

**MEETING NOTES**  
**of the**  
**STORMWATER STAKEHOLDER ADVISORY COMMITTEE (SSAC)**  
Lexington-Fayette Urban County Government (LFUCG)

**Date of Meeting:** June 2, 2017 (Meeting #28)  
**Time of Meeting:** 9:00 a.m.  
**Location of Meeting:** Division of Water Quality  
Tate Building - North Elkhorn Conference Room  
125 Lisle Industrial Avenue, Suite 180

Attendees:

COMMITTEE MEMBERS

Derek Adams – Kentucky Transportation Cabinet District 7  
Richard Archer – Federal Facilities, VA Medical Center  
Eileen Burk – Kentucky American Water Company (for David Shehee)  
Jim Conner – Cane Run Watershed At-Large  
Ken Cooke – Friends of Wolf Run  
Michael Galavotti – Friends of McConnell Springs  
Jim Griggs – Boone Creek Watershed At-Large  
Amanda Gumbert – Friends of Cane Run  
Brian Hayes – LFUCG Division of Engineering (for Doug Burton)  
Ken Johnson – Commerce Lexington, Link-Belt Co  
Todd Johnson – Building Industry Association of Central Kentucky  
Jim Kipp – Kentucky Water Resources Research Institute (for Lindell Ormsbee)  
Kevin Lewis – University of Kentucky  
Zachary Losey – LFUCG Urban County Council (for Kathy Plomin)  
Charlie Martin – LFUCG Division of Water Quality  
Tom Martin – LFUCG Division of Planning (for Jim Duncan)  
Demetria Mehlhorn – LFUCG Division of Environmental Services (for Susan Plueger)  
Scott Smith – Commerce Lexington, Smith Management Group  
Scott Southall – West Hickman Watershed At-Large  
Russ Turpin – Wolf Run Watershed At-Large

LFUCG REPRESENTATIVES & OTHER ATTENDEES

Doug Baldwin – LFUCG Division of Water Quality  
Bob Brashear – University of Kentucky  
Jennifer Carey – LFUCG Division of Water Quality  
Steve Evans – Third Rock Consultants, LFUCG MS4 Program Management  
Gabe Hensley – LFUCG Division of Water Quality  
Becky Irwin – LFUCG Division of Water Quality  
Greg Lubeck – LFUCG Division of Water Quality  
Angela Poe – LFUCG Division of Environmental Services  
Joyce Probus – LFUCG Division of Water Quality  
Mary Beth Robson – GRW  
Barry Saturday – MCF Advisors  
John Steinmetz – Banks  
Barry Tonning – Tetra Tech, LFUCG MS4 Program Management  
Richard Walker – Tetra Tech, LFUCG MS4 Program Management

## **Opening Remarks**

Scott Smith called the meeting to order at 9:04 a.m.

Mr. Smith characterized TMDLs as a tough issue to establish and manage. Bacterial release and contamination is the primary reason our streams are considered impaired. Multiple sources make it difficult and expensive to face, problems cut across counties, and we have to deal with it as we can.

## **Approval of 3/3/17 Minutes**

Mr. Smith asked the group if there were changes or additions to the minutes. Scott Southall moved to approve the minutes from the March 3 meeting, seconded by Ken Cooke, and the motion passed.

Jennifer Carey asked new attendees to introduce themselves.

## **Focusing on TMDLs and Impaired Waters: Perspectives on Bacteria Sources in Fayette County**

Barry Toning reviewed the obligations in LFUCG's MS4 Permit regarding Total Maximum Daily Loads (TMDLs) and impaired waters, for which we must:

- demonstrate progress in reducing pollutants using Best Management Practices (BMPs) to achieve the wasteload allocations (WLAs) set in the TMDL documents;
- identify MS4 Major Outfalls draining to impaired stream segments;
- monitor and report the pollutant discharge load associated with the MS4 major outfalls; and
- propose appropriate BMPs for implementation, including an implementation schedule.

Reduction of pollutant discharges is to be accomplished through the implementation of our Stormwater Quality Management Program (SWQMP).

Fayette County has pathogen-impaired stream segments for primary and secondary contact recreation. Three TMDLs based on Fecal Coliform and *Escherichia coli* have been approved for five Fayette County watersheds: Cane Run, North Elkhorn, South Elkhorn, Town Branch, and Wolf Run.

Ms. Carey introduced the role of *E. coli* as an indicator organism: the indicator must be present when pathogens are present and absent when pathogens are absent.

In Fayette County, Sanitary Sewer overflows (SSOs) are estimated to contribute 3,000 trillion *E. coli* colonies / year, dogs are responsible for an estimated 2,400 trillion *E. coli* colonies / year, birds contribute an estimated 360 trillion *E. coli* colonies / year, and cattle and horses contribute an estimated 15,000 trillion *E. coli* colonies / year.

Jennifer Carey used a stuffed toy scaled to represent an *E. coli* organism magnified to 1,000,000 times its actual size to recapitulate the magnitude of *E. coli* in our local environment: known SSOs contribute 3,000 trillion *E. coli* colonies / year which is equivalent to 3 billion of our stuffed toy. Extrapolating for the additional sources described above, we are looking at an estimated 20,760,000,000,000,000 *E. coli* colonies / year or 20,760,000,000 stuffed toy *E. coli* colonies / year.

The Consent Decree provides regulatory oversight for LFUCG's sanitary sewers and storm sewers; KY DOW also regulates LFUCG's stormwater discharges via our MS4 Permit. Other Fayette County bacteria sources are septic systems, package treatment plants, wildlife, and livestock operations.

Steve Evans showed the recently-updated impairment maps for Fayette County based on the state's draft 2016 303(d) list, and shared that North Elkhorn has been delisted for conductivity. South Elkhorn's chlorine impairment was included in an earlier listing; however, it may have been listed based on a single sample.

### ***Review of Bacteria Sources Survey Results***

The results from the surveys conducted at the March SSAC meeting showed that the attendees assessed:

- Human Sources as responsible for 51% of bacteria contributions, and that LFUCG should target 65% of its resources to addressing those sources
- Animal Sources as responsible for 39% of bacteria contributions, and that LFUCG should target 27% of its resources to addressing those sources
- Environmental / Other Sources contribute 10% of the bacteria, and the city should target 8% of its resources to addressing those sources

### ***Potential BMPs / Group Discussion on BMPs / Survey to Rank BMPs to Address Human Sources of Bacteria***

The group reviewed current programs related to the sanitary sewer compliance measures in Lexington's Consent Decree:

- Remedial Measures Plans (RMPs)
- Capacity, Management, Operations, and Maintenance (CMOM) Programs:
  - Capacity Assurance Program (CAP)
  - Gravity Line Preventative Maintenance Program (GLPMP)
  - Sewer Overflow Response Plan (SORP)
  - Fats, Oils, and Grease (FOG) Program
  - Pump Station Operation Plan for Power Outages (PSOPPO)
- Illicit Discharge Detection and Elimination Program (IDDE)

LFUCG seeks to prioritize areas with CAP needs, frequent maintenance, and poor water quality. Since LFUCG has resources allocated to addressing the sanitary sewer system, we reviewed and discussed BMPs to address other human sources of bacteria, including private sewer lateral lines, wastewater treatment package plants, and septic systems.

Ms. Carey provided an informal survey to the group regarding Bacteria Reduction Strategies, in order for attendees to prioritize or rank BMPs for lateral lines, package plants, and septic systems. A copy of the survey is attached.

### ***Next Steps***

Ms. Carey shared that at the next SSAC meeting we would review the results from today's survey prioritizing the BMPs to address the human sources of bacteria, and that we would review and rank potential BMPs to address the animal sources of bacteria in our streams and creeks.

### **Nominations for Remaining Vacant Watershed At-Large Seats**

Two seats remain unfilled:

- North Elkhorn
- South Elkhorn (recently vacated by Corrine Mulberry, who has moved out of state)

### **Topics for Next Meeting**

- Review Today's Survey Results
- Discuss & Rank Potential BMPs to Address Animal and Environmental Sources
- Future Meeting Topics:
  - Update on Minimum Control Measures (MCMs) 1 & 2, including a report from Bluegrass Greensource
  - Mr. Cooke requested a presentation by Lexington-Fayette County Health Department staff about local epidemiology studies
  - Mr. Smith requested an update on projects funded by the Stormwater Quality Projects Incentive Grant Program

Mr. Smith moved that the September 1 meeting date be rescheduled to Thursday, August 31, to accommodate the Labor Day holiday, seconded by Mr. Southall, and the motion passed.

**Announcements**

- Mr. Smith announced that the Stormwater Quality Projects Incentive Grant Program Class B Infrastructure applications are due Friday, July 28, 2017.
- Angela Poe announced Greenfest will be held June 3, from 9 a.m. to 2 p.m. at 835 National Avenue.
- LFUCG will be holding a Green Night at the Lexington Legends game on July 8.
- An event for the public called Water for Life will take place Sunday, July 9, at Jacobson Park, as part of the Kentucky-Tennessee Water Professionals Conference, which LFUCG is co-hosting with Kentucky American from July 9 to July 12.

**Lexington-Fayette Urban County Government**  
**MS4 Program**  
*Stormwater Stakeholder Advisory Committee*

**Informal Survey Regarding Bacteria Reduction Strategies**

The table below lists strategies and actions to address bacteria sources in Fayette County. LFUCG is required to address these sources to comply with its KDOW-issued stormwater discharge permit. The survey table is designed to capture your priorities within each of the three bacteria source categories listed: *Private Sewer Lateral Lines*, *Wastewater Treatment Package Plants*, and *Septic Systems*. The table also lists the relative costs associated with each strategy / action, using dollar signs as general indicators of annual costs to the LFUCG Division of Water Quality. The more dollar signs, the greater the relative cost – see the asterisk note regarding cost information below the table.

Please rank the strategies in each of the categories in numerical order, starting with “1” for your top preference in each of the three categories. List your second, third, etc. priorities by numbering them consecutively. Note that the survey continues on the back of this page. Thanks.

<b>TMDL Strategies / Actions</b>	<b>Relative Cost*</b>	<b>Your Priority Ranking</b>
<i>Private Sewer Lateral Lines: Rank Your Priorities from 1 to 5</i>		
A. Review and update smoke testing, LexCall, other high-risk lateral line targeting databases	\$	
B. Identify priority areas for possible demonstration project sites	\$	
C. Implement demonstration lateral line replacement projects in high priority areas	\$\$\$	
D. Develop an incentive program to cost-share lateral line replacements	\$\$	
E. Propose an LFUCG ordinance requiring verification of lateral line integrity (e.g., at the time of property sale)	\$	
<i>Wastewater Treatment Package Plants: Rank Your Priorities from 1 to 3</i>		
A. Develop an approach for the SSAC and citizen groups to review package plant Discharge Monitoring Reports (DMRs)	\$	
B. Create a venue for the SSAC and citizen groups to encourage KDOW compliance and enforcement action when package plant discharges violate KPDES permits	\$	
C. Identify opportunities to provide non-financial support to package plant service areas seeking connection to public sewer systems	\$	

TMDL Strategies / Actions	Relative Cost*	Your Priority Ranking
<i>Septic Systems: Rank Your Priorities from 1 to 8</i>		
A. Update the unsewered ( <i>i.e.</i> , septic system served) parcel maps and lists using DWQ and LFCHD data	\$	
B. Update and formalize the relationship between DWQ and LFCHD (identify DWQ tap-on, parcel check, and illicit discharge contacts for LFCHD)	\$	
C. Provide support from DWQ for LFCHD-sponsored system owner education (brochures, mailings, etc.)	\$	
D. Propose an LFUCG ordinance requiring periodic or time-of-sale septic system inspections	\$	
E. Provide DWQ support for LFCHD periodic or time-of-sale voluntary septic system inspections	\$	
F. Provide targeted information to the real estate industry and home lenders on septic system disclosure, etc.	\$	
G. Target groups of septic systems for tap-on when doing nearby sewer infrastructure work	\$\$	
H. Research options for financial assistance programs for low income property owner tap-ons	\$	

*\*Key to "Relative Cost" column: \$ = less than \$100k per year; \$\$ = \$100k to 500k per year; and \$\$\$ = greater than \$500k per year. (Note that these are rough estimates.)*

Name / Organization (Optional): \_\_\_\_\_

*If you wish, please provide relevant comments or suggestions below. Thank you.*

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# Stormwater Stakeholder Advisory Committee

*June 2, 2017*



**LEXINGTON**

## **June 2, 2017 Meeting Agenda**

Approval of 3/3/17 Minutes

Focusing on TMDLs and Impaired Waters: Perspectives on Bacteria Sources

- Review of Bacteria Sources Survey Results
- Potential BMPs to Address Human Sources of Bacteria
- Group Discussion on BMPs to Address Human Sources
- Survey to Rank BMPs to Address Human Sources
- Next Steps

Nominations for Remaining Vacant Watershed At-Large Seats

Topics for Next Meeting

Announcements

# Focusing on LFUCG's MS4 Permit Requirements for TMDLs and Impaired Waters

*Stormwater Stakeholder Advisory Committee  
June 2, 2017*



**LEXINGTON**

## What are LFUCG's MS4 Permit Obligations Regarding TMDLs and Impaired Waters?

1. ...permittee shall make progress toward achieving assigned wasteload allocations (WLAs) by demonstrating through the implementation of structural and nonstructural best management practices and other program activities that are targeted at TMDL-related pollutants within watersheds that discharge to a waterbody with an adopted TMDL...
2. ...permittee shall identify the impaired stream segment(s) and/or tributaries to those impaired stream segments and the location of all known MS4 major outfalls discharging a pollutant of concern under the TMDL to those segments or occurring within those segments...
3. ...permittee shall evaluate the discharge load associated with the identified MS4 major outfalls for the pollutant, including monitoring, reporting and/or otherwise, at issue...
4. ...permittee shall consider and propose applicable and appropriate Best Management Practices for its MS4 to reach the wasteload goal of the TMDL, and a schedule of implementation for those Best Management Practices...



## What are LFUCG's MS4 Permit Obligations Regarding TMDLs and Impaired Waters?

5. ...permittee shall evaluate its Best Management Practices in the SWQMP with respect to any new or expanded MS4 discharges for pollutants of concern that substantially change the discharge to impaired waterbodies listed on the Clean Water Act Section 303(d) list in the Division of Water publication entitled, "2012 Integrated Report to Congress on the Condition of Water Resources in Kentucky Volume II. 303(d) List of Surface Waters" to assess their effectiveness in minimizing pollution to such impaired waterbodies...
6. ...permittee shall monitor the impaired waters for those pollutants attributed to stormwater sources for at least 3 storm events during the permit term...
7. ...permittee shall modify its SWQMP as necessary and appropriate to improve the effectiveness of the BMPs...

## What else does LFUCG's MS4 Permit say about TMDLs and Impaired Waters?







- ... nothing herein shall prevent the permittee from pursuing a variance or exceptions based upon a use attainability analysis or the criteria for exceptions set forth in 401 KAR 10:031 ...
- ...applicable limitations, conditions and requirements contained in the TMDL are also to be addressed in the SWQMP...
- ...If a TMDL is approved for any impaired waterbody into which discharges from the MS4 cause or contribute to water quality impairment(s), KDOW will review the TMDL and applicable wasteload allocation(s) to determine whether the TMDL includes requirements for control of stormwater discharges. If current discharges from the MS4 are not meeting TMDL allocations, KDOW will notify the permittee of that finding and may require that the SWQMP identified in Part II be modified, in accordance with Part III.F. of this permit relating to Reopening the Permit for major modifications, to include any applicable and appropriate BMPs to implement the TMDL within a reasonable timeframe...

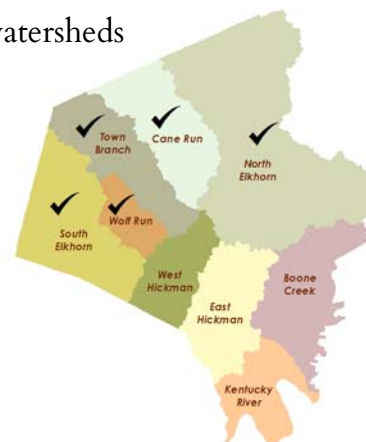
## What else does LFUCG's MS4 Permit say about TMDLs and Impaired Waters?

- ... The requirements of this section apply only to the permittee's MS4 discharges to receiving waters with adopted or established TMDLs and associated allocations. It is the intent of this section to ensure that pollutant discharges for those parameters listed in the TMDL are reduced to the MEP through the implementation of the permittee's SWQMP...

## Are there approved TMDLs for Fayette County? Is this applicable?

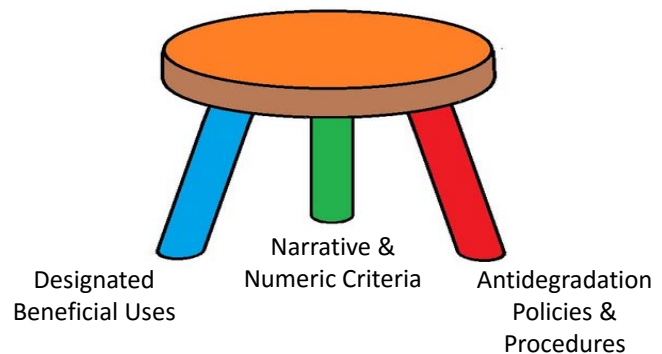
- YES!
- 3 focused on pathogens – covering 5 of Fayette County's watersheds

<p>Final Total Maximum Daily Load for Fecal Coliform and <i>E. coli</i>, 9 Stream Segments and 2 Springs within the South Elkhorn Creek Watershed, Fayette, Franklin, Boone, Scott, and Woodford Counties, Kentucky</p>  <p>Photo of Town Branch of South Elkhorn Creek (AUGUST)</p> <p>July 2013</p> <p>List of Contributors: Dr. Linda Osterle Dr. Chanchalok Yon-gulath, Research Scientist Dr. Jagadeesh Anandhi, Postdoctoral Researcher Sudipon Kowarova, M.S. Student Ben Adkins, Scientist I</p>  <p>Commonwealth of Kentucky</p>	<p>Final Total Maximum Daily Load for Fecal Coliform 7 Stream Segments within the Cane Run Watershed, Fayette and Scott Counties, Kentucky</p>  <p>Photo of Cane Run of North Elkhorn Creek (AUGUST)</p> <p>July 2013</p> <p>List of Contributors: Dr. Linda Osterle Ben Adkins, Scientist Dr. Chanchalok Yon-gulath, Research Scientist Dr. Jagadeesh Anandhi, Postdoctoral Researcher Sudipon Kowarova, M.S. Student</p>  <p>Commonwealth of Kentucky</p>	<p>Final Total Maximum Daily Load for <i>E. coli</i> Three Stream Segments within the North Elkhorn Creek Watershed Fayette County, Kentucky</p>  <p>Photo of North Elkhorn Creek (AUGUST)</p> <p>Submitted to: United States Environmental Protection Agency Region IV Atlanta Federal Building 61 Forsyth Street SW Atlanta, GA 30303-1524</p> <p>Prepared by: Kentucky Department for Environmental Protection Division of Water 200 Fair Oaks Lane Frankfort, KY 40601</p> 
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## Are there impaired waters in Fayette County? Is this applicable?

- YES!
- Impaired stream segments for primary and secondary contact recreation (pathogens!)
- Impaired stream segments for warmwater aquatic habitat



## The Magnitude of Bacteria

- *E. coli* is an Indicator Microorganism
- What is an Indicator Microorganism?
  - GOLDEN RULE: The indicator must be present when pathogens are present and absent when pathogens are absent
    - Originate in the digestive tract of humans / warm-blooded animals - ✓
    - It should persist longer than pathogens outside of the intestine - ✓
    - It should not be pathogenic itself (*oops ... O157:H7*) - ✓
    - It should occur in high numbers - ✓
    - Be easily, quickly, inexpensively, and reliably identified and counted - ✓, ✓, ✓, and ✓

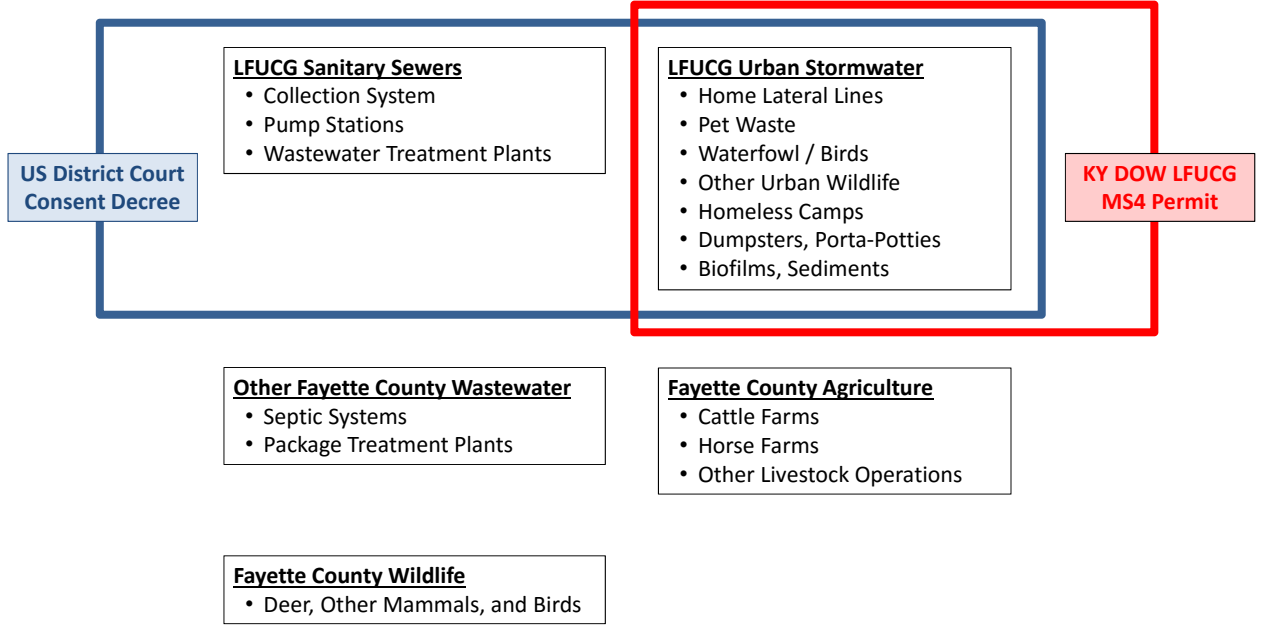
## The Magnitude of Bacteria

- Known SSOs = 3,000 trillion E. coli/year
- Dogs = Est. 2,400 trillion E. coli/year outside
- Birds = Est. 360 trillion E. coli/year
- Cattle & Horses = Est. 15,000 trillion E. coli/year

## The Magnitude of Bacteria

- Known SSOs = 3,000 trillion E. coli/year => 3 billion of our stuffed animal
- Dogs = Est. 2,400 trillion E. coli/year outside => 2.6 billion of our stuffed animal
- Birds = Est. 360 trillion E. coli/year => 360 million of our stuffed animal
- Cattle & Horses = Est. 15,000 trillion E. coli/year => 15 billion of our stuffed animal
- 20,760,000,000,000,000 E. coli/year or 20,760,000,000 stuffed animal E. coli/year

# Bacteria Sources and Regulatory Oversight



*Total Maximum Daily Loads and Impaired Waters*

## Stormwater Stakeholder Advisory Committee **Bacteria Sources in Fayette County**



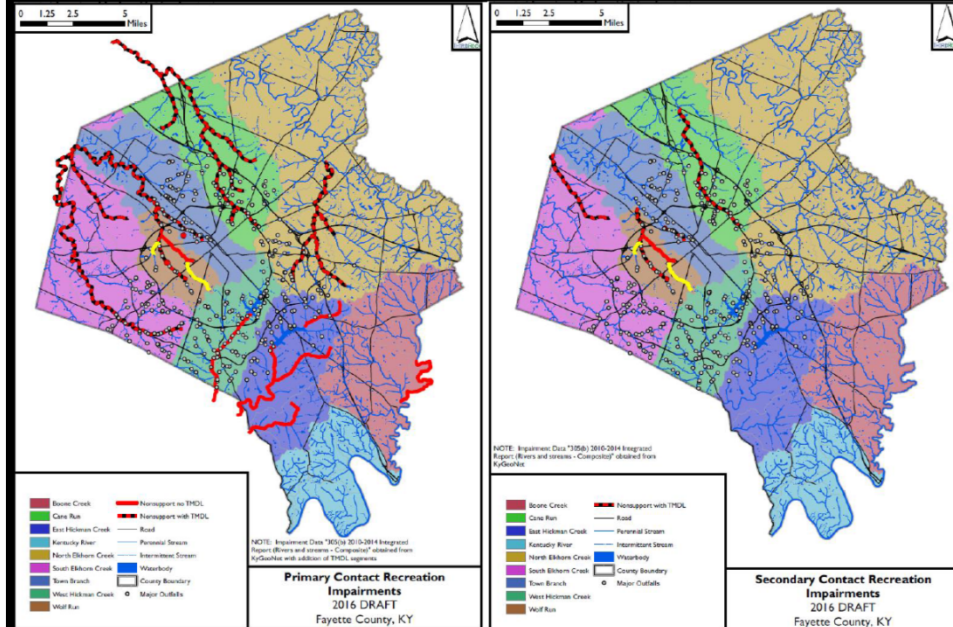
Lexington-Fayette Urban County Government

## TMDL Strategy Session Agenda

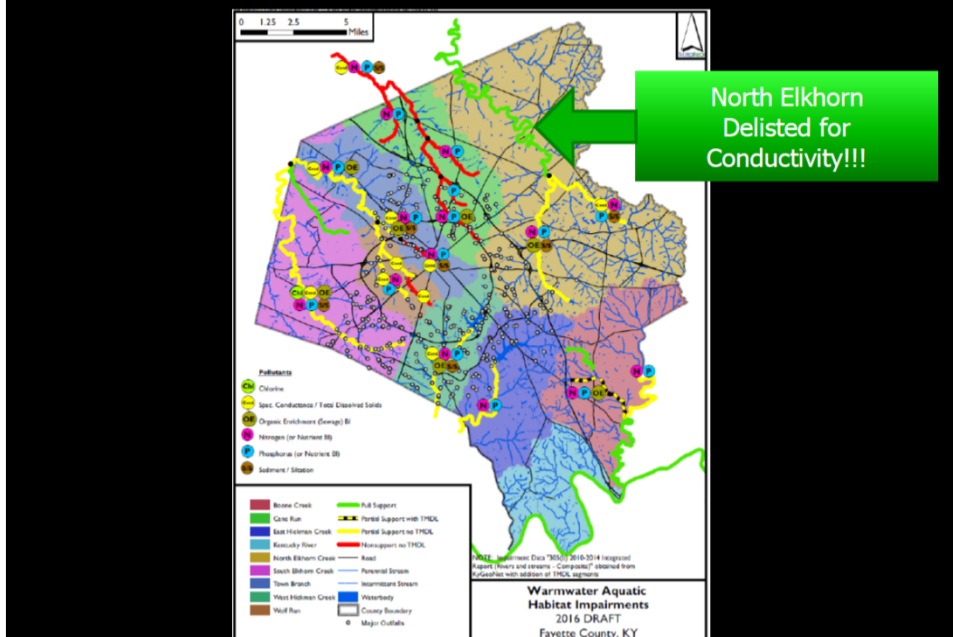
- Review SSAC survey results
- Review key human bacteria source categories
- Summarize LFUCG support for sanitary sewer system operation and maintenance
- Discuss TMDL strategy options and prioritize the recommendations for:
  - Private laterals
  - Package plants
  - Septic systems
- Next SSAC meeting
  - Pets, waterfowl, livestock, other sources



# New impairment listings from KDOW



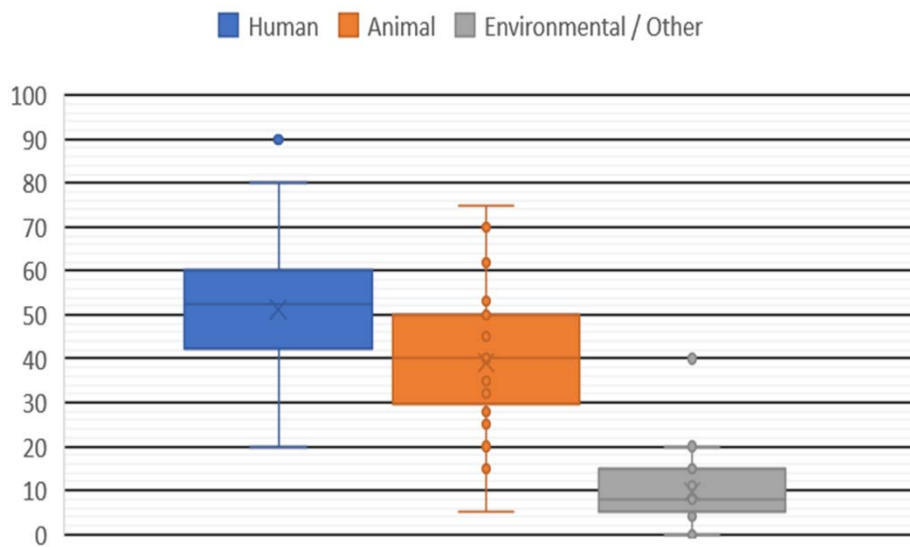
# New impairment listings from KDOW



## March SSAC Meeting: Source Contributions

Category	All	Member	Non-Member
<b>Human</b>	<b>51</b>	<b>49</b>	<b>57</b>
Sanitary Sewer System	23	23	25
Private Lateral Lines	15	16	15
Other Human Waste	13	11	17
<b>Animal</b>	<b>39</b>	<b>40</b>	<b>36</b>
Domestic Pets	10	11	10
Urban Waterfowl	9	10	9
Other Urban Wildlife	4	4	4
Livestock	15	16	14
<b>Environmental / Other</b>	<b>10</b>	<b>11</b>	<b>7</b>
Litter and Dumpsters	4	6	2
Bed Sed. / Slimes / Biofilms	5	6	5

## Post-Presentation SSAC Results by Category





## SSAC Survey: Percent of Resources to Devote

Category	All	Member	Non-Member
<b>Human</b>	<b>65</b>	<b>64</b>	<b>67</b>
Sanitary Sewer System	27	28	27
Private Lateral Lines	24	22	28
Other Human Waste	14	14	13
<b>Animal</b>	<b>27</b>	<b>26</b>	<b>28</b>
Domestic Pets	9	8	9
Urban Waterfowl	6	5	8
Other Urban Wildlife	2	2	1
Livestock	11	11	9
<b>Environmental / Other</b>	<b>8</b>	<b>10</b>	<b>5</b>
Litter and Dumpsters	7	8	3
Bed Sed. / Slimes / Biofilms	2	2	1

## SSAC Top Concerns

Category	% Contribution	% Resources
<b>Human</b>	<b>51</b>	<b>65</b>
Sanitary Sewer System	23	27
Private Lateral Lines	15	24
Other Human Waste	13	14
<b>Animal</b>	<b>39</b>	<b>27</b>
Livestock	15	11
Domestic Pets	10	9
Urban Waterfowl	9	6
Other Urban Wildlife	4	2
<b>Environmental / Other</b>	<b>10</b>	<b>8</b>
Litter and Dumpsters	4	7
Bed Sed. / Slimes / Biofilms	5	2

# Human Sources of Bacteria

- 51.3% of overall sources, according to SSAC survey
- Key subcategories are sanitary sewers, private laterals, septic systems, and package treatment plants



Sanitary Sewer System

## Sanitary Sewers: Resources Committed by LFUCG



- Not part of the MS4, but a significant bacteria source
- SSAC: 23.4% of overall bacteria contributions
- Let's have a quick review of the expense categories and key activities for the sanitary system . . .



## Sanitary Sewers: Current Programs

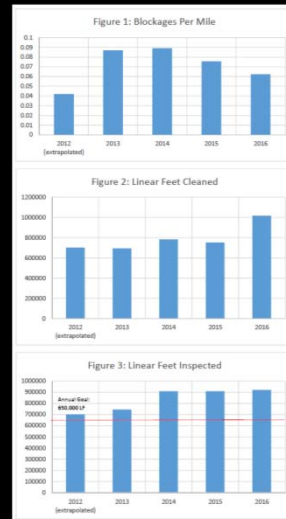
- Remedial Measures Plans (RMPs)
  - Trunk sewers, pump stations, storage tanks
- CMOM Programs
  - Capacity Assurance Program (CAP)
    - Sewer Line Repair and Rehabilitation
    - Private Inflow and Infiltration Elimination Program (PIIEP)
  - Gravity Line Preventative Maintenance Program (GLPMP)
    - Sewer Line Inspection and Cleaning Program
  - Sewer Overflow Response Plan (SORP)
  - Fats, Oils, and Grease (FOG) Program
  - Pump Station Operation Plan for Power Outages (PSOPPO)
- Illicit Discharge Detection and Elimination Program (IDDE)
  - Note: Part of the MS4 Stormwater Management Program



## Sanitary Sewers: Consent Decree Performance Measures (2016)



- Goal: Inspect 650,000 linear feet of pipe annually (921,000 lf)
- Feet of pipe cleaned (4,000 ft/day avg, 192 miles cleaned)
- # of pipe segments on the Preventative Maintenance (PM) list (897)
- # of ft treated for root control (356,000 lf)
- # of inflow inspections (723)
- # of fats/oils/grease inspections (1,400)
- # of sanitary sewer overflows (139)
- # of mainline pipe blockages (84)



## Sanitary Sewer Collection and Treatment System



- These programs are required by the federal Consent Decree
- The two major wastewater treatment plants (Town Branch and West Hickman) have separate budgets



## General Sanitary Sewer Budget for 2016-2017

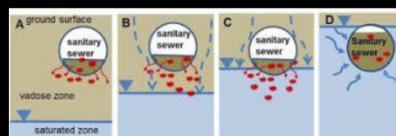


Sewer System Activities	Cost	Percent
CAP (Infiltration / Inflow Elimination – Repair/Rehab)	5,825,000	48%
Pump Stations & Wet Weather Storage Tanks Maintenance	2,000,000	16%
Sewer Line Inspection and Cleaning	2,900,000	24%
Collector System Rehab*	750,000	6%
Manhole Monitoring	86,000	1%
CAP (Sump Pumps)	595,000	5%
Totals	\$12,156,000	100%

## Sanitary Sewers: Potential Additional Management Practices

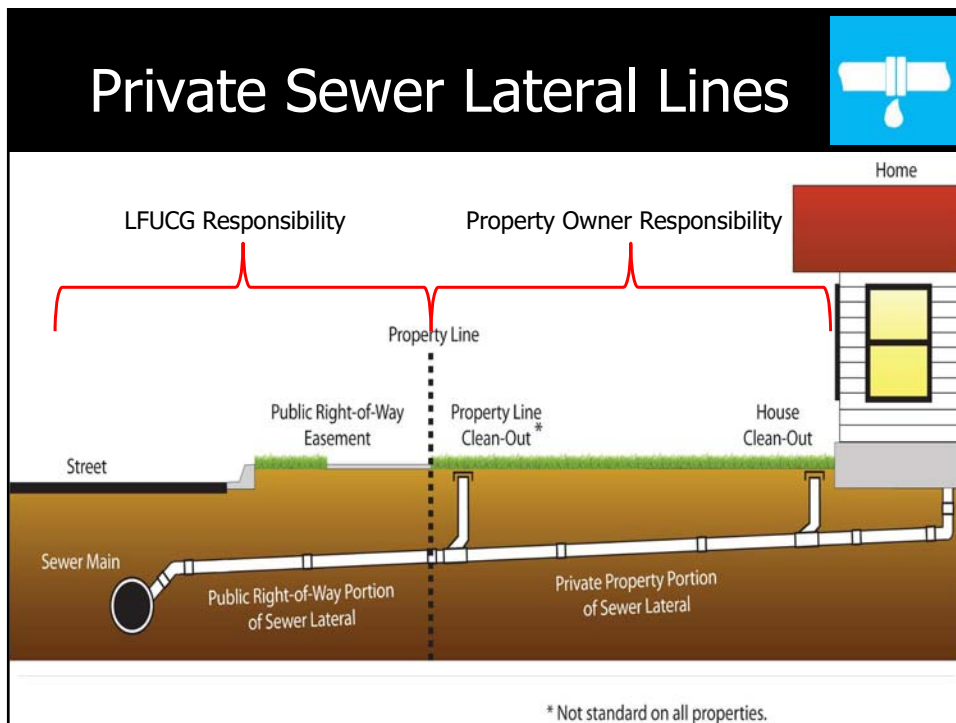


- Prioritize sewer repair work in areas with:
  - CAP – capacity assurance needs,
  - PM – frequent maintenance, and
  - WQ – poor water quality
- IDDE - Increased tracing of dry weather flows with high *E. coli* – to identify specific sewer lines in need of repair
- Identify areas / neighborhoods where the sanitary sewer is located above the storm sewer





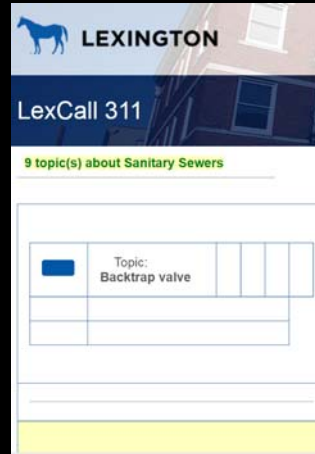
# Private Sanitary Sewer Lateral Service Lines



# Private Sewer Lateral Lines



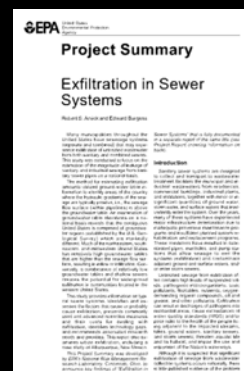
- SSAC: private laterals represent 15.3% of overall bacteria contributions
- Smoke testing indicates potential leaks in many older neighborhoods
- LexCall and other data can help identify hotspots
  - ~45 calls per week reporting problems with lateral lines



# Private Sewer Lateral Lines



- EPA estimates high lateral leakage rates with older pipes, less durable pipe materials, and poor pipe installation (bedding, cover)
- Leaks mean inflow/infiltration in wet weather, as well as exfiltration in dry weather
- Leaks can move toward stormwater pipes or streams due to a high groundwater table, karst geology



## Private Sewer Lateral Lines



### *The situation in Lexington:*

- ~100-150 lateral replacements permitted by LFUCG annually
- Leaks typically associated with older subdivisions (pre-1970s)
  - 40% of local homes built before 1970



## Private Sewer Lateral Lines



- Most responsibility for repairing laterals rests with property owner
- Leaks repaired only when fixtures back up or sewage surfaces
- Replacing leaking laterals can range from \$5,000 to 10,000 per property
- Lateral repair / replacement has been a low priority in past years





## Lateral Line Incentive Programs



- Some cities contribute 25% or more to repair / replace leaking laterals
- Cost-sharing programs can be based on property owners' income
- Verification of leak (*i.e.*, via dye testing, smoke testing, closed-circuit TV) is needed for enforcement action
- Widespread replacements can be an option where sewer collector lines are being replaced



## Private Sewer Lateral Lines



- Recognize this is a complex and widespread issue in Lexington
- Need to prioritize areas for action strategically
- Contractors would be engaged to do the work
- Public awareness and education is needed, highlighting improved sewer service quality and water quality



## TMDL Strategy Options for Private Sewer Lateral Lines



*for scoring by the  
Stormwater Stakeholder Advisory Committee*

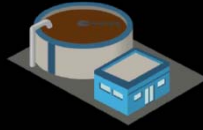
*Please see survey form*

## TMDL Strategy Options



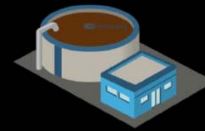
- A.** Review and update smoke testing, LexCall, other targeting databases
- B.** Identify priority areas for possible project sites
- C.** Implement demonstration projects in high priority areas
- D.** Develop incentive program to cost-share lateral line replacements
- E.** Ordinance requiring verification of lateral integrity (*e.g.*, time of sale)





## Wastewater Treatment Package Plants

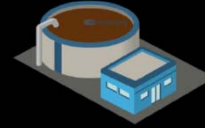
## Wastewater Treatment Package Plants



- SSAC: Septic systems, package plants, homeless encampments, etc. represent 13% of overall bacteria contributions
- There are 5 package plants operating in the county
- The Lexington-Fayette County Health Department (LFCHD) is only involved with inspections when requested by KDOW



# Wastewater Treatment Package Plants



- 3 package plants located on Cane Run tributary (along US 25) routinely out of compliance with their KDPEs permits:
  - Spindletop, Georgetown Estates, & Maple Grove mobile home parks
  - high bacteria outputs & exceed design flows
- Other 2 facilities are typically in compliance

KDPEs FORM SC  
KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM  
PERMIT APPLICATION

1. Permittee Name: \_\_\_\_\_  
2. Permit Number: \_\_\_\_\_  
3. Permit Expiration Date: \_\_\_\_\_

4. Description of Facility: \_\_\_\_\_

5. Description of Discharge: \_\_\_\_\_

6. Discharge Point: \_\_\_\_\_

7. Discharge Type: \_\_\_\_\_

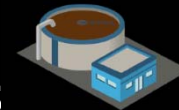
8. Discharge Volume: \_\_\_\_\_

9. Discharge Frequency: \_\_\_\_\_

10. Discharge Characteristics: \_\_\_\_\_

Parameter	Design Flow	Design Concentration	Design Load	Actual Flow	Actual Concentration	Actual Load
Flow (MGD)						
BOD <sub>5</sub> (mg/l)						
SS (mg/l)						
TSS (mg/l)						
Ammonia (mg/l)						
Nitrate (mg/l)						
Phosphate (mg/l)						
Chloride (mg/l)						
Sulfate (mg/l)						
Calcium (mg/l)						
Magnesium (mg/l)						
Total Hardness (mg/l)						
Total Solids (mg/l)						
Total Suspended Solids (mg/l)						
Total Dissolved Solids (mg/l)						
Chloride (mg/l)						
Sulfate (mg/l)						
Calcium (mg/l)						
Magnesium (mg/l)						
Total Hardness (mg/l)						
Total Solids (mg/l)						
Total Suspended Solids (mg/l)						
Total Dissolved Solids (mg/l)						
Chloride (mg/l)						
Sulfate (mg/l)						
Calcium (mg/l)						
Magnesium (mg/l)						
Total Hardness (mg/l)						

# TMDL Strategy Options for Package Plants

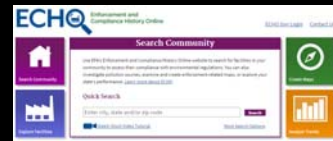
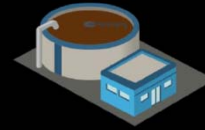


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## TMDL Strategy Options

- A. SSAC and citizen groups review the Discharge Monitoring Reports (DMRs)
- B. SSAC and citizen groups encourage KDOW compliance and enforcement
- C. Provide non-financial support for connections to public systems (*e.g.*, Georgetown Estates)



## Septic Systems



## LFCHD Septic System Program



- LFCHD has a database of existing septic systems (installed after 1979)
- Permit program is in place for new systems and repairs
- If sanitary sewer is available on the adjacent property, owner must connect to sanitary sewer



## LFCHD Septic System Program



- Only repairs and replacements in the USA
  - few (if any) new systems (lot size requirements)
- Inspections are complaint driven only; no regular inspections of existing systems
- Only 4 to 7 septic system complaints received annually, countywide
- 12-15 new systems installed annually, countywide
- LFCHD issues correction notices, works with owner on repair/replacement approach



# The Real Estate Industry & Septic Systems



- Home inspectors typically do not inspect the septic system
- Home buyers sometimes contact LFCHD about systems on properties for sale
- Real estate agents sometimes request a letter certifying system is functional
- Disclosure forms usually note system is present without information on functionality



# TMDL Strategy Options for Septic Systems



*for scoring by the  
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*Please see the survey form*



## TMDL Strategy Options



- A. Update the unsewered parcel maps / lists using DWQ and LFCHD data
- B. Update and formalize relationship between DWQ and LFCHD (identify DWQ tap-on, parcel check, and illicit discharge contacts)
- C. Provide support from DWQ for LFCHD-sponsored system owner education



## TMDL Strategy Options



- D. Consider an ordinance requiring periodic or time-of-sale system inspections
- E. Provide DWQ support for LFCHD periodic or time-of-sale septic system inspections
- F. Provide information to real estate industry and lenders on system disclosure, etc.
- G. Target groups of systems for tap-on when doing nearby sewer infrastructure work
- H. Research options for assistance programs for low income property owner tap-ons



# Discussion

## **Next Steps**

1. Review Today's Survey Results
2. Discuss & Rank Potential BMPs to Address Animal and Other Bacteria Sources

## **Nomination / Election of Watershed At-Large Seats**

North Elkhorn

South Elkhorn

## **Topics for Next Meeting**

1. Review Today's Survey Results
2. Discuss & Rank Potential BMPs to Address Animal and Other Bacteria Sources

### Future Meeting Topics:

- Update on MCMs 1 & 2, including a report from Bluegrass Greensource