	30%	0%	0%
Investigate adding Curry's Fork to the Outstanding State Resource Water List	10	30	3.0	30%	0%	30%	20%	20%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	10	28	2.8	20%	10%	30%	10%	30%	0%

# Upper North Curry's Fork Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

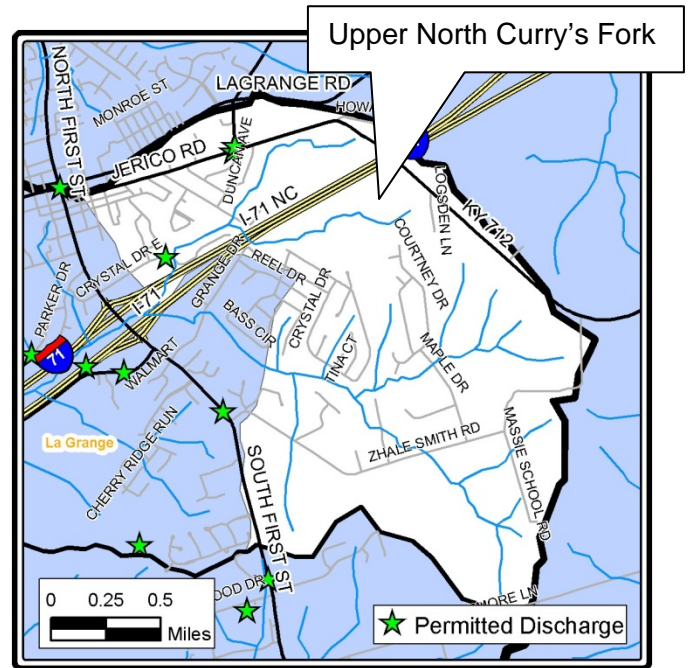
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Upper (headwaters) Area of North Curry's Fork is low priority restoration.

## Pollutant Sources

The more probable bacteria pollution sources in the Upper (headwaters) Area of North Curry's Fork are (Listed in no particular order or rank):

- Septic Systems



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	12	51	4.3	58%	25%	8%	0%	8%	0%
Replace Aging/Failing Septic Systems	12	50	4.2	42%	33%	25%	0%	0%	0%
Purchase (or Place in Conservation Easements) Properties Along Creek to Preserve/Make into Parks	12	45	3.8	33%	33%	17%	8%	8%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	12	44	3.7	25%	50%	8%	0%	17%	0%
Expand Use of Riparian Buffers/Filter Strips	12	43	3.6	25%	33%	25%	8%	8%	0%
Expand Riparian Zones/No-Disturbance Zones Around Creeks	12	42	3.5	25%	33%	17%	17%	8%	0%
Enhance 'No-Disturb' Ordinance Around Streams to Require Creating Designed Buffer/Filter Strips Instead of Just Open Space	11	40	3.6	36%	18%	27%	9%	9%	0%
Explore Purchase Development Rights (PDR) type Programs	10	27	2.7	10%	20%	20%	30%	20%	0%



# Lower North Curry's Fork Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

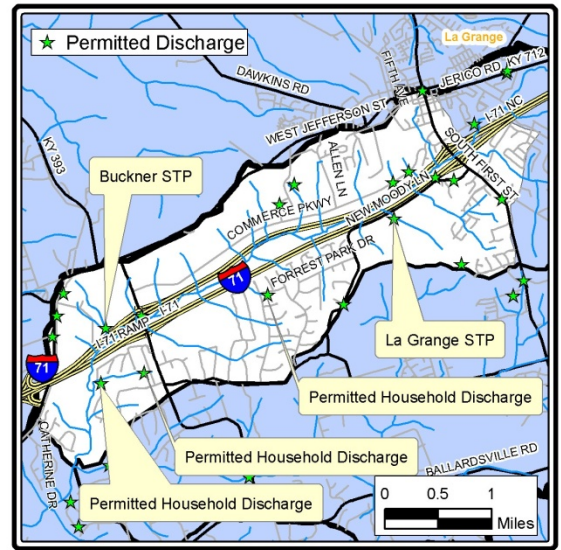
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Lower (downstream) Area of North Curry's Fork is medium priority restoration.

## Pollutant Sources

The more probable bacteria pollution sources in the Lower (downstream) Area of North Curry's Fork are (Listed in no particular order or rank):

- Failing septic systems in Borowick Farms
- Stormwater from MS4 Areas (La Grange and Oldham County)
- Buckner Package Treatment Plant
- La Grange Wastewater Treatment Plant
- Permitted Household Discharge
- Stormwater leaking into sewers and taking up capacity, causing overflows and/or plant upsets



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Eliminate Sewer Overflows	12	48	4.0	58%	8%	17%	8%	8%	0%
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	12	47	3.9	42%	25%	25%	0%	8%	0%
Replace Aging/Failing Septic Systems	11	45	4.1	45%	27%	18%	9%	0%	0%
For the planned decommissioning of package treatment plants, plan for concurrent sewer infrastructure to decommission septic systems and individual package treatment plants were applicable	12	45	3.8	17%	58%	17%	0%	8%	0%
Increase/require the number of inspections of septic systems.	12	44	3.7	33%	25%	25%	8%	8%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	12	43	3.6	25%	25%	42%	0%	8%	0%
Eliminate Buckner Treatment Plant in the Next 2 Years	11	42	3.8	55%	9%	9%	18%	9%	0%
Prioritize I&I Work To Focus On Joints Where Homeowners Lateral Lines Tie Into Main Sewers.	12	42	3.5	17%	50%	8%	17%	8%	0%
Reduce I/I Into Sewer Lines to Preserve Capacity for Current and Future Users	12	41	3.4	17%	42%	17%	17%	8%	0%

# Upper South Curry's Fork Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

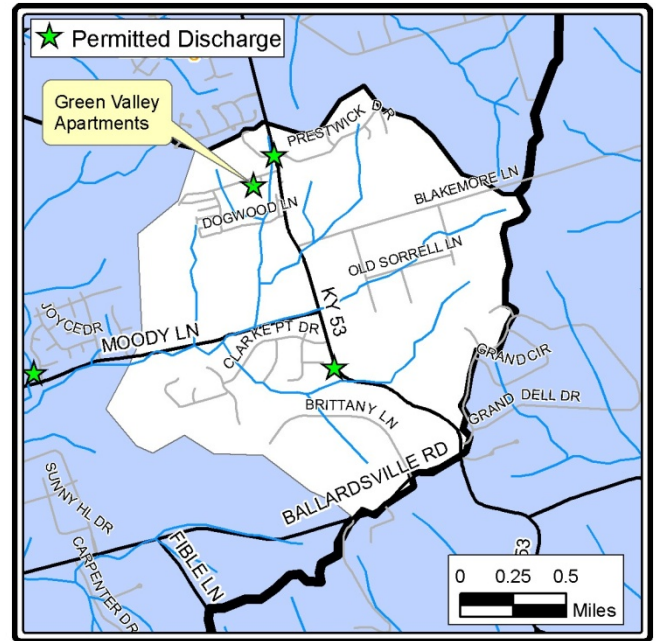
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Upper (headwaters) Area of South Curry's Fork is medium priority restoration.

## Pollutant Sources

The more probable bacteria pollution sources in the Upper (headwaters) Area of South Curry's Fork are (Listed in no particular order or rank):

- Green Valley Package Treatment Plant



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Support wastewater facility upgrades and rehabilitations to improve wastewater treatment	12	54	4.5	67%	17%	17%	0%	0%	0%
Increase/require the number of inspections of septic systems.	12	43	3.6	25%	25%	42%	0%	8%	0%
Eliminate Green Valley Treatment Plant in the Next 2 Years	10	40	4.0	50%	30%	0%	10%	10%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	11	36	3.3	9%	36%	36%	9%	9%	0%
Review City and County capacity ordinances for effectiveness, and revise as necessary	9	29	3.2	44%	0%	11%	22%	22%	0%

# Lower South Curry's Fork Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

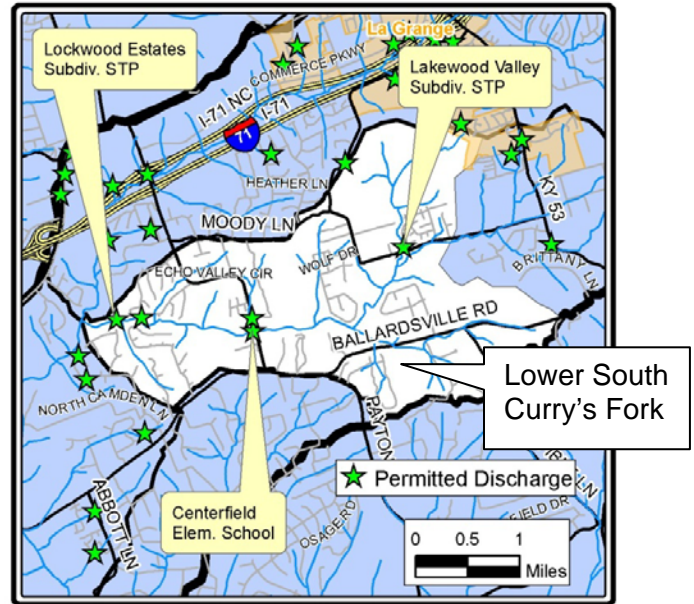
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Lower (downstream) Area of South Curry's Fork is medium priority restoration.

## Pollutant Sources

The more probable bacteria pollution sources in the Lower (downstream) Area of South Curry's Fork are (Listed in no particular order or rank):

- Lockwood Package Treatment Plant
- Lakewood Package Treatment Plant
- Centerfield Elementary Package Treatment Plant
- Septic Systems



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Replace Aging/Failing Septic Systems	12	50	4.2	50%	25%	17%	8%	0%	0%
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	12	50	4.2	58%	17%	17%	0%	8%	0%
Increase/require the number of inspections of septic systems.	12	45	3.8	42%	17%	25%	8%	8%	0%
Eliminate Lakewood Treatment Plant in the Next 11 - 20 Years	11	42	3.8	45%	18%	9%	27%	0%	0%
Eliminate Lockwood Treatment Plant in the Next 11 - 20 Years	11	42	3.8	45%	18%	9%	27%	0%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	12	38	3.2	17%	17%	42%	17%	8%	0%
Eliminate Remaining Package Treatment Plants in Watershed	9	35	3.9	56%	11%	0%	33%	0%	0%
Review City and County capacity ordinances for effectiveness, and revise as necessary.	10	31	3.1	20%	20%	30%	10%	20%	0%
Transfer Management of Centerfield Elementary wastewater treatment plant from School to wastewater utility.	11	30	2.7	18%	9%	36%	0%	36%	0%

# Curry's Fork Subwatershed

Curry's Fork Technical Committee  
Proposed Bacteria Solutions Survey Results

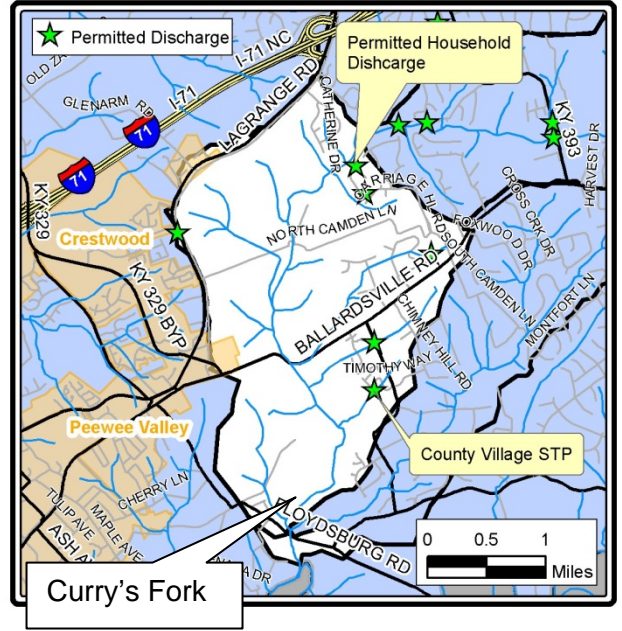
## Bacteria Restoration Protection Priority

The bacteria pollution protection priority in the Curry's Fork (mainstream) Area is high priority protection.

## Pollutant Sources

The more probable bacteria pollution sources in the Curry's Fork (mainstream) Area are (Listed in no particular order or rank):

- North Curry's Upstream Contribution
- South Curry's Upstream Contribution
- Permitted Household Discharge
- Country Village Package Treatment Plant



## Proposed Solutions / Remediation Activities Survey Results

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Eliminate Sewer Overflows	12	45	3.8	58%	8%	0%	17%	17%	0%
Target Septic System Education, Rehab, Inspection, Etc To Systems That Are In Low-Lying Areas And In Close Proximity To Waterways.	12	44	3.7	33%	33%	17%	0%	17%	0%
Eliminate Remaining Package Treatment Plants in Watershed	11	42	3.8	55%	0%	18%	27%	0%	0%
Improve compliance with sump pumps/downspout ordinance(s) to reduce non-wastewater flows to sewers.	12	42	3.5	33%	25%	8%	25%	8%	0%
Prioritize I&I Work To Focus On Joints Where Homeowners Lateral Lines Tie Into Main Sewers.	12	41	3.4	17%	42%	17%	17%	8%	0%
Replace Aging/Failing Septic Systems	12	41	3.4	33%	8%	33%	17%	8%	0%
Increase/require the number of inspections of septic systems.	12	39	3.3	25%	17%	33%	8%	17%	0%



# Entire Curry's Fork Watershed

## Curry's Fork Technical Committee Proposed Bacteria Solutions Survey Results

### **Bacteria Restoration Protection Priority**

There are remediation activities that are recommended for all Curry's Fork subwatersheds. The survey participants were asked to respond to the effectiveness of the proposed solutions similar to the subwatershed exercise.

### **Proposed Solutions / Remediation Activities Survey Results**

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Protect Riparian Zones	11	46	4.2	36%	55%	0%	9%	0%	0%
Reassess design criteria for onsite wastewater requirements	10	42	4.2	50%	20%	30%	0%	0%	0%
Promote Septic System Maintenance, Operation and Management Education (GPP & Health Department)	11	41	3.7	36%	27%	18%	9%	9%	0%
Improve compliance with sump pumps/down-spout ordinance(s) to reduce non-wastewater flows to sewers.	11	41	3.7	36%	27%	9%	27%	0%	0%
Expand Riparian Zones/No-Disturbance Zones Around Creeks	10	40	4.0	40%	30%	20%	10%	0%	0%
For the planned decommissioning of package treatment plants, plan for concurrent sewer infrastructure to decommission septic systems and individual package treatment plants were applicable	11	40	3.6	27%	27%	36%	0%	9%	0%
Improve wastewater treatment in existing priority areas in conjunction with water line extensions.	11	40	3.6	36%	18%	27%	9%	9%	0%
Utilize Water Quality Monitoring Data Produced By Oldham County Stormwater District, KDOW And OCSD For Gauging Progress With Reducing Pathogen Loads And For Targeting Additional Restoration/Protection Efforts	11	39	3.5	27%	18%	45%	0%	9%	0%
Expand Use of Riparian Buffers/Filters Strips	10	38	3.8	20%	60%	10%	0%	10%	0%
Support efforts to continue collaboration, cooperation and communication between Oldham County Sewer District, Louisville MSD, La Grange Utilities Commission and Health Department on all components of wastewater planning and implementation to maintain and improve water quality on a watershed scale.	10	38	3.8	30%	40%	20%	0%	10%	0%
Require Inspection of Septic Systems when Property is Bought/Sold; include process for rental properties. Consider using changes to water and/or electric service or real estate transactions as triggers.	11	38	3.5	36%	27%	9%	9%	9%	9%
Coordinate Sewer Expansions in Conjunction with Planned Water Line Expansions	11	38	3.5	36%	9%	36%	0%	18%	0%
Encourage And Support Efforts To Explore Alternative Wastewater Treatment Efforts (Cluster Systems, Step Treatment Systems, Etc.)	11	38	3.5	27%	18%	36%	9%	9%	0%
Purchase (or Place in Conservation Easements) Properties Along Creek to Preserve/Make into Parks	11	38	3.5	18%	27%	45%	0%	9%	0%
Establish one "Bad Septic Area Map" for all County Planning Purposes	11	37	3.4	45%	9%	18%	0%	18%	9%
Enhance 'No-Disturb' Ordinance Around Streams to Require Creating Designed Buffer/Filter Strips Instead of Just Open Space	11	37	3.4	27%	27%	27%	0%	9%	9%
Use "What's Happening in Oldham County" to Distribute Information/Promote Responsible Practices	11	37	3.4	18%	36%	18%	18%	9%	0%

	Total Number of Responses	Total Score	Average Score	Percentage of "5" Responses	Percentage of "4" Responses	Percentage of "3" Responses	Percentage of "2" Responses	Percentage of "1" Responses	Percentage of "0" Responses
Encourage Oldham County Sewer District and La Grange Utilities Commission to include alternative analyses in their wastewater plans for centralized management of onsite wastewater systems as appropriate.	11	36	3.3	27%	27%	18%	9%	9%	9%
Support and encourage full and expedient implementation of Oldham County's and LaGrange's Stormwater Management Quality Management Plans.	11	36	3.3	9%	36%	36%	9%	9%	0%
Develop And Conduct Program To Educate Homeowners About Responsibilities Pertaining To Lateral Lines.	11	36	3.3	18%	18%	45%	9%	9%	0%
Improve water quality so that it is safe to wade or swim in the creek	10	35	3.5	30%	40%	0%	10%	20%	0%
Support The Full And Timely Implementation Of Consent Decrees, Agreed Orders Or Other Actions Required By The Kentucky Division Of Water.	11	35	3.2	9%	45%	27%	0%	9%	9%
Review City and County capacity ordinances for effectiveness, and revise as necessary.	11	35	3.2	27%	18%	18%	18%	18%	0%
Reduce I/I Into Sewer Lines to Preserve Capacity for Current and Future Users	10	34	3.4	20%	30%	20%	30%	0%	0%
General Water Quality and Watershed Education Specific to Watershed and Its Impairments	11	34	3.1	18%	36%	9%	18%	9%	9%
Increase Monitoring of Streams in Watershed	11	34	3.1	9%	36%	18%	27%	9%	0%
Establish Process For Continued Technical Committee Communication And Input On Wastewater Plans And Wastewater Improvements	11	33	3.0	9%	18%	45%	18%	9%	0%
Establish a communication plan to convey the findings of the Watershed Plan to applicable groups as part of the overall Education and Outreach Plan.	11	32	2.9	18%	27%	9%	27%	9%	9%
Encourage Public/Stakeholder Engagement With Regards To Wastewater Planning And Implementation	11	32	2.9	18%	18%	27%	18%	9%	9%
Ensure communication, guidelines and pre-planning/approval for any wastewater system improvements, modifications or upgrades on a watershed scale.	11	32	2.9	27%	0%	36%	18%	9%	9%
Promote Town and Country Days to Educate on BMPs to connect residential and farm owners	11	31	2.8	9%	36%	0%	36%	18%	0%
Establish a communication plan to convey the findings of the Watershed Plan to applicable groups as part of the overall Education and Outreach Plan.	11	31	2.8	9%	9%	64%	0%	9%	9%
Create Responsible Management Entity for Septic Systems (Individual and/or Clustered)	10	30	3.0	10%	40%	20%	0%	30%	0%
Promote watershed protection status and encourage continued protection in identified Pathogen Priority Protection Areas	11	29	2.6	9%	18%	36%	9%	18%	9%
Explore Purchase Development Rights (PDR) type Programs	10	24	2.4	10%	20%	30%	10%	0%	30%
Investigate adding Curry's Fork to the Exceptional Waters List	11	19	1.7	9%	9%	9%	18%	27%	27%
Investigate adding Curry's Fork to the Outstanding State Resource Water List	10	17	1.7	0%	10%	20%	20%	30%	20%