

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

Meeting: September 6, 2024
Time of Meeting: 9:09 a.m.
Location of Meeting: Phoenix Building – 3rd Floor Conference Room

Attendees:

COMMITTEE MEMBERS

Doug Burton – LFUCG Division of Engineering
Jennifer Carey – LFUCG Division of Environmental Services
Jim Conner – Cane Run Watershed At-Large
Ken Cooke – Friends of Wolf Run
Steve Garland – East Hickman Watershed At-Large
Jim Griggs – Boone Creek Watershed At-Large
Don Hill – Fayette County Neighborhood Council
Amy Sohner – Chair, Bluegrass Greensource
Russ Turpin – Wolf Run Watershed At-Large
Traci Wade – LFUCG Division of Planning (for Jim Duncan)
Jerry Weisenfluh – Kentucky River Watershed Watch

LFUCG STAFF AND REPRESENTATIVES

Denice Bullock – LFUCG Division of Water Quality
Jason Drew – LFUCG Division of Water Quality
Brooke Gray - LFUCG Division of Environmental Services
Gabe Hensley – LFUCG Division of Water Quality
Becky Irwin – LFUCG Division of Water Quality
Demetria Kimball Mehlhorn - LFUCG Division of Environmental Services
Greg Lubeck – LFUCG Division of Water Quality
Frank Mabson – LFUCG Division of Water Quality
Craig Morgan – LFUCG Division of Water Quality
Jennifer Myatt – LFUCG Division of Environmental Services
Mark Sanders – LFUCG Division of Water Quality
Abby Terry – Tetra Tech, LFUCG MS4 Program Management
Richard Walker – Tetra Tech, LFUCG MS4 Program Management
Bailee Young – LFUCG Division of Water Quality

OTHER ATTENDEES

Amy Clark – Citizen
Molly Cummins - Third Rock Consultants
Tanner Goff – Stantec
Mac Hall - Third Rock Consultants
Stan Harvey - Lord Aeck Sargent
Nathan Krebs – Stantec
Casey Mattingly - Third Rock Consultants
Mary Murray – Department of Veterans Affairs
Scott Southall – ECD/West Hickman
Bert Remley - Third Rock Consultants
Scott Vander Ploeg – Citizen
Steve Vogel – Strand Associates

Opening Remarks

Amy Sohner opened the March meeting at 9:09 a.m. and asked those in attendance to introduce themselves and their organization when speaking.

Approval of 3/1/24 Minutes

Ms. Sohner asked if there were any additions or corrections to the June 7th minutes. There were none.

A motion was made by Scott Southall, seconded by Ken Cooke, and carried unanimously to approve the minutes of the June 7, 2024, meeting.

Proposed Water Quality Monitoring Program Updates – Third Rock Consultants, LLC

Mac Hall, Bert Remley, and Casey Mattingly, Third Rock Consultants, presented a PowerPoint presentation on the Proposed Water Quality Monitoring Program Updates.

Mr. Hall introduced himself as well as Bert Remley and Casey Mattingly, and indicated their roles in this program.

Mr. Hall is a professional engineer at Third Rock Consultants who has the opportunity to be in charge of quality assurance/quality control and reporting on the different elements from the perspective of Third Rock Consultants.

Bert Remley is a Senior biologist/ecologist who oversees the biological elements of the program and reporting, and has been involved in LFUCG monitoring since 1996.

Casey Mattingly is a professional engineer who specializes in stream design and nature-based solutions.

Mr. Hall said Third Rock Consultants has been involved with the Lexington-Fayette Urban County Government's monitoring program since 1999.

He explained that on May 1, 2015, the Lexington-Fayette Urban County Government was issued a KPDES Phase I MS4 Permit that became effective on June 1, 2015, expiring in 2020. That permit was based on a five (5) year duration and has been administratively continued since the expiration date. In November 2019, the Lexington-Fayette Urban County Government sent a letter of intent to renew the permit as well as committing to finishing the Watershed Focus Monitoring Program. After the program was completed the Lexington-Fayette Urban County Government evaluated the monitoring program to propose program changes to the Kentucky Division of Water. In 2023, Third Rock Consultants was assigned to analyze and make informed decisions regarding the direction to move the monitoring program forward.

Mr. Hall said that the objective today is to share the preliminary results of this effort with the stakeholders. None of the proposed updates that will be presented to the stakeholders and volunteers have been shared with the Kentucky Division of Water.

The PowerPoint presentation touched on the following:

Current Permit Requirements

- Part III, Section A requires LFUCG to monitor streams receiving MS4 discharges to assess water quality and identify impairments.
- Chemical, physical, and biological monitoring elements.
- Monitoring conducted in seven (7) of the nine (9) watersheds that drain into a portion of LFUCG's Urban Service Area.
- Shift to a watershed-focused monitoring program.
- Additional monitoring locations in each watershed on a rotating basis.
- Requirements summarized in Table 8 (see Page 3)

Table 8 is LFUCG's current permit as it outlines the different elements and monitoring frequencies rotating every year.

TABLE 8. WATER QUALITY MONITORING (MON)		
The objective is to develop and implement water monitoring programs to identify pollutants from stormwater runoff to the municipal separate storm sewer system (MS4) from the coverage area specified by the permit.		
MON 1 Pollution Prevention Program Assessment Data Collection		
Element Task	Frequency	Activity Required
Dry Weather Monitoring for Major Watersheds	Quarterly	The permittee shall conduct a dry weather monitoring program for bacteriologicals, conventional parameters, and nutrients at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Wet Weather Monitoring for Major Watersheds	Quarterly	The permittee shall conduct a wet weather monitoring program for bacteriologicals, conventional parameters, and nutrients at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Macroinvertebrate Sampling for Major Watersheds	Annually	The permittee shall conduct a macroinvertebrate sampling program at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Habitat Assessments for Major Watersheds	Annually	The permittee shall conduct a habitat assessment program at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Fish Sampling for Major Watersheds	Every other year beginning in Year 2	The permittee shall conduct a fish sampling program at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Monitoring Plan	Six months after permit effective date	The permittee shall submit a monitoring plan that incorporates, revised as needed; the sampling methods and procedures contained in the document entitled LFUCG Stormwater Quality Management Program SWQMP Appendix V Water Quality and Biological Sampling Plan dated February 11, 2011.
Continuous Monitoring Network	Annually	The permittee shall maintain its program of continuous monitoring at one location per year on a rotating basis.
Database	Annually update	The permittee shall compile all sampling field data and laboratory results in a database, putting results on website and in the Annual Report.
	Once per permit cycle	The permittee shall conduct one dry weather and one wet weather monitoring for the following metals: Total Recoverable Lead, Total Recoverable Copper, Total Recoverable Cadmium, Total Recoverable Zinc at one location in each of the seven major urbanized watersheds: Town Branch, Wolf Run, South Elkhorn Creek, North Elkhorn Creek, Cane Run, West Hickman, and East Hickman.
Watershed-Focused Monitoring Expansion	Beginning in Permit Year Two	The permittee shall begin to refocus its monitoring program to a watershed-focused monitoring program. In order to facilitate this process, monitoring should be conducted on a watershed basis with additional monitoring stations sampled for water chemistry, macroinvertebrates, microbial source tracking, hydro-geomorphic characterization, and habitat assessment. Details about this monitoring program, with schedule and monitoring locations, shall be submitted to the Division of Water within one year from the permit date. Implementation shall commence by January 31st of the following year.

In addition to the dry/wet weather sampling, and biological sampling performed at the seven (7) watershed sites, the Watershed Focused Monitoring Program was implemented. The charts below outline activities and schedules as well as lays the groundwork/baseline for each watershed.

Watershed	Screening	Monitoring	Reporting
Cane Run	2016	2017	2018
South Elkhorn Creek	2017	2018	2019
West Hickman Creek	2018	2019	2020
East Hickman Creek	2019	2020	2021
Town Branch	2020	2021	2022
North Elkhorn Creek	2021	2022	2023
Wolf Run	2022	2023	2024

Activity	Frequency / Requirements	Screening Year												Monitoring Year												Reporting			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
Stream Corridor Characterization																													
Habitat Assessment, Substrate	Once per 0.5 miles																												
Characterization, Volunteer Macro Protocol	of stream in watershed																												
Stream Biology																													
Macroinvertebrate Collection, ID, and Metric	> Two weeks after scour event,																												
Calculation (MBI) by KDOW Protocol	Not low flow																												
Water Quality Monitoring																													
WQ Stage-Discharge Curves	Geomorphic survey / install gages																												
Phase 1: Field Screening	4 events, > 72 hrs dry																												
Phase 2: PCR Loading	10 events, Set day of week																												
Discharge Prevention Investigation																													
Storm Network Tracing	WQ events above action limits																												
Optical Brighteners	2 events																												
Microbial Source Tracking	with High <i>E. coli</i> and ammonia result																												
Priority Area Upland Visual Assessment																													
Neighborhoods	Priority areas																												
Potential Pollutant Generators	Priority areas																												
Watershed-Focused Monitoring Report																													
Compute / Assess Pollutant Loading	Conclusion of monitoring																												

Note: Numbers indicate months of year (e.g. 1 = January). Shading indicates the expected month(s) for task activity. Shaded circles indicate expected month of reporting of tasks.

Proposed Program Updates

Third Rock Consultants compiled, reviewed, and analyzed:

- 20+ years of chemical, physical, and biological water quality data collected from 115 stations
- WFMP health grades from each of the seven watersheds
- KDOW 2022 305(b) impaired waters within the MS4 urban areas

The following charts show 20+ years of data that was compiled using the location, method, and frequency of historic monitoring.

Monitoring Location				Monitoring Collection Method / Frequency									
LFUCG Site ID	Major Watershed ¹	Coordinates		KDOW AU ID ²	Type ³			WQ Grab Sampling ⁴ (Quarterly Wet/Dry Events) by Subconsultant	Macro Sampling ⁵ (Annual) by Subconsultant	Fish Sampling ⁶ (Bi-Annual) by Subconsultant	WQ Grab Sampling ⁷ (16 WFMP Events) by LFUCG / Volunteers	Macro Sampling ⁸ (Once as part of WFMP) by Subconsultant	Continuous Monitoring USGS Gage
		Lat.	Long.		Major Watershed	Historic	WFMP						
BC-S1	Boone Creek	37.97236	-84.32241			x		x	x	x			
CR-01	Cane Run	38.10619	-84.49915	KY-400			x				x		
CR-02	Cane Run	38.10484	-84.49889	KY-400							x		
CR-03	Cane Run	38.10344	-84.49475	KY-402			x				x		
CR-04	Cane Run	38.09909	-84.48962	KY-402								x	
CR-05 / CR-S2	Cane Run	38.09232	-84.50138	KY-400	x			x	x	x	x	x	x
CR-06	Cane Run	38.09133	-84.50295				x				x		
CR-07	Cane Run	38.08377	-84.49953				x				x		
CR-08	Cane Run	38.08017	-84.49265	KY-400			x					x	
CR-09	Cane Run	38.07549	-84.48535	KY-400			x				x		
CR-10	Cane Run	38.07465	-84.48477	KY-400			x				x		
CR-11	Cane Run	38.07409	-84.48587	KY-403			x				x		
CR-12	Cane Run	38.06423	-84.48748	KY-403			x				x		
CR-S1	Cane Run	38.07928	-84.49089	KY-400		x		x					
CR-S3	Cane Run	38.16870	-84.55466	KY-399		x		x	x	x			
EH-01 / EH-S9	East Hickman	37.93857	-84.47879	KY-703	x		x	x	x	x	x	x	x
EH-02	East Hickman	37.94991	-84.45530	KY-703			x				x		
EH-03	East Hickman	37.95446	-84.45449				x					x	
EH-05	East Hickman	37.97289	-84.45189	KY-703								x	
EH-06	East Hickman	37.97831	-84.45496				x				x		
EH-07	East Hickman	37.99782	-84.44479				x				x		
EH-08	East Hickman	37.99893	-84.44173				x				x		
EH-09	East Hickman	37.99724	-84.42196										
EH-10 / EH-S10	East Hickman	37.98826	-84.41153			x	x	x				x	
EH-11	East Hickman	37.99694	-84.41190	KY-704			x				x	x	
EH-12	East Hickman	37.99929	-84.40071				x				x		
EH-S4	East Hickman	37.96341	-84.45020	KY-703		x		x					

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² KDOW Assessed Reach. AU = Assessment Unit (2022). **Impaired Water (WV) in the MS4 urban area for which no TMDL has been developed for the pollutants attributed to stormwater sources.**

³ Established as part of LFUCG's Watershed-Focused Monitoring Program (WFMP) implemented in 2015.

⁴ Quarterly wet and dry weather grab sampling conducted by qualified subconsultant under antecedent weather conditions.

⁵ Annual macroinvertebrate sampling and taxonomic identification conducted by qualified, SPS-certified subconsultant during the appropriate index period (KDOW 2022). RBP habitat assessment conducted at each site in conjunction with sampling effort.

⁶ Biannual fish sampling and taxonomic identification conducted by qualified subconsultant with current LSPWS and KDOW scientific collection permit. RBP habitat assessment conducted at each site in conjunction with sampling effort.

⁷ Grab sampling conducted by LFUCG staff and/or trained volunteers during two (2) phases four (4) dry weather events during Phase I (September through March), 12 scheduled events (no antecedent weather conditions) during Phase 2.

⁸ Macroinvertebrate sampling and taxonomic identification conducted by qualified, SPS-certified subconsultant once during the appropriate index period (KDOW 2022).

TABLE 1. HISTORIC MONITORING LOCATIONS, COLLECTION METHODS, AND FREQUENCIES
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPS NO. KYS000002, AI NO. 7455 I

Monitoring Location					Monitoring Collection Method / Frequency								
LFUCG Site ID	Major Watershed ¹	Coordinates		KDOW AU ID ²	Type ³			WQ Grab Sampling ⁴ (Quarterly Wet/Dry Events) by Subconsultant	Macro Sampling ⁵ (Annual) by Subconsultant	Fish Sampling ⁶ (Bi-Annual) by Subconsultant	WQ Grab Sampling ⁷ (16 WFMP Events) by LFUCG / Volunteers	Macro Sampling ⁸ (Once as part of WFMP) by Subconsultant	Continuous Monitoring USGS Gage
		Lat.	Long.		Major Watershed	Historic	WFMP						
EH-S5	East Hickman	37.98834	-84.41572			x		x					
EH-S6	East Hickman	37.99928	-84.40067			x		x					
EH-S7	East Hickman	37.99695	-84.41191	KY-704		x		x	x	x			
HC-S1	Hickman Creek	37.89186	-84.51437			x		x					
NE-01	North Elkhorn	38.08435	-84.40569	KY-1385			x				x	x	
NE-02	North Elkhorn	38.05154	-84.38231				x				x	x	
NE-03	North Elkhorn	38.05870	-84.43038				x				x		
NE-04	North Elkhorn	38.05046	-84.42074	KY-1387			x				x	x	
NE-05	North Elkhorn	38.04561	-84.42509				x				x		
NE-06	North Elkhorn	38.04118	-84.42500	KY-1387			x				x	x	
NE-07	North Elkhorn	38.02815	-84.43335	KY-1387			x				x		
NE-08 / NE-S3	North Elkhorn	38.04008	-84.41102	KY-1385	x		x	x	x	x	x	x	x
NE-09	North Elkhorn	38.03090	-84.41169				x				x		
NE-10	North Elkhorn	38.02662	-84.40431				x				x		
NE-11	North Elkhorn	38.02865	-84.40177	KY-1385			x				x		
NE-S1	North Elkhorn	38.02836	-84.40169	1385		x		x					
NE-S4	North Elkhorn	38.13009	-84.43092			x		x	x	x			
SE-01 / SE-S1	South Elkhorn	38.02593	-84.61783	KY-1750	x		x	x	x	x	x	x	x
SE-02	South Elkhorn	38.02088	-84.59376				x				x		
SE-03	South Elkhorn	38.01860	-84.57600				x				x	x	
SE-04	South Elkhorn	37.99998	-84.58822				x				x		
SE-05	South Elkhorn	37.99552	-84.58415	KY-1750			x				x	x	
SE-06	South Elkhorn	37.99178	-84.58205				x				x		
SE-07	South Elkhorn	37.99281	-84.57324				x				x		
SE-08	South Elkhorn	37.99023	-84.57302	KY-1750			x				x	x	
SE-09	South Elkhorn	37.98699	-84.56254	KY-1750			x				x		

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TABLE I. HISTORIC MONITORING LOCATIONS, COLLECTION METHODS, AND FREQUENCIES
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPS NO. KYS000002, AI NO. 74551

LFUCG Site ID	Major Watershed ¹	Monitoring Location		KDOW AU ID ²	Type ³			WQ Grab Sampling ⁴ (Quarterly Wet/Dry Events) by Subconsultant	Macro Sampling ⁵ (Annual) by Subconsultant	Monitoring Collection Method / Frequency			Continuous Monitoring USGS Gage
		Coordinates			Major Watershed	WFMP	Fish Sampling ⁶ (Bi-Annual) by Subconsultant			WQ Grab Sampling ⁷ (16 WFMP Events) by LFUCG / Volunteers	Macro Sampling ⁸ (Once as part of WFMP) by Subconsultant		
		Lat.	Long.										
SE-10	South Elkhorn	38.00155	-84.55247				x				x		
SE-11	South Elkhorn	37.98331	-84.55668				x				x		
SE-12	South Elkhorn	37.98639	-84.54983	KY-1750			x				x	x	
SE-13	South Elkhorn	38.00254	-84.53577				x				x	x	
SE-14	South Elkhorn	37.98925	-84.53918	KY-1750			x				x		
SE-15	South Elkhorn	37.98562	-84.53990				x				x		
SE-S2	South Elkhorn	37.99583	-84.58558	KY-1750		x		x					
TB-01 / TB-S3	Town Branch	38.09432	-84.56986	KY-1897	x		x	x	x	x	x	x	
TB-02	Town Branch	38.09764	-84.56626				x				x	x	
TB-03	Town Branch	38.09146	-84.55716				x				x	x	
TB-04	Town Branch	38.08822	-84.54893				x				x		
TB-05	Town Branch	38.08669	-84.53416				x				x	x	
TB-06	Town Branch	38.07410	-84.55249	KY-1897			x				x		
TB-07	Town Branch	38.07307	-84.55002	KY-1898			x				x		
TB-08	Town Branch	38.06633	-84.54057	KY-1898			x				x	x	
TB-09	Town Branch	38.06006	-84.52985	KY-1899			x				x		
TB-10	Town Branch	38.05434	-84.53133				x				x		
TB-11	Town Branch	38.05490	-84.51506	KY-1899			x				x	x	
TB-12	Town Branch	38.05213	-84.50680	KY-1899			x				x		
TB-S1	Town Branch	38.05936	-84.52867	KY-1899		x		x	x	x			
TB-S2	Town Branch	38.07304	-84.55122	KY-1898		x		x	x	x			x
WH-01	West Hickman	37.94463	-84.49429				x				x		
WH-02	West Hickman	37.95520	-84.50614				x				x		
WH-03 / WH-S6	West Hickman	37.95812	-84.50219	KY-2005	x		x	x	x	x	x	x	x
WH-04	West Hickman	37.95932	-84.50723				x				x		
WH-05	West Hickman	37.96695	-84.50400	KY-2005			x					x	

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⁶ Bi-annual fish sampling and taxonomic identification conducted by qualified subconsultant with current USFWS and KDOW scientific collection permit. RBP habitat assessment conducted at each site in conjunction with sampling effort.

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		Lat.	Long.		Major Watershed	Active	Historic						
WH-06	West Hickman	37.96689	-84.50689				x					x	
WH-07	West Hickman	37.97182	-84.51123				x				x		
WH-08	West Hickman	37.97356	-84.50037				x				x		
WH-09	West Hickman	37.97433	-84.49951	KY-2005			x				x		
WH-10	West Hickman	37.98273	-84.50773				x				x		
WH-11	West Hickman	37.97718	-84.49425				x				x		
WH-12	West Hickman	37.97453	-84.48797				x					x	
WH-13	West Hickman	37.98055	-84.49016	KY-2005			x				x		
WH-14	West Hickman	37.98086	-84.49079				x				x		
WH-15	West Hickman	37.98339	-84.49271				x					x	
WH-16	West Hickman	37.99379	-84.49623				x				x		
WH-17	West Hickman	37.99749	-84.49398				x				x		
WH-18	West Hickman	37.98613	-84.48516	KY-2005			x					x	
WH-19	West Hickman	37.99129	-84.48096	KY-2005			x				x		
WH-20	West Hickman	37.99909	-84.47321	KY-2005			x				x		
WH-21	West Hickman	38.01216	-84.47719				x				x		
WH-22	West Hickman	38.02136	-84.45943				x				x		
WH-23 / WH-S3	West Hickman	37.93444	-84.50216			x	x	x			x	x	
WH-S2	West Hickman	37.94583	-84.50065	KY-2005		x		x					
WR-01 / WR-S2	Wolf Run	38.06728	-84.55424		x		x	x	x	x	x	x	x
WR-02	Wolf Run	38.05724	-84.54217				x					x	
WR-03	Wolf Run	38.05499	-84.54983	KY-1952			x				x		
WR-04	Wolf Run	38.05318	-84.55103	KY-2046			x				x	x	
WR-05	Wolf Run	38.04889	-84.55358	KY-2047			x				x	x	
WR-06	Wolf Run	38.04434	-84.55079	KY-2046			x					x	
WR-07	Wolf Run	38.04498	-84.53601	KY-1952			x				x		

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² KDOW Assessed Reach. AU = Assessment Unit (2022). **Impaired Water (IW) in the PMU urban area for which no TMDL has been developed for the pollutants attributed to stormwater sources.**

³ Established as part of LFUCG's Watershed-Focused Monitoring Program (WFMP) implemented in 2015.

⁴ Quarterly wet and dry weather grab sampling conducted by qualified subconsultant under antecedent weather conditions.

⁵ Annual macroinvertebrate sampling and taxonomic identification conducted by qualified, SPS-certified subconsultant during the appropriate index period (KDOW 2022). RBP habitat assessment conducted at each site in conjunction with sampling effort.

⁶ Bi-annual fish sampling and taxonomic identification conducted by qualified subconsultant with current USFWS and KDOW scientific collection permit. RBP habitat assessment conducted at each site in conjunction with sampling effort.

⁷ Grab sampling conducted by LFUCG staff and/or trained volunteers during two (2) phases: four (4) dry weather events during Phase I (September through March), 12 scheduled events (no antecedent weather conditions) during Phase 2.

⁸ Macroinvertebrate sampling and taxonomic identification conducted by qualified, SPS-certified subconsultant once during the appropriate index period (KDOW 2022).

TABLE 1. HISTORIC MONITORING LOCATIONS, COLLECTION METHODS, AND FREQUENCIES
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPS NO. KY5000002, AI NO. 74551

Monitoring Location							Monitoring Collection Method / Frequency								
LFUCG Site ID	Major Watershed ¹	Coordinates		KDOW AU ID ²	Type ³			WQ Grab Sampling ⁴ (Quarterly Wet/Dry Events) by Subconsultant	Macro Sampling ⁵ (Annual) by Subconsultant	Fish Sampling ⁶ (Bi-Annual) by Subconsultant	WQ Grab Sampling ⁷ (16 WFMP Events) by LFUCG / Volunteers	Macro Sampling ⁸ (Once as part of WFMP) by Subconsultant	Continuous Monitoring USGS Gage		
		Lat.	Long.		Active	Historic	WFMP								
WR-08	Wolf Run	38.03756	-84.54616	KY-2046			x				x				
WR-09	Wolf Run	38.03575	-84.54436	KY-2046			x				x				
WR-11	Wolf Run	38.03235	-84.52618	KY-1953			x				x	x			
WR-12	Wolf Run	38.03331	-84.54217	KY-2046			x				x	x			
WR-13	Wolf Run	38.02958	-84.53734				x				x				
WR-14	Wolf Run	38.02242	-84.52873				x				x				
WR-15	Wolf Run	38.06185	-84.54953	KY-2046			x				x				
WR-16	Wolf Run	38.04246	-84.55797				x				x				
WR-S1(B)	Wolf Run	38.05296	-84.55099	KY-2046		x			x	x					
WR-S1(W)	Wolf Run	38.05868	-84.54885	KY-2046		x		x							
							7	18	99	24	14	14	93	39	7

¹ Major watershed is used to describe an LFUCG-delimited catchment or drainage area, the boundary of which may or may not correspond to a United States Geological Survey (USGS)-delimited surface hydrologic feature with an assigned Hydrologic Unit Code (HUC).

² KDOW Assessed Reach. AU = Assessment Unit (2022). **Impaired Water (PW) in the HSA Urban area for which no TMDL has been developed for the pollutants attributed to stormwater sources.**

³ Established as part of LFUCG's Watershed-based Monitoring Program (WFMP) implemented in 2015.

⁴ Quarterly wet and dry weather grab sampling conducted by qualified subconsultant under antecedent weather conditions.

⁵ Annual macroinvertebrate sampling and taxonomic identification conducted by qualified, SFS-certified subconsultant during the appropriate index period (KDOW 2022). RSP habitat assessment conducted at each site in conjunction with sampling efforts.

⁶ Biannual fish sampling and taxonomic identification conducted by qualified subconsultant with current USFWS and KDOW scientific collection permit. RSP habitat assessment conducted at each site in conjunction with sampling efforts.

⁷ Grab sampling conducted by LFUCG staff and/or trained volunteers during two (2) phases four (4) dry weather events during Phase 1 (September through March), 12 scheduled events (no antecedent weather conditions) during Phase 2.

⁸ Macroinvertebrate sampling and taxonomic identification conducted by qualified, SFS-certified subconsultant once during the appropriate index period (KDOW 2022).

The charts below show the data for the Watershed Focused Monitoring Program health grade.
Color coding is based on the percentage of exceedance of parameters.

WFMP WATER QUALITY HEALTH GRADES SUMMARY BY LOCATION ¹
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPES NO. KYS000002, AI NO. 74551

Site ID	Watershed	pH (SU)	DO (mg/L)	COND (uS/cm)	TEMP (°C)	DTRG (mg/L)	Chl (mg/L)	Fluoride (mg/L)	NH3 - N (mg/L)	NO3 - N (mg/L)	TP (mg/L)	TSS (mg/L)	PCR E. coli (MPN /100mLs)	SCR E. coli (MPN /100mLs)	Habitat (RBP) Score	Macro (MBI) Score
CR-01	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	33% C	0% A	0% A	50% D			
CR-02	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	100% F	25% B	0% A	75% F			
CR-03	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	10% A	10% A	0% A	60% D			
CR-04	Cane Run														137 D	36.5 D
CR-05 / CR-S2	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	100% F	0% A	0% A	90% F		75 D	24.2 D
CR-06	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	90% F	0% A	0% A	90% F			
CR-07	Cane Run	0% A	0% A	100% F	0% A	0% A	10% A		0% A	30% C	0% A	0% A	100% F			
CR-08	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	100% F	0% A	0% A	100% F		84 D	23.2 D
CR-09	Cane Run	0% A	0% A	100% F	0% A	100% F	0% A		0% A	100% F	0% A	0% A	100% F			
CR-10	Cane Run	0% A	0% A	100% F	0% A	0% A	0% A		0% A	100% F	0% A	0% A	100% F			
CR-11	Cane Run	0% A	0% A	100% F	0% A	10% A	10% A		0% A	50% C	0% A	0% A	90% F			
CR-12	Cane Run	0% A	10% B	100% F	0% A	10% A	0% A		10% A	60% D	20% B	0% A	100% F			
EH-01 / EH-S9	East Hickman	0% A	21% C	0% A	0% A	0% A	0% A	0% A	0% A	7% A	0% A	0% A	50% D	36% D	114 C	56.7 C
EH-02	East Hickman	0% A	21% C	0% A	0% A	0% A	0% A	0% A	0% A	7% A	0% A	0% A	64% D	43% D		
EH-03	East Hickman	0% A	21% C	21% B	0% A	0% A	0% A	0% A	0% A	14% B	0% A	0% A	29% C	14% B	108 D	22.2 D
EH-05	East Hickman	0% A	29% D	57% D	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	79% F	14% B	126 C	24.9 D
EH-06	East Hickman	0% A	0% A	93% F	0% A	0% A	0% A	0% A	0% A	0% A	7% A	0% A	79% F	29% C		
EH-07	East Hickman	7% B	0% A	100% F	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	71% F	57% D		
EH-08	East Hickman	10% B	0% A	20% B	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	60% D	30% C		
EH-09	East Hickman	0% A	14% C	14% B	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	50% D	14% B		
EH-10 / EH-S10	East Hickman	0% A	36% D	0% A	0% A	0% A	0% A	0% A	14% B	0% A	0% A	0% A	50% D	14% B	113 D	27.9 D
EH-11	East Hickman	0% A	21% C	14% B	0% A	0% A	0% A	0% A	7% A	0% A	0% A	0% A	50% D	29% C	81 D	21 D
EH-12	East Hickman	0% A	0% A	36% C	0% A	0% A	0% A	0% A	0% A	7% A	0% A	0% A	79% F	71% F		
NE-01	North Elkhorn	0% A	14% C	86% F	0% A	0% A	0% A	0% A	0% A	0% A	7% A	7% A	79% F	50% D	140 B	34 D
NE-02	North Elkhorn	0% A	23% C	62% D	0% A	0% A	0% A	0% A	38% C	23% B	0% A	0% A	92% F	69% F	128 C	42.3 C
NE-03	North Elkhorn	0% A	15% C	69% F	0% A	0% A	0% A	0% A	0% A	0% A	15% B	0% A	54% D	38% D		
NE-04	North Elkhorn	0% A	29% D	79% F	0% A	0% A	0% A	0% A	0% A	0% A	14% B	14% B	64% D	36% D	128 C	32.3 D
NE-05	North Elkhorn	0% A	21% C	86% F	0% A	0% A	0% A	7% A	7% A	0% A	0% A	0% A	93% F	57% D		
NE-06	North Elkhorn	0% A	7% B	86% F	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	36% D	21% C	119 D	19.5 D
NE-07	North Elkhorn	0% A	8% B	85% F	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	85% F	46% D		
NE-08 / NE-S3	North Elkhorn	0% A	21% C	79% F	0% A	0% A	0% A	0% A	0% A	0% A	0% A	7% A	71% F	36% D	121 D	25 D
NE-09	North Elkhorn	0% A	0% A	93% F	0% A	7% A	0% A	7% A	0% A	0% A	0% A	0% A	64% D	21% C		
NE-10	North Elkhorn	0% A	0% A	92% F	0% A	8% A	0% A	8% A	0% A	0% A	0% A	0% A	58% D	25% C		
NE-11	North Elkhorn	0% A	14% C	21% B	0% A	0% A	0% A	7% A	0% A	0% A	14% B	7% A	71% F	21% C		
SE-01 / SE-S1	South Elkhorn	0% A	0% A	42% C	0% A	0% A	0% A	0% A	0% A	50% D	0% A	0% A	83% F	67% F		
SE-02	South Elkhorn	0% A	0% A	92% F	0% A	0% A	0% A	8% A	0% A	92% F	0% A	0% A	58% D	17% B	86 D	30.5 D
SE-03	South Elkhorn	0% A	0% A	92% F	0% A	0% A	0% A	0% A	0% A	92% F	0% A	0% A	58% D	25% C		
SE-04	South Elkhorn	0% A	0% A	58% D	0% A	0% A	0% A	8% A	0% A	67% F	0% A	0% A	75% F	58% D		
SE-05	South Elkhorn	0% A	0% A	42% C	0% A	0% A	0% A	8% A	0% A	50% D	0% A	0% A	67% F	50% D	131 B	52.7 C
SE-06	South Elkhorn	0% A	0% A	33% C	0% A	0% A	0% A	8% A	0% A	83% F	0% A	0% A	67% F	58% D		

WFMP WATER QUALITY HEALTH GRADES SUMMARY BY LOCATION ¹
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPES NO. KYS000002, AI NO. 74551

Site ID	Watershed	pH (SU)	DO (mg/L)	COND (uS/cm)	TEMP (°C)	DTRG (mg/L)	Chl (mg/L)	Fluoride (mg/L)	NH3 - N (mg/L)	NO3 - N (mg/L)	TP (mg/L)	TSS (mg/L)	PCR E. coli (MPN /100mLs)	SCR E. coli (MPN /100mLs)	Habitat (RBP) Score	Macro (MBI) Score
SE-07	South Elkhorn	0% A	0% A	92% F	0% A	0% A	0% A	17% B	0% A	75% F	0% A	0% A	100% F	50% D		
SE-08	South Elkhorn	0% A	0% A	58% D	0% A	8% A	0% A	8% A	0% A	33% C	8% A	0% A	58% D	25% C	120 D	28.7 D
SE-09	South Elkhorn	0% A	0% A	58% D	0% A	0% A	0% A	0% A	0% A	33% C	0% A	0% A	75% F	33% D		
SE-10	South Elkhorn	0% A	0% A	83% F	0% A	0% A	0% A	0% A	0% A	42% C	0% A	0% A	100% F	75% F		
SE-11	South Elkhorn	0% A	0% A	58% D	0% A	0% A	0% A	0% A	0% A	33% C	0% A	0% A	75% F	58% D		
SE-12	South Elkhorn	0% A	0% A	83% F	0% A	17% B	0% A	0% A	0% A	33% C	0% A	0% A	92% F	83% F	119 D	27.6 D
SE-13	South Elkhorn	0% A	0% A	92% F	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	50% D	33% D	116 D	25.2 D
SE-14	South Elkhorn	0% A	8% B	83% F	0% A	0% A	0% A	0% A	0% A	17% B	0% A	0% A	92% F	67% F		
SE-15	South Elkhorn	0% A	8% B	75% F	0% A	0% A	8% A	0% A	0% A	0% A	0% A	0% A	50% D	42% D		
TB-01 / TB-S3	Town Branch	0% A	30% D	90% F	0% A	0% A	0% A	50% D	20% B	100% F	100% F	0% A	100% F	80% F	118 C	38.6 D
TB-02	Town Branch	0% A	0% A	60% D	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	100% F	80% F	113 F	43.4 C
TB-03	Town Branch	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	20% B	0% A	100% F	80% F	84 F	25.2 D
TB-04	Town Branch	0% A	0% A	60% D	0% A	0% A	0% A	10% B	0% A	50% D	70% F	0% A	100% F	100% F		
TB-05	Town Branch	0% A	0% A	100% F	0% A	0% A	10% B	0% A	0% A	0% A	0% A	0% A	50% D	10% B	94 F	31.2 D
TB-06	Town Branch	0% A	10% A	100% F	0% A	0% A	0% A	70% F	20% B	100% F	100% F	0% A	90% F	80% F		
TB-07	Town Branch	0% A	0% A	100% F	0% A	0% A	20% B	80% F	20% B	100% F	100% F	0% A	90% F	90% F		
TB-08	Town Branch	0% A	0% A	100% F	0% A	0% A	0% A	80% F	20% B	100% F	100% F	0% A	90% F	80% F	104 F	42.7 C
TB-09	Town Branch	0% A	0% A	100% F	0% A	10% B	0% A	0% A	0% A	70% F	0% A	0% A	100% F	90% F		
TB-11	Town Branch	0% A	0% A	100% F	0% A	0% A	10% B	30% C	0% A	70% F	20% B	0% A	100% F	90% F	87 F	13.2 F
TB-12	Town Branch	0% A	0% A	90% F	0% A	0% A	0% A	0% A	20% B	100% F	20% B	0% A	100% F	100% F		
WH-01	West Hickman	0% A	0% A	86% F	0% A	0% A	0% A	7% A	0% A	0% A	0% A	0% A	71% F	29% C		
WH-02	West Hickman	0% A	0% A	64% D	0% A	0% A	0% A	7% A	0% A	29% C	14% B	7% A	93% F	50% D		
WH-03 / WH-S0	West Hickman	0% A	0% A	50% D	0% A	0% A	0% A	0% A	0% A	0% A	7% A	0% A	93% F	57% D	126 C	57.4 C
WH-04	West Hickman	0% A	0% A	79% F	0% A	0% A	0% A	0% A	0% A	71% F	7% A	0% A	71% F	57% D		
WH-05	West Hickman														115 C	55.4 C
WH-06	West Hickman														122 D	42.9 C
WH-07	West Hickman	0% A	0% A	86% F	0% A	0% A	7% A	0% A	0% A	50% D	7% A	7% A	50% D	43% D		
WH-08	West Hickman	0% A	0% A	93% F	0% A	0% A	0% A	7% A	0% A	0% A	7% A	7% A	79% F	79% F		
WH-09	West Hickman	0% A	0% A	38% C	0% A	0% A	0% A	0% A	0% A	0% A	0% A	0% A	92% F	46% D		
WH-10	West Hickman	0% A	0% A	86% F	0% A	7% A	0% A	0% A	0% A	14% B	7% A	7% A	100% F	86% F		
WH-11	West Hickman	0% A	7% B	86% F	0% A	0% A	7% A	0% A	0% A	7% A	14% B	0% A	71% F	50% D		
WH-12	West Hickman														122 D	30.8 D
WH-13	West Hickman	0% A	0% A	14% B	0% A	0% A	7% A	0% A	0% A	0% A	7% A	7% A	79% F	57% D		
WH-14	West Hickman	0% A	0% A	57% D	0% A	0% A	7% A	0% A	0% A	43% C	7% A	7% A	79% F	50% D		
WH-15	West Hickman														125 D	35.6 D
WH-16	West Hickman	0% A	0% A	64% D	0% A	7% A	0% A	0% A	0% A	93% F	7% A	0% A	100% F	79% F		
WH-17	West Hickman	0% A	0% A	71% F	0% A	0% A	0% A	0% A	0% A	57% D	7% A	0% A	93% F	36% D		
WH-18	West Hickman														117 C	38.2 D
WH-19	West Hickman	0% A	0% A	7% A	0% A	0% A	0% A	0% A	0% A	7% A	0% A	0% A	29% C	7% A		
WH-20	West Hickman	7% B	7% B	7% A	0% A	0% A	7% A	0% A	0% A	7% A	0% A	0% A	21% C	7% A		

WFMP WATER QUALITY HEALTH GRADES SUMMARY BY LOCATION ¹
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPES NO. KYS000002, AI NO. 74551

Site ID	Watershed	pH (SU)	DO (mg/L)	COND (uS/cm)	TEMP (°C)	DTRG (mg/L)	Chl (mg/L)	Fluoride (mg/L)	NH3 - N (mg/L)	NO3 - N (mg/L)	TP (mg/L)	TSS (mg/L)	PCR E. coli (MPN /100mLs)	SCR E. coli (MPN /100mLs)	Habitat (RBP) Score	Macro (MBI) Score
WH-21	West Hickman	0% A	0% A	21% B	0% A	7% A	0% A	0% A	0% A	93% F	0% A	0% A	57% D	21% C		
WH-22	West Hickman	0% A	8% B	15% B	0% A	8% A	0% A	0% A	8% A	15% B	0% A	0% A	85% F	69% F		
WH-23 / WH-S3	West Hickman	0% A	11% C	80% F	0% A	0% A	0% A	40% C	10% B	90% F	80% F	0% A	90% F	30% C	108 D	37 D
WR-01 / WR-S2	Wolf Run	0% A	0% A	93% F	0% A	0% A	0% A	0% A	0% A	21% B	7% A	0% A	79% F	36% D	121 C	52.4 C
WR-02	Wolf Run	0% A	7% B	86% F	0% A	0% A	0% A	0% A	0% A	50% D	7% A	0% A	43% D	21% C	118 D	30.9 D
WR-03	Wolf Run	0% A	14% C	79% F	0% A	0% A	0% A	0% A	0% A	29% C	21% B	0% A	79% F	57% D		
WR-04	Wolf Run	0% A	0% A	57% D	0% A	0% A	0% A	0% A	0% A	29% C	7% A	0% A	86% F	71% F	126 C	41 C
WR-05	Wolf Run	0% A	23% C	69% F	0% A	8% A	0% A	0% A	8% A	31% C	23% B	8% A	85% F	62% D		
WR-06	Wolf Run	0% A	7% B	71% F	0% A	0% A	0% A	0% A	0% A	43% C	29% C	0% A	93% F	64% D	109 D	22.7 D
WR-07	Wolf Run	0% A	36% D	27% C	0% A	9% A	0% A	0% A	9% A	45% C	18% B	9% A	82% F	82% F		
WR-08	Wolf Run	0% A	36% D	79% F	0% A	0% A	0% A	0% A	0% A	50% D	14% B	0% A	93% F	79% F	109 D	24.8 D
WR-09	Wolf Run	0% A	8% B	54% D	0% A	0% A	0% A	0% A	0% A	100% F	31% C	0% A	54% D	31% C		
WR-11	Wolf Run	0% A	10% C	70% F	10% B	0% A	10% B	0% A	10% B	20% B	10% B	0% A	60% D	40% D		
WR-12	Wolf Run	0% A	0% A	86% F	0% A	0% A	0% A	0% A	0% A	50% D	0% A	0% A	86% F	64% D		
WR-13	Wolf Run	0% A	0% A	86% F	0% A	0% A	0% A	0% A	7% A	79% F	14% B	0% A	79% F	71% F		
WR-14	Wolf Run	0% A	8% B	85% F	0% A	8% A	0% A	0% A	8% A	46% C	8% A	0% A	77% F	69% F		
WR-15	Wolf Run	0% A	21% C	93% F	0% A	0% A	0% A	0% A	0% A	29% C	0% A	0% A	50% D	36% D		
WR-16	Wolf Run	0% A	0% A	91% F	0% A	0% A	0% A	0% A	9% A	64% D	18% B	0% A	36% D	18% B		

Parameter	Benchmark	A	B	C	D	F
pH (SU)	6-9	0-5%	6-10%	11-25%	26-66%	67-100%
Dissolved Oxygen (mg/L)	4	0-5%	6-10%	11-25%	26-66%	67-100%
Conductivity (uS/cm)	500	0-10%	11-25%	26-50%	51-66%	67-100%
Detergents (mg/L)	0.5	0-10%	11-25%	26-50%	51-66%	67-100%
Chlorine (mg/L)	0.019	0-10%	11-25%	26-50%	51-66%	67-100%
Fluoride (mg/L)	0.5	0-10%	11-25%	26-50%	51-66%	67-100%
Ammonia - Nitrogen (mg/L)	0.5	0-10%	11-25%	26-50%	51-66%	67-100%
Nitrate - Nitrogen (mg/L)	2	0-10%	11-25%	26-50%	51-66%	67-100%
Total Phosphorus (mg/L)	0.5	0-10%	11-25%	26-50%	51-66%	67-100%
Total Suspended Solids (mg/L)	80	0-10%	11-25%	26-50%	51-66%	67-100%
E. coli, PCR (MPN/100mLs)	240	0-10%	11-20%	21-33%	34-66%	67-100%
Total Suspended Solids (mg/L)	80	0-10%	11-25%	26-50%	51-66%	67-100%
E. coli, PCR (MPN/100mLs)	240	0-10%	11-20%	21-33%	34-66%	67-100%
E. coli, SCR (MPN/100mLs)	676	0-10%	11-20%	21-33%	34-66%	67-100%

The below chart is a condensed version of the impaired water reaches in Fayette County.

FAYETTE COUNTY 305(b) LISTED IMPAIRED WATERS ANALYSIS ¹
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, KDPES NO. KYS000002, AI NO. 74551

Assessment Unit (AU)		In MS4 Urban Area	Designated Use / Pollutant																					
			WAH					FC		PCR	SCR													
			Nutrient / Eutrophication	Organic Enrichment (Sewage)	Nitrogen, Total	Phosphorus, Total	Sedimentation / Siltation	Specific Conductivity	Total Dissolved Solids	Mercury in Fish Tissue	Escherichia coli (E. coli)	Pathogens	Fecal Coliform	Fecal Coliform										
ID	Name	River Mile	Lower Latitude	Longitude	River Mile	Upper Latitude	Longitude	IW with TMDL	Link	Date	IW without TMDL	Stormwater Source												
KY-181	Baughman Fork 0.0 to 2.7	0	37.9397	-84.33775	2.7	37.96665	-84.35905	X	1419	10/31/2000			X											
KY-183	Baughman Fork UT 0.0 to 1.5	0	37.9671	-84.3604	1.5	37.966	-84.38652	X	1419	10/31/2000	X	X	X											
KY-399	Cane Run 3.0 to 9.45	3	38.1896	-84.58953	9.45	38.14391	-84.51942	X	52480	08/26/2013	X		X											X
KY-400	Cane Run 9.45 to 17.4	X	9.45	38.1439	-84.51942	17.4	38.06122	-84.4634	X	52480	08/26/2013	X	X	X	X									X
KY-401	Cane Run UT 0.0 to 2.4	0	38.1317	-84.51031	2.4	38.11414	-84.48364	X	52480	08/26/2013	X				X	X								
KY-402	Cane Run UT 0.0 to 2.15	X	0	38.106	-84.49908	2.15	38.08593	-84.47656	X	52480	08/26/2013	X				X								
KY-403	Cane Run UT 0.0 to 0.9	X	0	38.0759	-84.48664	0.9	38.06414	-84.4874	X	52480	08/26/2013	X												
KY-404	Cane Run UT 0.0 to 3.7	0	38.1667	-84.55248	3.7	38.12968	-84.55313	X	52480	08/26/2013	X				X	X								
KY-629	David Fork 0.0 to 1.8	0	38.0699	-84.41213	1.8	38.05563	-84.39689	X	57261	07/11/2014														
KY-703	East Hickman Creek 4.2 to 10.65	4.2	37.9302	-84.47973	10.65	37.97748	-84.44961	X	KYACT 5	08/31/2021	X	X	X											
KY-704	East Hickman Creek UT 0.8 to 3.1	0.8	37.994	-84.41966	3.1	38.00847	-84.39239	X	KYACT 5	08/31/2021														
KY-705	East Hickman Creek UT 0.0 to 3.9	0	37.9543	-84.45025	3.9	37.97634	-84.39991	X	KYACT 5	08/31/2021														
KY-1385	North Elkhorn Creek 65.95 to 73.8	X	65.95	38.1062	-84.40373	73.8	38.02818	-84.40135	X	57261	07/11/2014	X		X	X									
KY-1386	North Elkhorn Creek UT 0.0 to 6.05	0	38.1062	-84.40373	6.05	38.07263	-84.33774	X			X			X										
KY-1387	North Elkhorn Creek UT 0.0 to 3.5	X	0	38.0548	-84.41495	3.5	38.01622	-84.42904	X	57261	07/11/2014													
KY-1701	Shelby Branch 0.0 to 4.45	0	37.9176	-84.47296	4.45	37.94146	-84.42955	X	KYACT 5	08/31/2021														
KY-1750	South Elkhorn Creek 34.5 to 52.5	X	34.5	38.1134	-84.62964	52.5	37.99001	-84.53616	X	52360	08/16/2013	X	X	X	X									
KY-1897	Town Branch 0.0 to 9.2	X	0	38.1134	-84.62945	9.2	38.07359	-84.55354	X	52360	08/16/2013	X	X	X	X									
KY-1898	Town Branch 9.2 to 10.8	X	9.2	38.0736	-84.55354	10.8	38.06091	-84.53149	X	52360	08/16/2013	X	X	X	X									
KY-1899	Town Branch 10.8 to 12.45	X	10.8	38.0609	-84.53145	12.45	38.05142	-84.50562	X	52360	08/16/2013	X	X	X	X									
KY-1952	Vaughns Branch 0.0 to 2.2	X	0	38.0551	-84.55016	2.2	38.03662	-84.521	X	KYACT 5	08/31/2021	X	X											
KY-1953	Vaughns Branch UT 0.0 to 1.85	X	0	38.0386	-84.52808	1.85	38.01819	-84.50889	X	KYACT 5	08/31/2021	X	X											
KY-2005	West Hickman Creek 3.1 to 8.5	X	3.1	37.942	-84.50205	8.5	37.99982	-84.4708	X	KYACT 5	08/31/2021	X	X	X										
KY-2046	Wolf Run 0.0 to 4.3	X	0	38.0736	-84.55354	4.3	38.02483	-84.52781	X	52360	08/16/2013	X	X	X										
KY-2047	Wolf Run UT 0.0 to 0.7	X	0	38.0736	-84.55354	4.3	38.02483	-84.52781	X	KYACT 5	08/31/2021													
KY-2663	Gardenside Spring	X		38.0357	-84.5444		38.02313	-84.55771	X	52360	08/16/2013													
KY-2675	McConnell Bluehole	X		38.0542	-84.53		38.00227	-84.5236	X	52360	08/16/2013													
KY-2788	Steeles Run 0.0 to 4.2	0	38.111	-84.62871	4.2	38.06735	-84.59554	X	52360	08/16/2013	X	X	X											
KY-2789	Steeles Run 4.2 to 5.15	4.2	38.0673	-84.59554	5.15	38.06669	-84.57923	X	52360	08/16/2013														
KY-3084	Kentucky River 157.2 to 169.7	157.2	37.8529	-84.47678	169.7	37.90209	-84.37656				X													
KY-3085	Kentucky River 169.7 to 170.7	169.7	37.9021	-84.37656	170.7	37.89417	-84.36148				X													
KY-3312	Shannon Run 2.5 to 7.3	2.5	38.0399	-84.6478	7.3	37.99307	-84.63798				X	X	X											

¹ Source: 2022 KDOW 303(b) Workbook, Impaired Waters Worksheet.

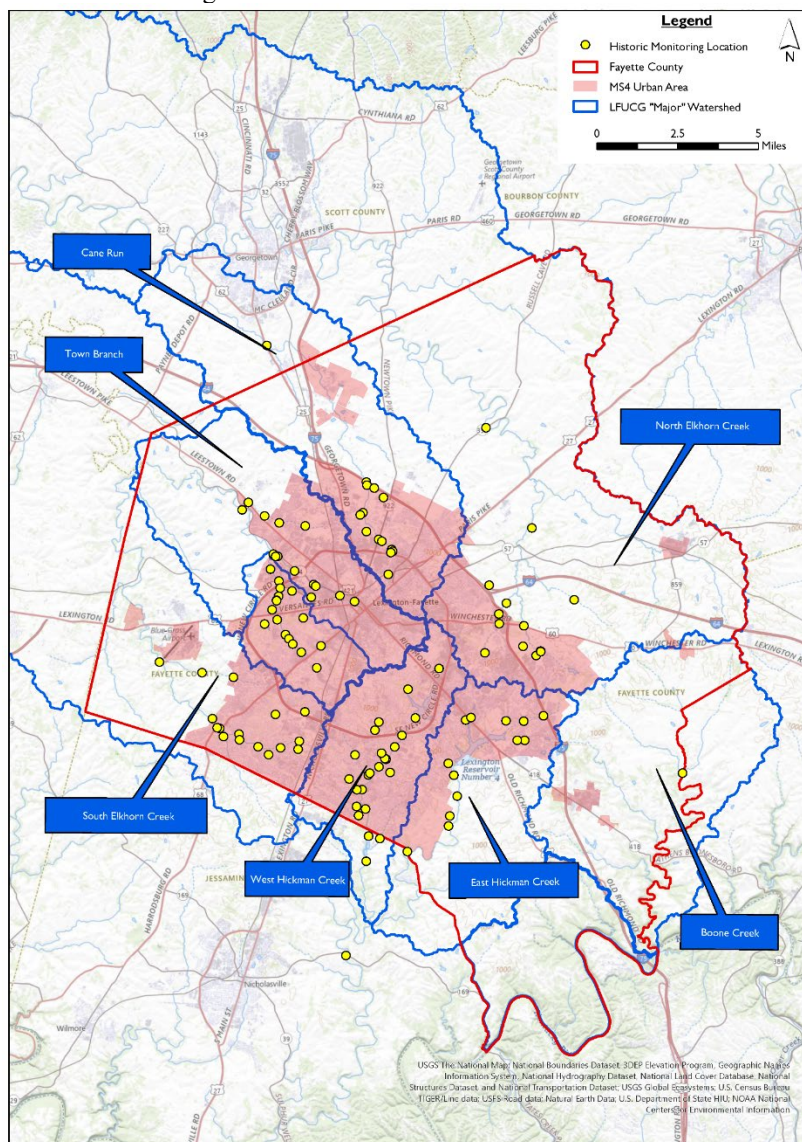
Proposed Locations

After digesting all the data, the ultimate objective was to make a recommendation to the Lexington-Fayette Urban County Government of future monitoring locations, methods, and frequencies.

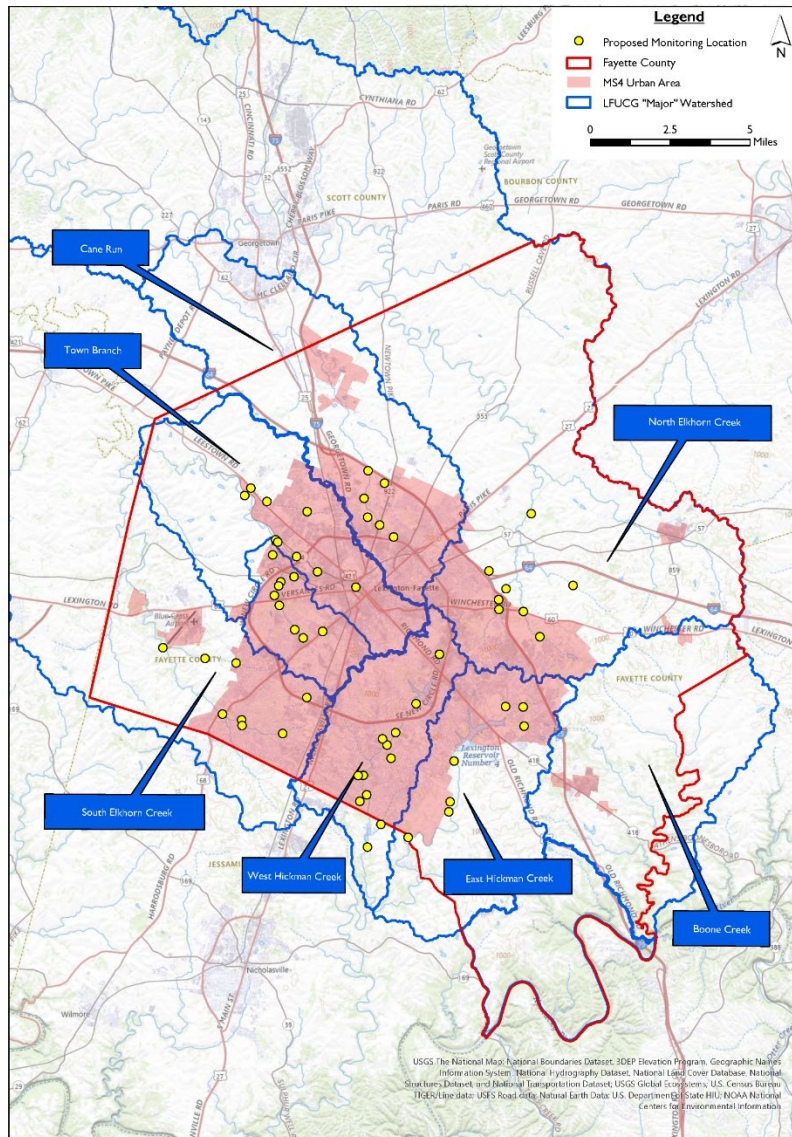
To determine the integrated effects of upstream conditions, more than 100 subwatershed, in-stream sites were evaluated. To make it feasible to continue to work with volunteers, the total number of sites was re-evaluated based on drainage characteristics. The tradeoff between the resources available for data collection, and the accurate characterization of water quality conditions largely determines the success of a monitoring program. 115 sites were evaluated based on their proximity to a stream and drainage area size. 59 future monitoring sites were strategically selected for the program.

The following maps show the historic monitoring sites versus the proposed monitoring sites in Fayette County.

Historic Monitoring Locations – 115 sites



Proposed Monitoring Locations – 59 monitoring sites

Proposed Methods/Frequencies

Mr. Hall touched on the following items:

- Quarterly water quality grab sampling by trained volunteers (*scheduled sampling regardless of weather*)
 - Scheduled sampling conducted regardless of weather.
 - Dissolved oxygen, pH, temperature, and conductivity collected *in situ* using a multimeter probe.
 - Flow estimated using the recorded depth at the staff gage.
 - Samples analyzed for total suspended solids, *E. coli*, total phosphorus, dissolved phosphorus, ammonia-nitrogen, total Kjeldahl nitrogen, nitrate-nitrogen, and nitrite-nitrogen.

- Annual wet weather grab sampling by a qualified sub-consultant.
 - Sampling conducted after a period of at least 72 hours of dry weather (less than 0.1 inch of rainfall) followed by a rain event in which 0.1 inch or greater of rainfall accumulates and stream levels rise.
 - Dissolved oxygen, pH, temperature, and conductivity collected *in situ* using a multimeter probe.
 - Flow estimated using the recorded depth at the staff gage.
 - Samples analyzed for total suspended solids, *E. coli*, total phosphorus, dissolved phosphorus, ammonia-nitrogen, total Kjeldahl nitrogen, nitrate-nitrogen, and nitrite-nitrogen.

Bert Remley spoke about the biological elements of the proposed monitoring.

He explained sampling would be done every other year following the Kentucky Division of Water protocol which involves collecting a ripple kick sample and multi-habitat sample. From these samples, the seven (7) core metrics can be reviewed to calculate the bioassessment index, which will give a biological health rating of excellent, good, fair, or poor. As the samples were collected it allowed *in situ* measurements and a habitat assessment.

He noted the reason macroinvertebrates are good for determining biological health is they are relatively sedentary organisms, and they live most, if not all, of their life cycle within the stream. Macroinvertebrates require multiple habitat types to exist and occupy multiple trophic levels.

Bi-annual macroinvertebrate sampling and identification by a qualified subconsultant:

- Sampling will be conducted using methods developed by the Kentucky Division of Water (KDOW 2015) during the appropriate index period based upon the sites' drainage area.
- Dissolved oxygen, pH, temperature, and conductivity will be collected *in situ* using a multimeter probe.
- Stream habitat will be assessed in conjunction with the sampling effort using the US EPA Rapid Bioassessment Protocol (RBP) and methods developed by the Kentucky Division of Water (2022).

Third Rock Consultants recommends fish sampling be conducted every year but only at the seven (7) major watershed sites which are located at the downstream section of the watersheds. He explained that as far as the biological integrity of the stream, fish sampling will be conducted because they are more mobile and live longer and can provide more information than macroinvertebrates.

Bi-annual fish sampling and identification by a qualified subconsultant who holds current state and federal scientific collection permits:

- Sampling conducted using methods developed by the Kentucky Division of Water (KDOW 2022) during the appropriate index period based upon the sites' drainage area.
- Dissolved oxygen, pH, temperature, and conductivity collected *in situ* using a multimeter probe.
- Stream habitat assessed in conjunction with the sampling effort using US EPA Rapid Bioassessment Protocol (RBP) and methods developed by the Kentucky Division of Water (2022).

Casey Mattingly spoke about the physical monitoring of a stream.

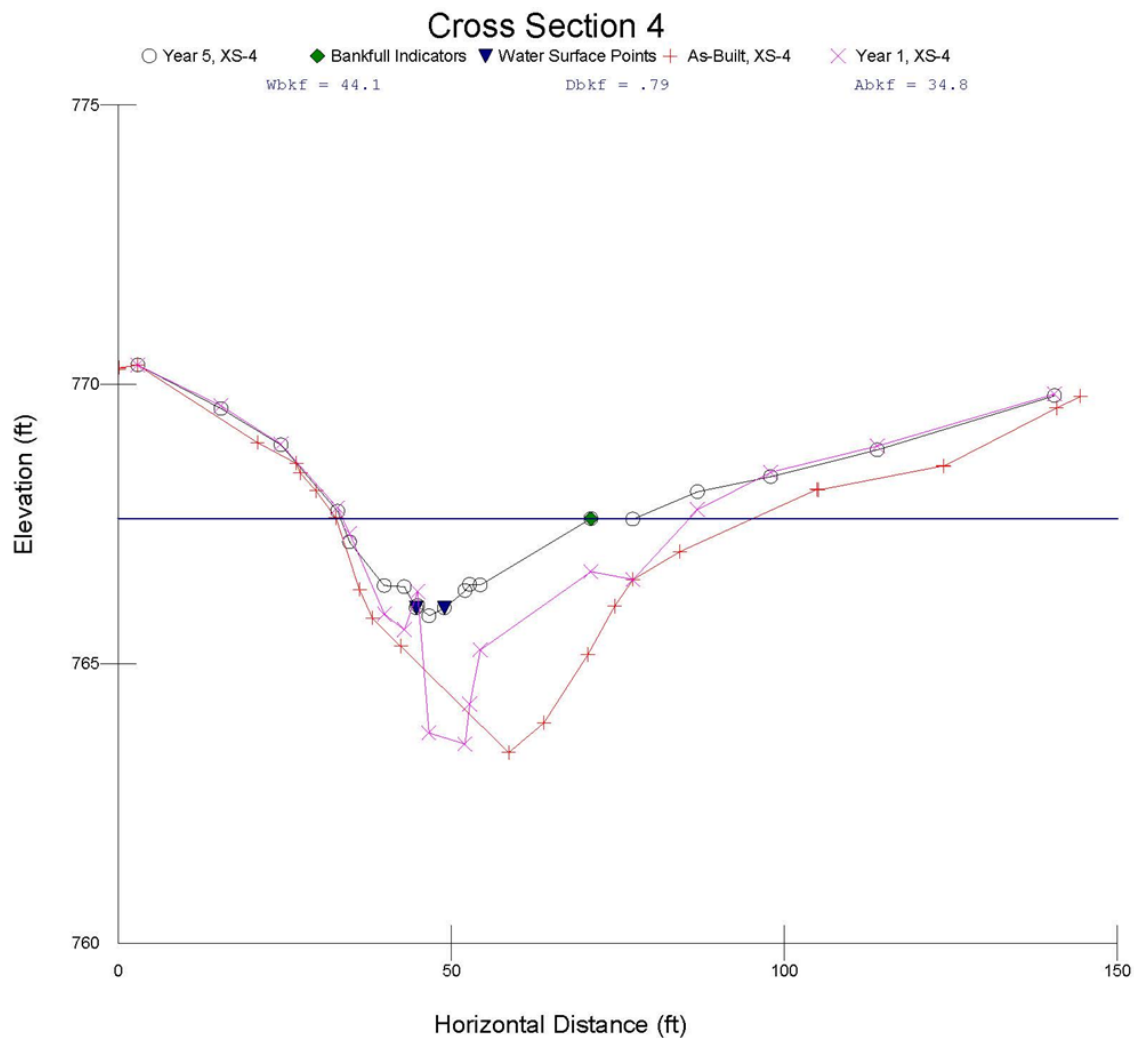
He explained that physical monitoring consists of two subcategories: geomorphic survey assessment and erosion assessment. The geomorphic survey is a way to tell what the stream is doing over a period of time. This will include cross-section surveys longitudinal profiles and pebble counts. Permanent monument stations will be created so the data can be replicated year after year. This will give an idea and understanding of how the stream is evolving.

The erosion assessment will be based on using the Bank Erosion Hazard Index (BEHI) and Bank Assessment for Non-point Consequences of Sediment (BANCS) model. This will determine the bank stress of the stream and create a prediction curve of how much sediment the cross-sections are contributing to the watershed.

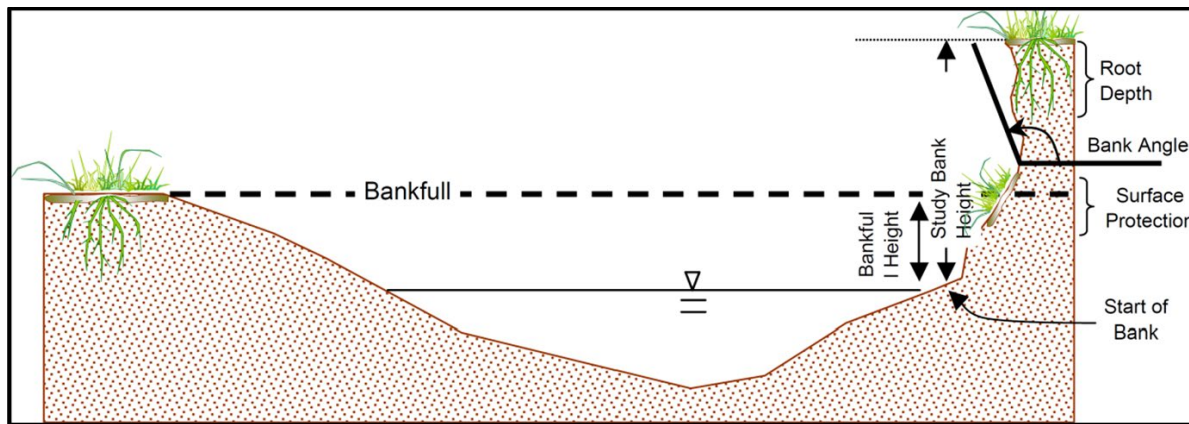
Bi-annual geomorphic and erosion assessment by a qualified subconsultant collected in conjunction with macroinvertebrate sampling:

- Geomorphic assessment includes cross-section and longitudinal surveys and pebble counts.
- Permanent cross-section monuments installed during the first year at locations that best represent the associated reach to document the change in stream geometry.
- Erosion assessment includes the collection of Bank Erosion Hazard Index (BEHI) and Near Bank Stress (NBS) data.
- Bank Assessment for Non-point Consequences of Sediment (BANCS) model used to predict annual stream bank erosion rates.

The sample chart below is an example of the geomorphic assessment. It is a way to show how much a stream has evolved by looking at the slope, the erosion, the riffles, and the substrate of the stream, and those parameters relate to the macroinvertebrate data. Also with the volunteer flow monitoring, the flow duration curve can be recalibrated every two years.



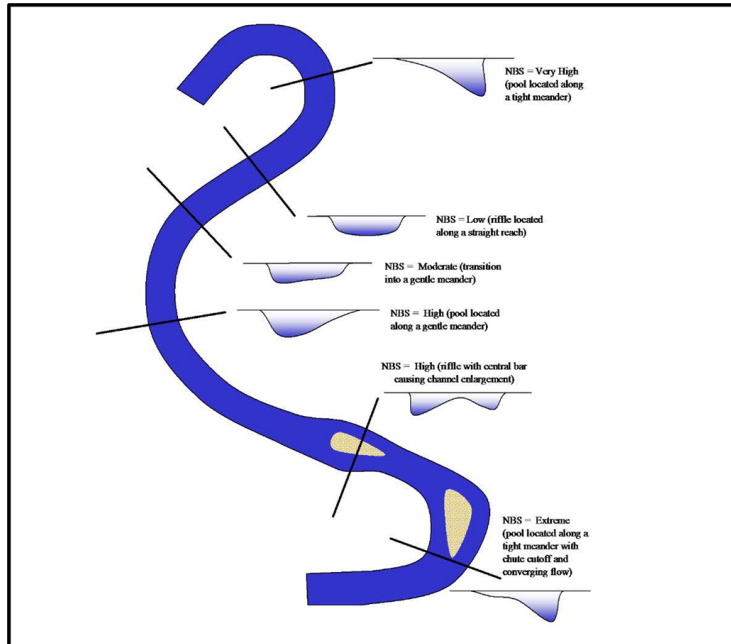
The sample chart below depicts the Bank Erosion Hazard Index (BEHI) used to predict annual stream bank erosion rates. It looks at the height of the bank, the angle of the bank, if there is vegetation cover, and if so, how deep are the roots.



Once these variables are collected that data will be inserted into the BEHI model to determine the rating of how susceptible the stream is to erosion.

bank erosion hazard index (BEHI)					
stream: Willow Creek		stream type: C 4			
location: Reach 1		landscape type: C-AL-AD			
observers:		station: Pool		date: 8/9/2024	
BEHI score					
study bank height to bankfull height (Figure 3-11)					
study bank height (ft) =	3.00	bankfull height (ft) =	2.00	(A) / (B) =	1.50
					6.0
root depth to study bank height					
root depth (ft) =	1.00	study bank height (ft) =	3.00	(D) / (A) =	0.33
					6.0
weighted root density					
root density (%) =	15%	(F) x (E) =	0.05	9.5	
bank angle					
bank angle (degrees) =	45.0	3.0			
surface protection					
surface protection (%) =	20%	7.0			
bank material adjustment:					
bedrock: overall very low BEHI rating boulders: overall low BEHI rating cobble: subtract 10 points if uniform medium- to large-sized cobble; subtract 5 points if primarily cobble with low percentage of gravel or sand gravel or composite matrix: no adjustment if less than 20% sand or silt; add 5 points if 20–50% sand or silt; add 10 points if more than 50% sand or silt sand: add 10 points if uniform sand or >50% sand; add 5 points if 20–50% sand silt: add 10 points if uniform silt or >50% silt; add 5 points if 20–50% silt clay: no adjustment if low percentage of clay; subtract 10 points if high percentage of clay; subtract 20 points if uniform clay					
bank material adjustment					0
stratification adjustment					
add 5–10 points depending on position of unstable layers in relation to bankfull stage					5
adjective rating and total score					High
very low	low	moderate	high	very high	extreme
5 – 9.5	10 – 19.5	20 – 29.5	30 – 39.5	40 – 45	46 – 50
adjective rating and total score					36.5

The Near Bank Stress (NBS) shows what forces, and the magnitude of those forces result in erosion of the stream.



The Near Bank Stress (NBS) will calculate an estimate for the bank stress associated with bankfull flows by using stream patterns, shape and so forth.

near-bank stress (NBS)									
stream: Willow Creek					stream type: C 4				
location: Reach 1					landscape type: C-AL-AD				
observers:					station: Pool		date: 8/9/2024		
methods to estimate near-bank stress									
(1) channel pattern, bars, and instream debris or structures creating NBS					level I	reconnaissance			
(2) radius of curvature to bankfull width					level II	general prediction			
(3) pool slope to stream slope					level II	general prediction			
(4) pool slope to riffle slope					level II	general prediction			
(5) near-bank maximum depth to remaining 2/3 maximum depth					level III	detailed prediction			
(6) near-bank shear stress to bankfull shear stress					level III	detailed prediction			
(7) velocity profiles / isovels / velocity gradient					level IV	validation			
level I	(1)	depositional bars (e.g., transverse or central bars), debris or structures.....NBS = very high / extreme pattern: chute cutoffs, down-valley meander migration, split channels.....NBS = very high / extreme							
level II	(2)	radius of curvature R_c (ft)	bankfull width W_{bf} (ft)	ratio R_c / W_{bf}	near-bank stress	dominant near-bank stress			
	(3)	pool slope S_p	stream slope, S	ratio S_p / S	near-bank stress				
	(4)	pool slope S_p	riffle slope S_{rif}	ratio S_p / S_{rif}	near-bank stress				
level III	(5)	near-bank max. depth d_{nb} (ft)	2/3 max. depth $d_{2/3}$ (ft)	ratio $d_{nb} / d_{2/3}$	near-bank stress				
	(6)	near-bank max. depth d_{nb} (ft)	near-bank slope S_{nb}	near-bank shear stress τ_{nb} (lb/ft ²)	mean depth d_{bf} (ft)	stream slope S	bankfull shear stress τ_{bf} (lb/ft ²)	ratio τ_{nb} / τ_{bf}	near-bank stress
level IV	(7)	velocity gradient (ft / sec / ft)		near-bank stress					
		0.00							

Using the Bank Erosion Hazard Index (BEHI) and Near Bank Stress (NBS) data together will create a predictability curve and quantify how many tons of sediment the cross-section is putting into the stream per year per linear foot for that watershed.

longitudinal station	BEHI rating (WS 3-16) (adjective)	NBS rating (WS 3-17) (adjective)	bank erosion rate (e.g., Fig. 3-6 or 3-7) (ft/yr)	length of bank (ft)	study bank height (ft)	erosion subtotal $[(4) \times (5) \times (6)]$ (ft ³ /yr)	unit erosion rate $\{[(7)/27] \times 1.3 / (5)\}$ (tons/yr/ft)
1. 36	H	E	1.291	59.58	14.00	1077.00	0.87038
2. 37	NC	NC	0.000	281.09	0	0.00	0.00000
3. 38	L	E	0.658	63.28	4	145.77	0.11091
4. 39	L	E	0.658	160.34	4	464.33	0.13943
5. 40	NC	NC	0.000	455.49			
6. 41	L	E	0.658	185.50	4	537.20	0.13943
7. 42	L	E	0.658	93.29	6	368.40	0.19013
8. 43	M	E	1.166	195.90	5	1027.90	0.25264
9. 44	NC	NC	0.000	238.75			
10. 45	VH	L	0.248	63.87	35	555.47	0.41873
11. 46	M	VL	0.093	203.59	5	85.09	0.02012
12. 47	NC	NC	0.000	67.14			
13. 48	NC	NC	0.000	295.12			
14. 49	M	L	0.154	22.42	6	20.73	0.04451
15. 50	E	VH	7.002	167.22	6	6054.40	1.85411
16. 51	M	H	0.424	164.16	6	438.33	0.12856
17. 52	NC	NC	0.000	299.85			
18. 53	M	E	1.166	141.56	5	858.34	0.29194
19. 54	E	M	1.071	73.92	5	356.09	0.23194
20. 55	H	M	0.375	38.25	5	66.01	0.08309
21. 56	H	VH	0.855	137.87	6	707.43	0.24706
22. 57	E	VH	7.002	164.90	20	23090.55	6.74221
23. 58	NC	NC	0.000	174.51			
24. 59	VH	H	0.566	52.54	6	175.57	0.16091
25. 60	L	M	0.073	113.79	5	41.28	0.01747
26. 61	L	VH	0.316	84.37	5	127.80	0.07294
27. 62	M	VH	0.703	78.70	6	309.82	0.18955
28. 63	L	M	0.073	72.10	5	27.73	0.01852
29. 64	VL	VL	0.017	171.75	2	5.44	0.00153
sum erosion subtotals in column (7) for each BEHI/NBS combination (cubic feet per year)						total erosion	36540.71 (ft ³ /yr)
convert erosion in cubic feet per year to cubic yards per year (divide total erosion (ft ³ /yr) by 27)						total erosion	1353.36 (yds ³ /yr)
convert erosion in cubic yards per year to tons per year (multiply total erosion (yds ³ /yr) by 1.35)(a)						total erosion	1827.04 (tons/yr)
calculate erosion per unit length of channel (divide total erosion (tons/yr) by total stream length (ft))						unit erosion rate	(tons/yr/ft)

Mr. Hall said that the Summary of Recommendations includes:

- Employ chemical, biological, and physical monitoring methods at varied frequencies.
- Monitor 59 stream sites across Fayette County.
- Continue to engage volunteers to the maximum extent feasible/practical.
- Expand physical monitoring to assess stream geomorphology and erosion rates.

Questions and comments - Russ Turpin asked if any streams have a potential for delisting off the 303b list or if there are potential streams that might go that direction.

Mr. Hall replied that Third Rock Consultants' primary motivation was to collect the necessary data for the selected sites to assess impairment.

Mr. Turpin then asked if there were specific ones that could be shared with the audience.

Mr. Hall replied not at this time and explained that they are focusing on collecting the data to make those decisions in the future.

Ken Cooke asked if there would be other opportunities for a more detailed discussion in the future.

Mr. Hall said that this is the first of many drafts of what is being recommended, and they welcome any feedback from the stakeholders/volunteers before submitting the recommendation to the Kentucky Division of Water.

Mr. Cooke said that the volunteer part is very interesting and the terms of how the volunteers will be managed should be discussed. It was his opinion that the Lexington-Fayette Urban County Government can coordinate the program and does not need third-party involvement. He asked what opportunities there would be to provide feedback to the program planners and managers.

Greg Lubeck, Deputy Director, Division of Water Quality responded that the idea was to present this information at the September SSAC meeting. Afterward, there would be a meeting to allow breakout discussions with smaller subsets of the group. Not everyone is interested in the subject, but presenting the information at the September meeting gives everyone something to start digesting before the formal presentation is given to the Kentucky Division of Water at the end of the year.

Mr. Cooke asked if the geomorphic survey assessment, and erosion assessment of the watersheds were done during the last round of the Watershed Focus Monitoring Program.

Mr. Hall replied only cursory ones were done to enable the stage-discharge curves to model flow. There was not a detailed geomorphic survey assessment or erosion assessment done. There were some stream bed substrate characterization, but that was only for characterizing, not to keep track of erosion.

Mr. Cooke commented that Third Rock Consultants' recommended monitoring program is far more advanced than other programs that the Division of Water must regulate, and he believes the Division of Water will accept their findings.

Mr. Lubeck said that Q-critical sites were reviewed by Lindsie Nicholas (former MS4 coordinator), and Bob Hawley (Sustainable Streams), and will be reviewed by the current MS4 coordinator, Bailee Young. He explained that there are a couple of cross-sections established in Shillito Park, and the Division of Water Quality is working on retrofitting the outlet of a basin and reconfiguring to the recommendation.

Mr. Mattingly added that if the Division of Water wanted to calibrate Q critical in the future, the geomorphology data could provide Third Rock Consultants with a jump start on the data. The data would not be specifically for Q critical but rather to look at erosion rates and to calibrate the flow data every two years.

Mr. Turpin said that since the Urban Service Boundary was approved to be expanded, would it be in the city's best interest to include that area in the watershed sampling to establish a baseline, noting the added impervious areas, will degrade the quality of the creeks.

Mr. Lubeck explained the Division of Water Quality has continuously monitored the water quality in the North Elkhorn/Russell Cave Road area. He said that a baseline can be monitored as the Urban Service Boundary is expanded.

Scott Southall commented that with the data being collected on the geomorphic survey assessment and the Bank Erosion Hazard Index (BEHI) has Third Rock Consultants looked at other aspects of the baseline that could be applied to tree canopy coverage and changes in the runoff coefficients to those watersheds.

Mr. Mattingly responded in the negative, noting that Third Rock Consultants proposed attainable parameters to accomplish the monitoring goals. The Updated Monitoring Program will continuously evolve moving forward.

Greenway Master Plan – Stan Harvey, Lord Aeck Sargent

Stan Harvey, Lord Aeck Sargent, presented a PowerPoint presentation on the Greenway Master Plan. He indicated he has been working with several divisions within the Lexington-Fayette Urban County Government as well as the Greenspace Trust on the Greenway Master Plan.

The primary objectives for the updated Greenway Master Plan are to 1) raise awareness and create an action plan for the ecologically sensitive areas of rural and urban areas within Fayette County, and 2) use the public open spaces and ecologically sensitive areas as the backbone of a citywide greenway trail system. Greenways, in this case, meaning ecologically defined conservation greenways and more man-made greening of the city that provides mobility. In a sense, the updated Greenway Master Plan is being augmented and built off the Lexington Area Bicycle & Pedestrian Master Plan.

The PowerPoint presented touched on the following series of slides:

Survey Results

From April 15th through May 31st, 2024, a citywide online survey asked the community to answer questions about our ecology, greenway, and trail system. 338 responses were received.

From those responses, the community wants:

- a defined implementation of ecological values
- the trail system is safe and maintained
- The Greenway network is accessible and equitable
- the trail is viable. Connected transportation network
- The greenways protect natural resources and add open space.
- The greenway network increases the tree canopy across Lexington.

The community results ranked each of the following items from the lowest priority (#1) to the highest priority (#5):

- tree canopy (61%)
- clean water and stormwater management (60.9%)
- preservation of native species (58.6%)
- citywide continuous trail network (56.2%)
- public access/access to water (50%)
- expansion of native plants and flowers (49.4%)
- environmental education opportunities (23.7%)
- consideration of historic resources (17.2%).

The results of the online survey showed that the community did not express that access to water, such as ponds/creeks in public spaces was a high priority to them.

When the community was asked what structures and fixtures they wanted to see in public greenspaces, a variety of walking trails ranked the highest at 93.2%. The community also indicated benches/other seating (72.5%); informative signs (61.8%); benches/other seating (72.5); community gardens (56.2); picnic tables (39.9%); stone/rock walls (33.4%) and open field areas for sports (18%).

The community indicated the type of greenery they prefer to have in public greenspace including:

- wooded areas (85.2%)
- wildflowers (76%)
- pollinator gardens (71.9%)
- fruit/vegetable gardens (29%)
- open fields (22.8%)
- no preference (4.4%)

Mr. Harvey said that many greenspace areas are valuable to Lexington, but the survey shows the community favored the larger parks (McConnell Springs, The Arboretum, etc.) over the smaller parks (Gratz Park, Preston's Cave Springs, etc.).

The demographics of the citizens who participated in the survey consisted of:

- 9.2% - 18 years of age
- 9.8% - 18-29 years of age
- 27.2% - 30-39 years of age
- 23.7% - 40-54 years of age
- 29% - 55-70 years of age
- 9.2% - 70 plus years of age

There were hundreds of comments given by the citizens. Below are just a few as to what is wanted in the greenspace areas:

- 1) making the projects inviting and accessible for the people.
- 2) promoting backyard habitats along the greenspace areas.
- 3) planting more tree saplings in the greenspace.
- 4) holding elected officials and administrators accountable.

He mentioned that the community is excited about the Greenspace Master Plan and appreciated the time it took to conduct the survey.

Ecological Sensitivity Findings

Mr. Harvey said that they have been working with Biohabitats, an Environmental Consulting Agency, to digitize, research, and build off assessments of work that's already been done in Fayette County. This will help develop a way to think about and show ecologically sensitive areas in Fayette County.

Biohabitats will also help develop plans for public and private action and determine what are the best practices of maintenance and stewardship.

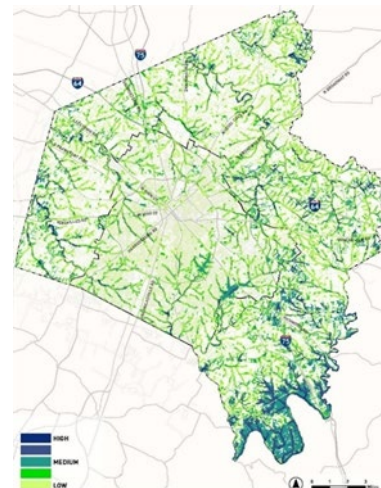
He explained that using an outside source, their focus was to develop a digitized and research-oriented assessment of Fayette County that included the previous data that was collected. With that information, they helped to develop a way to think about and show ecologically sensitive areas in Fayette County, but more importantly, they helped develop action plans and what are the best practices of maintenance and stewardship for public and private.

Mr. Harvey gave a brief description of the following slides.

Final Analysis Results

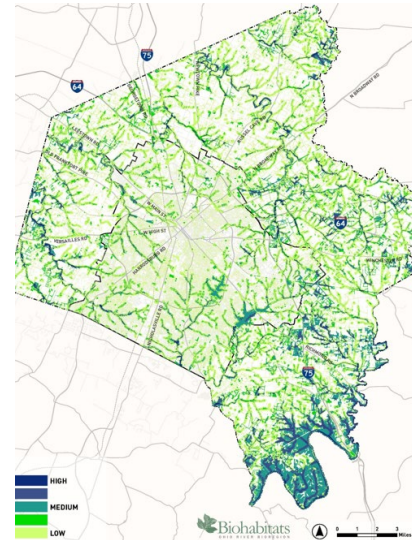
Includes:

- Stream Buffers (and their land cover)
- Floodplains (and their land cover)
- Wetlands
- Forest Patch Sizes
- Forest Configuration Categories

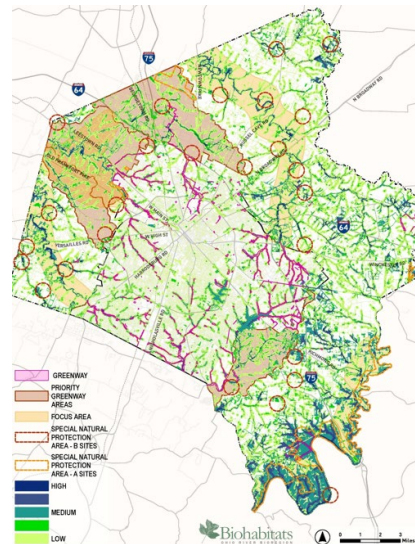


Includes:

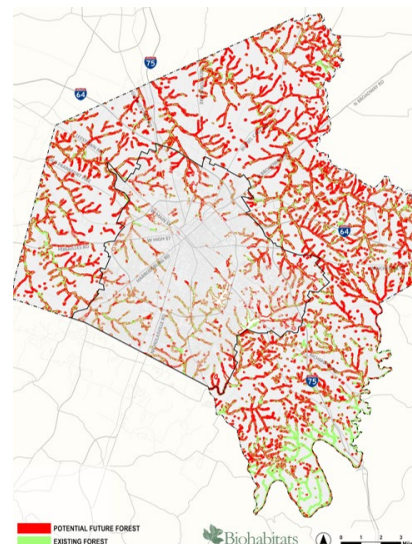
- Stream Buffers (and their land cover)
- Floodplains (and their land cover)
- Wetlands
- Forest Patch Sizes
- Forest Configuration Categories



Final Ecological Analysis Results with RLMP Priority Areas and Greenway Zones from 2001 MP

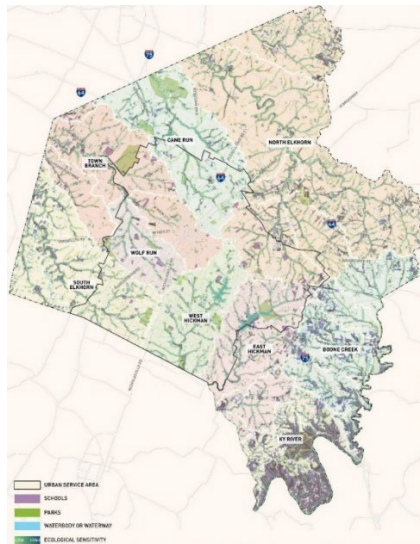


Tree Canopy/Forest
Riparian restoration
Opportunities



Overall Greenway System Map

- Conservation Greenway Corridor maps are organized around the existing watersheds in the county.
- Ecological sensitivity analysis based on streams, floodplains, riparian corridors and existing tree canopy highlights the most sensitive and thus important areas for future protection/preservation in the city.
- These sensitive areas, when protected, will help overall stormwater management in the city, improve water quality, provide wildlife habitat, reduce heat-island effect, and provide access to stream resources.



TOWN BRANCH CONSERVATION GREENWAY

Greenway Context

Since the 2002 Greenways Plan, LFUCG has taken great strides to establish and protect the Town Branch Conservation Greenway. A shared use trail runs along most of the Town Branch corridor, connecting Masterson Station Park to downtown and the Distillery District, while providing needed environmental protections along the trail. As this side of Lexington continues to grow, LFUCG should prioritize other opportunities to preserve sensitive ecological areas, particularly around existing industrial zones in the Old Frankfort Pike area.

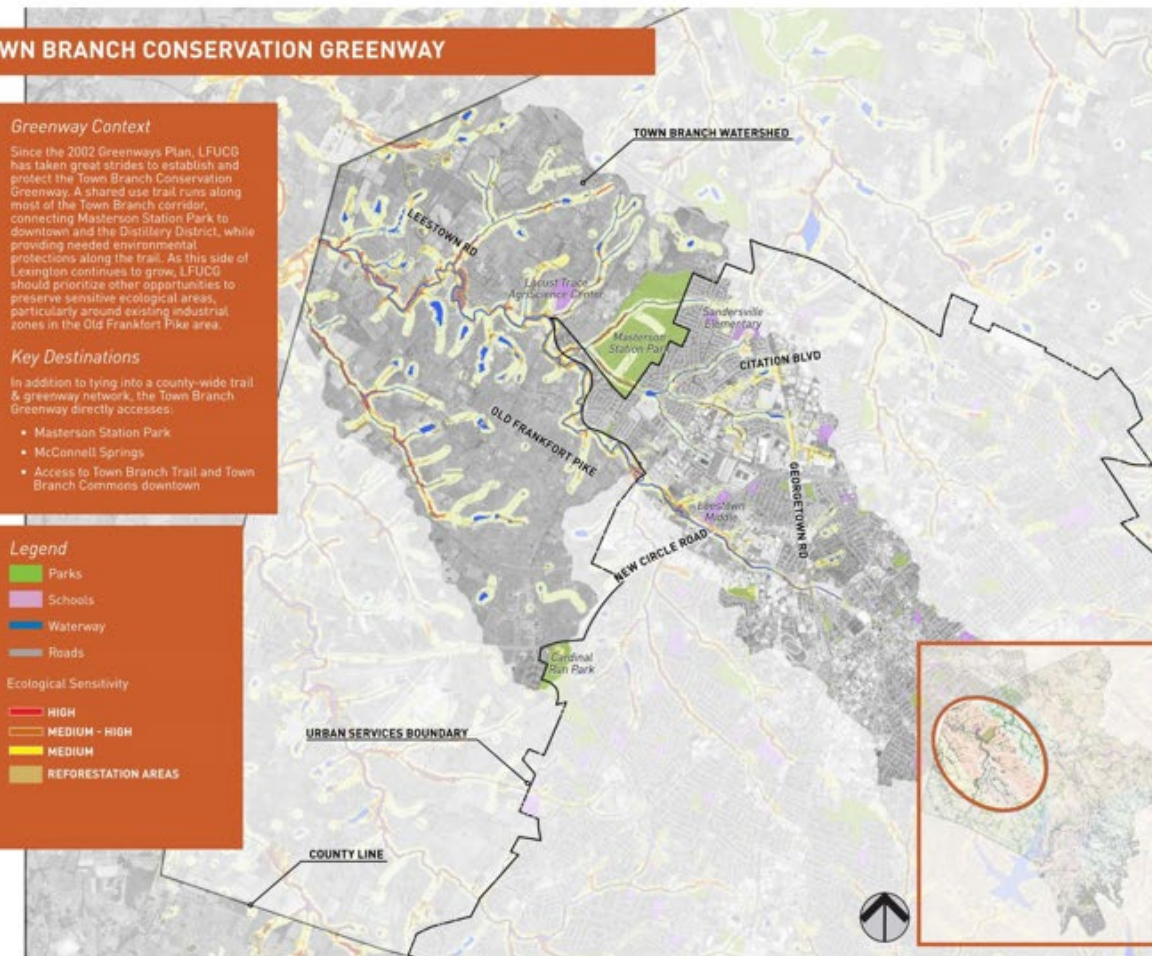
Key Destinations

In addition to tying into a county-wide trail & greenway network, the Town Branch Greenway directly accesses:

- Masterson Station Park
- McConnell Springs
- Access to Town Branch Trail and Town Branch Commons downtown

Legend

- Parks
- Schools
- Waterway
- Roads
- Ecological Sensitivity
 - HIGH
 - MEDIUM - HIGH
 - MEDIUM
 - REFORESTATION AREAS



Protection & Resilience Strategies

General

- Upland stormwater management strategies should be integrated to optimize watershed health and treat water closest to where it falls, per USDA and Soil and Water Conservation District guidelines.
- Where springs, seeps, or sinkholes may be present, preserve and protect with buffers (to be determined in future concept design phases.)
- Recommended 300' vegetated buffer along both sides of stream corridors (main streams and tributaries) where possible, to support habitat function and water quality.

In Rural & Agricultural Areas

- Avoid mowing to the channel edge, instead allowing for a natural buffer.
- Use a diverse plant palette, and preserve, protect, and enhance native plantings in rural areas.

In Industrial Areas

- Provide appropriate stormwater management strategies to ensure water quality of runoff from adjacent sites.
- Integrate expanded native buffer planting strategies, where possible.
- Manage for invasive species, clearing and replacing with a native palette.

In Urban Services & Potential Expansion Areas

- Increase integration of stormwater best management practices to promote filtration, cooling, and slowing of runoff before it reaches the stream corridors.
- Increase urban tree canopy within the street grid.
- Protect and enhance vegetated buffer widths along stream corridors, where possible.
- Increase vertical structure of planted zones to support resilience and biodiversity.
- Use a native plant palette in all new or updated landscape zones.



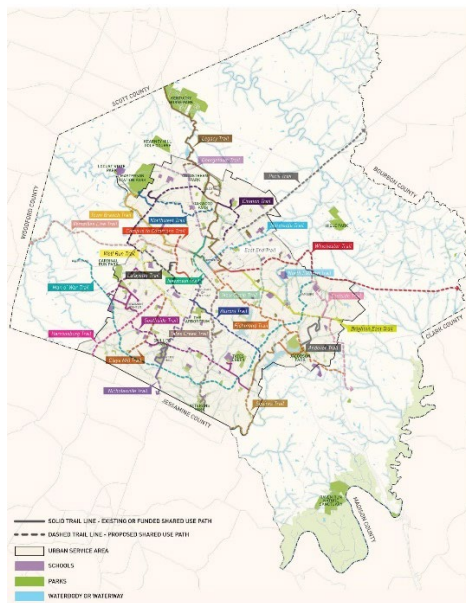
Trail System Map

Alta Planning and Design has defined a system of 27 corridors that cross Lexington. Some of which are parallel to the Hub and Spoke Transportation system. The majority are corridors are either full or partial in the defined conservation greenway.

A comprehensive trail network in Lexington would start with the conservation greenway and involve the opportunity to get a shared-use trail in many locations in off-road areas such as the Legacy Trail and Town Branch Trail.

The Overall Trail System Map

- The trails identified in the Greenway Master Plan focus on creating a city/county-wide trail network. The trail network highlights - Off-road Shared Use Trails and Paved trails (many of these are located within the greenway area), Side paths, Separated Bikeways (Cycle Track), and Separated Bike Lanes.
- This system of trails will connect existing parks, open spaces, and other major destinations across the city.



Below are the five (5) trail types to help connect the greenway network.



LEXINGTON

GREENWAY AND TRAIL MASTER PLAN: POTENTIAL TRAIL TYPOLOGIES

Mr. Harvey presented the following slides and briefly described each.

CITATION TRAIL

Complete Street Trail

Project Context

The Citation Trail runs mostly along existing right-of-way on Citation Boulevard. This trail connects spurs into Masterson Station Park and Coldstream Park along the northwestern portion of Lexington's urban area.

Key Destinations

In addition to tying into a county-wide trail & greenway network, the Citation Trail accesses:

- Masterson Station Park
- Legacy Business Park employment hub
- Several FCPS schools
- Cane Run greenway & Coldstream Park

Potential Constraints

- A** Grade change and frequent driveway cuts near New Circle Road
- B** Safety & visibility challenges along rear side of Alexandria Drive industrial area

Legend

- Parks
- Schools
- Waterway
- Roads
- Proposed Trail (dashed)
- Existing or Funded Trail (solid)



Protection & Resilience Strategies

Rural Area - Universal Considerations

- Avoid mowing to channel edges, instead allowing for natural buffers that are non-turf plant species.
- Treat stormwater closest to where it falls, utilizing stormwater and agricultural BMPs per the USDA and Soil and Water Conservation District guidelines.

Citation Trail Corridor Considerations

- Continue to steward buffers for ecological function in Cold Stream Park, and coordinate with the master planning team.
- On LFUCG-owned property along riparian corridors, it is recommended there be a 300' minimum vegetated riparian buffer on both sides of the stream channel to promote protection, enhancement, and stewardship of natural areas/ecological sensitivity (forested when possible).
- Trails are recommended to be outside of the 300' protected/restored natural buffer as much as possible. Avoid floodplain impacts or development. Ensure that all trails near floodplain are constructed of materials that will not wash into waterways.
- LFUCG should continue to purchase lots or easements along the riparian corridor and in ecological sensitivity zones (prioritize High, Medium-High, and Medium, then continue in future phases with Medium-Low and Low) in order to restore natural function, and promote long-term resilience. Medium-Low and Low can take on additional importance when connecting areas of higher value, which is important to support long-term health and function of green networks.
- Parks and Schools along or adjacent to the Conservation Greenway corridors provide opportunities for increasing native vegetative cover, increased utilization of stormwater BMPs, and improved floodplain function through increased plantings, restored stream channel connection to the floodplain, and minimized impervious surfaces.
- LFUCG can consider providing incentives to homeowners to convert turf to native pollinator gardens and forest patches and incorporate stormwater BMPs, where appropriate.
- Focus on protecting and preserving natural habitats from further development by prioritizing redevelopment of previously developed locations and avoid greenfield development.
- Ensure all stream and creek crossings are done perpendicular to the stream channel to minimize buffer encroachment. If a trail is raised from the existing floodplain, provide floodplain flow access for the full width of the floodplain.
- Avoid impacts, disruptions, or fragmentation of the existing forested edge of the stream corridor, especially in instances where off-road trails and paths are added or enhanced.

SUBAREA 1

Masterson Station Park and Coldstream Park Connection
(Town Branch - Cane Run Conservation Greenways)

Protection & Resilience Strategies

- Keep a minimum of 50' buffer between stream and trail to account for stream lateral movement and riparian corridor preservation. Ideally, place the trail along existing utility easements, where possible.
- Avoid impacts and disruptions to the forested edge of the stream corridor as off-road trails are added or enhanced. Preserve and protect the 300' minimum forested buffer on either side of the channel.
- Manage invasive species and replace with native plant palette, with diverse vertical structure (groundcover, herbaceous and shrub layer, understory and canopy trees).
- Avoid impacting or fragmenting any wetlands.
- Follow dark sky lighting recommendations to avoid impacting sensitive species' habitat needs.
- Increase integration of stormwater best management practices to promote filtration, cooling, and slowing of runoff before it reaches the stream corridor.
- Ensure all stream or creek crossings are done perpendicular to stream channel to minimize buffer encroachment (not on meanders). Crossings should be floodplain-wide to allow for hydraulic and ecological connectivity along riparian corridor.
- Protect all natural hydrologic and geological features and the surrounding ecological buffer - springs, seeps, sinks, etc.



Along Briarwood Drive



Former Golf Course on Sandersville Road



Sandersville Road under Rail Crossing



SUBAREA 1: Masterson Station Park and Coldstream Park Connection

A mostly off road shared use path that focuses on connecting two parks on the northern end of the city.

Project Context

A majority of this corridor consists of a shared use sidepath that transitions into an off-road shared use path creating a major east to west connection between Masterson Station Park and Coldstream Park.

Length:

- Total Length - 5.13 Miles
- Shared Use Path - Off Road - 2.22 Miles
- Shared Use Path - Sidepath - 2.39 Miles
- On Road - 0.52 Miles

Landownership Considerations:

- Northern Route - Single unbuildable parcel in Masterson Station Park for connection between conservation greenway and Red Clover Lane, Genoa Healthcare on Newtown Pike
- Middle Route - Spring Bay Court homes from Lucille Drive to Greendale Road
- Southern Route has many different landowners along the proposed route

Partners:

- Lexington Parks and Recreation
- Masterson Station Neighborhood Association
- Norfolk Southern
- Sandersville Elementary School

Permit Considerations:

- Kentucky Utilities Company Encroachment Permit
- KYTC Encroachment Permit
- KDOW Stream Construction Permit
- Norfolk Southern
- Federal 404 and KY 401 Water Quality Certification

Trails Through Conservation Greenways:

- Shared Use Path - Off Road - 0.64 Miles
- Percent of Trails Within Greenway Space - 31%

Potential Range of Cost: TBD

Key Features:

Opportunities

- A Possible bridge over Cane Run for connection to Legacy Trail
- B Existing buffered bike lanes on Citation Boulevard
- C Potential for sidepath along Briarwood Drive
- D Conservation Greenway Area at Masterson Station Park and Lucille Drive

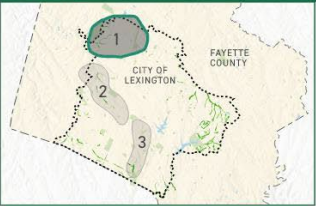
Constraints

- A Norfolk Southern at-grade railroad crossing at Greendale Road
- B Potentially significant tree removal to build shared use path through Coldstream Park
- C Potential stream crossing

Next Steps:

- Coordinate with Norfolk Southern for addition of sidepath at existing at-grade railroad crossing
- Submit Georgetown Road Sidepath and Citation Boulevard sidepath to Lexington Area MPO's Transportation Improvement Program
- Implement Masterson Station shared street / wayfinding segment as first step

MAP KEY



Key Destinations

- Coldstream Park
- Masterson Station Park
- Masterson Hill Park
- Sandersville Elementary School
- Douglass Park





September 18th at 5:30pm

Lexington Senior Center
195 Life Ln, Lexington, KY 40502

The Why

To enhance and preserve the unique, natural ecology of Lexington-Fayette County. To protect important wildlife corridors, and to build a stronger network of parks, trails, and open spaces. To create an overall "Greener" city to enhance our neighborhoods and support a growing city.

For more information, visit our website or contact:

Demetria Kimball Mehlhorn
dkimball@lexingtonky.gov

Goals

- Identify and elevate public awareness of the unique natural and ecological resources that define Fayette County;
- Create a comprehensive plan for a usable, connected system of parks, trails and green spaces;
- Ensure good stewardship and maintenance of all greenways.

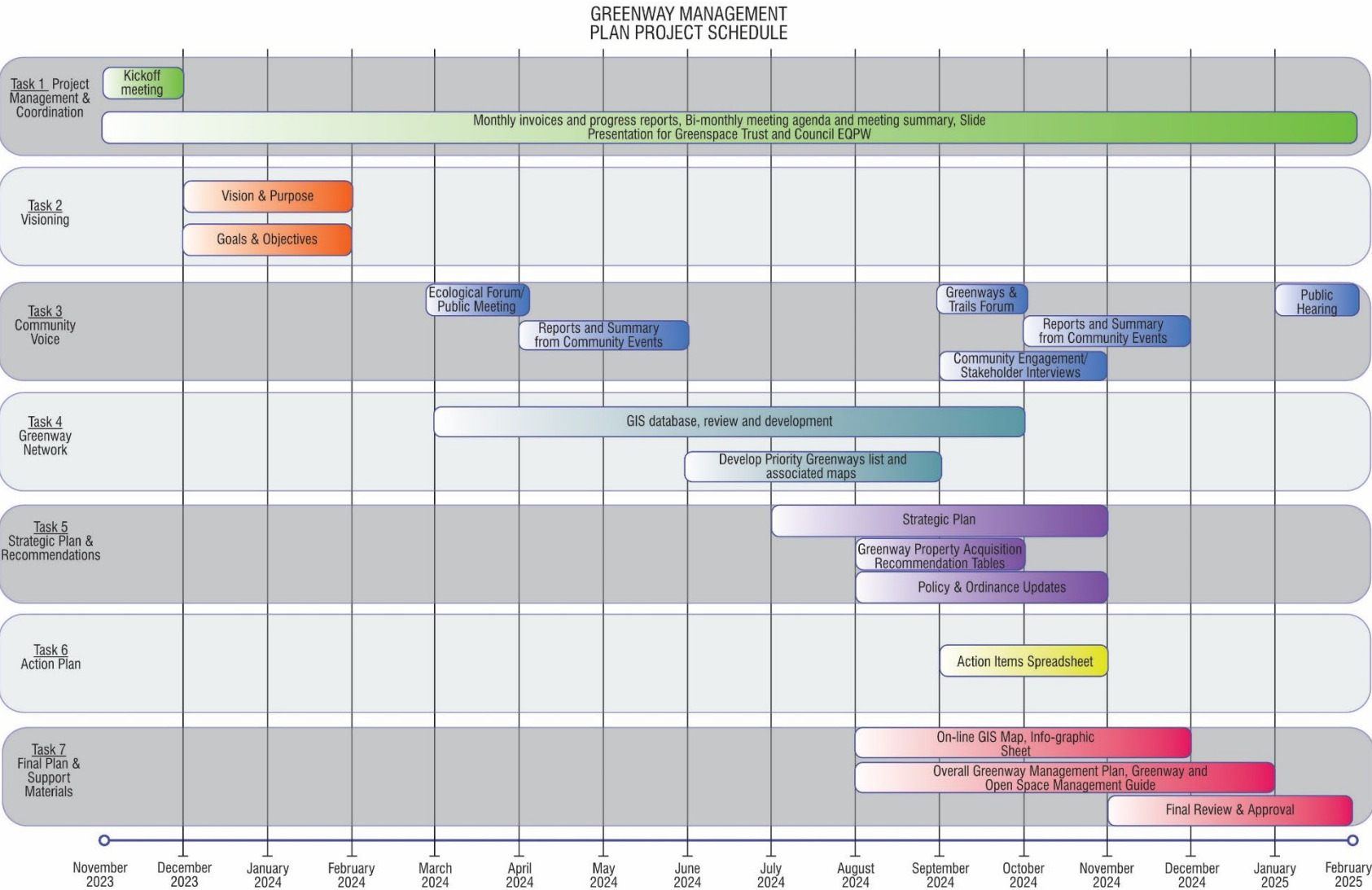
YOUR CITY'S GREEN FUTURE STARTS HERE!

Learn more at
www.lexgreenways.com

Scan the QR code to
See Our Website



The next steps are to discuss the Continue System Plan Refinement, Further Expansion Area Master Plan Coordination and Public Forum (September 18th).



Questions and comments – Russ Turpin commented that the environmentally sensitive areas, sinkholes, and Karst features were not listed.

Mr. Harvey said that those are listed on the overlays. For example, in the expansion area, environmentally sensitive areas are one of the significant issues that will be reviewed.

Amy Clarke commented that three (3) things hinder a bike path: State collaboration for major roads; routes of the trail being in the stream buffer; and the safety of people. She suggested having a local committee with representatives from each of the areas so their concerns can be heard.

Mr. Harvey said that there is an overlap between the Complete Streets Action Plan (CSAP) and the Greenway Master Plan. There is an opportunity to work with other parties to define a particular side path system that is part of the Complete Streets on many of the corridors.

Mr. Harvey then said that there is a list of constraints for each of the trails and greenways. The public needs to understand the things that happen are based on both public input and technical/economic feasibility.

Mr. Harvey agreed that being aware of environmentally sensitive areas and how those areas are impacted is important.

Ms. Clarke commented that there will be areas where the connection cannot be made or something will be done that is less favorable. It will be challenging, especially in the older areas of Lexington.

Mr. Harvey said that having a defined Master Plan is beneficial and allows the city to look at how projects should be implemented as development comes into the area.

Ms. Clarke asked in terms of the local committees, should that belong in the Complete Streets endeavor.

Mr. Harvey does not want to assume how the action plan of those two efforts will go, but conversations have started. In his opinion, there is an overlap and there may be a way that collectively those subjects would be interrelated.

Amy Sohner asked what consideration was given to low-income or economically disadvantaged people for either completing the survey or the prioritization process.

Mr. Harvey responded that the city has background studies that can be used to highlight and show the overlay of systems. However, they do not have a prioritization plan, but he believes that will be part of the effort as to where they should start. There will be more conversations where people's input will be welcomed.

Russ Turpin commented that using the information from the Proposed Water Quality Monitoring Program Updates would be beneficial to see the areas that impact waterways and streams and how to connect corridors.

Mr. Turpin asked if the scope of the work looking at the greenway systems is only for property owners and operations of LFUCG, or if there is consideration for a third party that is also doing greenway connectivity.

Demetria Kimball Mehlhorn responded that this is a huge effort and there are a lot of Stakeholders that have been brought in. They are reviewing the potential to work with Homeowner Associations for potential easement acquisition in areas that already have open spaces. Everyone needs to understand that this is not only a conservation greenway but a secondary step to the off-road bike trails.

Molly Cummins asked if there was any consideration on known cultural resources and environmentally sensitive areas that would overlay on future developments.

Mr. Harvey said that many of the environmentally sensitive areas fall in the greenway corridor, but it is more complicated in the Urban Service Area. They are trying to show the destination and features, but to call them out and list them is more complicated. Adding an overlay would be beneficial for the urban areas.

Ms. Cummins commented that we need to look at what can be learned from and what to avoid in the future.

Ms. Kimball Mehlhorn replied that schools are definitely on there as destinations. She commented that this is a high-level master plan and a lot of concerns have been voiced that are not part of this plan; however, they will be part of the plan as it moves forward.

Potential Topics for the Next Meeting

Ms. Sohner asked for any suggestions for potential topics for the next meeting. The following items were suggested by the audience:

Ken Cooke requested the Kentucky Division of Water to present when the City of Lexington will be receiving the next KPDES Phase I MS4 Permit.

Mr. Cooke also requested an update on the remedial measures plan for the sanitary sewers construction pollution control program for the areas within ecologically sensitive areas.

With regard to stormwater, Amy Clark requested the Division of Planning present information on HB 443, which is a change in the KRS Chapter 100 requiring local laws dealing with subdivision plats and development plans to be set out by objective standards and applied ministerially.

Traci Wade responded that the Division of Engineering will be addressing HB 443 at the Workshop with the Engineering, Development & Construction Industry held in December this year. As for the Planning Commission, there will be broader groups to work through HB 443 as opposed to the SSAC meeting.

Ms. Clark requested notice of the December workshop be sent to the public who participate in the Stormwater Stakeholders Advisory Committee.

Ms. Wade commented that she would pass that information on to Doug Burton with the Division of Engineering.

Greg Lubeck said that the divisions have been looking at the Stormwater Manual, Zoning Ordinance, and the Land Subdivision Regulations, but to let the staff know if particular things are concerning.

Announcements

- September 8th - 11th – KY/TN Water Professionals Conference, Louisville, KY
- September 13th – Due Date for Art by Nature submissions
- September 14 – Household Hazardous Waste Collection
- September 16th - Wolf Run Watershed Council Meeting Fayette County Extension Office, Room B
- September 27th - Kentucky Water Resources Annual Symposium
- October 11th - 20th - Tree Week
- October 18th - Dec. 6th – Art by Nature gallery opens at Living Arts & Science Center
- October 19th – Treeevangelist tree planting training
- October 19th – Arbor Day Celebration at the Arboretum
- October 26th – Coldstream Planting Party
- November 15th – ABN LexArts Hop
- November 29th - Gobble Grease Toss
- December 6th - Last SSAC Meeting of 2024
- December 13th - Workshop with the Engineering, Development, and Construction Industry

Adjournment

The meeting concluded at 10:26 a.m.