Northern Kentucky's KPDES Phase II

Storm Water Management Plan

Third Permit Cycle: 2018 - 2023

Submitted by: Sanitation District No. 1 of Northern Kentucky

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CERTIFICATION:
Northern Kentucky's KPDES Phase II Storm Water Quality Management Plan
Third Permit Cycle (2018-2023)

Pursuant to 401 KAR 5:060

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on the day of 30, October, 2018.

Adam Chaney, Executive Director, SD1

Signature: 

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KPDES PHASE II STORM WATER PROGRAM NORTHERN KENTUCKY

I. COMMUNITY BACKGROUND

Sanitation District No. 1 of Northern Kentucky (SD1) was established in 1946 by the Division of Sanitary Engineering of the Kentucky Department of Health. It is responsible for the collection and treatment of Northern Kentucky's wastewater, as well as the regional management of Northern Kentucky's storm water. SD1 is located in Kenton County and a short distance from Cincinnati, Ohio, serves 32 communities in Boone, Campbell and Kenton counties of Northern Kentucky. The cities in Northern Kentucky range in population from Kenton Vale, which has 112 residents, to Covington, which has 40,797 residents based upon the 2016 census data. The major transportation corridors include U.S. Interstate Highways 71, 75, 275 and 471. The land use varies throughout the region including un-developed forested lands and agricultural areas as well as more densely populated residential and commercial land use. This information is included as a map in Appendix 1.

1. Storm Water Regulatory Authority

It was not until legislation was adopted in 1998 by the Kentucky General Assembly that SD1 was granted authority to regulate and finance storm water facilities within the designated service area. In response to requests from Northern Kentucky communities, SD1 accepted the responsibility to develop and implement a regional storm water management program to comply with U.S. EPA's 1999 National Pollutant Discharge Elimination System (NPDES) Phase II Rule. The Phase II Rule addressed small municipal separate storm sewer systems (MS4s) serving a population of less than 100,000 people in urbanized areas. The final rule required all MS4s located within urbanized areas, as

defined by the Bureau of the Census, to comply with the Phase II Storm Water Regulations. The Kentucky Division of Water (KDOW) has designated over 30 communities in Boone, Campbell and Kenton counties (including the counties themselves) as Phase II communities that must comply with the NPDES regulations, which have been adopted by KDOW (401 KAR 5:060 Section 12). The US Environmental Protection Agency (EPA) has delegated responsibility for the MS4 program to the Kentucky Energy and Environment Cabinet, of which KDOW is a part. On behalf of 32 Phase II communities, SD1 submitted a Notice of Intent (NOI) for the third cycle of the Phase II program to KDOW on May 29, 2018 (see Appendix 2) pursuant to the reissued general KPDES permit for small MS4s, effective May 1, 2018.

2. Local Water Resources

The rolling hills of Northern Kentucky rise from the banks of the Ohio River, the region's most prominent waterway. The Ohio River is 981 miles long, stretching from Pittsburgh, PA to its confluence with the Mississippi River in Cairo, IL. The Ohio River separates Northern Kentucky from the region's largest city – Cincinnati, Ohio.

Northern Kentucky has 13 primary watersheds that eventually feed into the Ohio River (from east to west): Twelvemile Creek, Fourmile Creek, Taylor Creek, Licking River (Banklick Creek and Threemile Creek - Licking River tributaries), Pleasant Run Creek, Dry Creek, Elijahs Creek, Sand Run, Woolper Creek, Gunpowder Creek, and Big Bone Creek.

The Licking River drains approximately 37 percent of Northern Kentucky. It begins in the mountains of Eastern Kentucky and meanders northwest until it meets the Ohio River. The Licking River Watershed drains roughly 3,600 square miles (about 10%) of Kentucky.

The Licking River watershed, as well as the other watersheds in Northern Kentucky, is included in KDOW's Licking River Basin management unit. Most of these local watersheds are influenced by the impacts of civilization ranging from rural agricultural activities to suburban and commercial/industrial pressures to highly impervious urbanized areas. In addition to segments of the Ohio River, the following streams in the Northern Kentucky area are listed on the Commonwealth's 2016 303(d) list of impaired water bodies:

Brush Creek, Fourmile Creek, Licking River, Threemile Creek, Owl Creek, Pond Creek and Phillips Creek - Campbell County

Banklick Creek, Cruises Creek, Licking River and Dry Creek - Kenton County

Elijahs Creek, Woolper Creek, Allen Fork, Gunpowder Creek, Fowlers Fork, Long Branch, McCoys Fork, Middle Creek, Riddle Run and South Fork of Gunpowder Creek - Boone County

In addition, the following two lakes are listed as impaired:

Doe Run Lake - Kenton County

Old Alexandria Reservoir - Campbell County

Impaired uses for these water bodies include primary contact recreation and warm water aquatic habitat as either partial supporting or nonsupporting. Pollutants of concern include bacteria indicators, nutrients and sediments.

Also, there are seven stream segments (comprising approximately 30 miles) in Northern Kentucky that KDOW has classified as outstanding state resource waters. These include stream segments from:

Bowman Creek and Sawyers Fork – Kenton County

Ashbys Fork, Double Lick Creek, Garrison Creek, Second Creek and Little South Fork – Boone County

Reference Appendix 3 for a map of Northern Kentucky Watersheds displaying impaired water bodies and special use water bodies. For more information regarding these impaired or special use waters, reference KDOW's website at www.water.ky.gov.

3. Co-Permittees

This document has been prepared by SD1 on behalf of the following entities, which are Co-Permittees under the renewed KPDES permit:

Cities			**Counties**
Alexandria	Erlanger	Newport	Boone County
Bellevue	Fort Mitchell	Park Hills	Campbell County
Bromley	Fort Thomas	Silver Grove	Kenton County
~~Covington~~	Fort Wright	Southgate	
Crescent Springs	Highland Heights	Taylor Mill	
Crestview	Independence	Union	
Crestview Hills	Kenton Vale	Villa Hills	
Dayton	Lakeside Park	Wilder	
Edgewood	Ludlow	Woodlawn	
Elsmere	Melbourne		

Appendix 4 shows a map of the KPDES Storm Water Permit Compliance Area (storm water service area) for Northern Kentucky as determined by KDOW. This storm water service area contains approximately 170 square miles, excluding the City of Florence, City of Cold Spring and City of Covington. Effective March 1, 2021, the City of Covington has received coverage under its own KPDES Phase II General Permit (Permit No. KYG200064). As of this date, Covington will no

longer be a Co-Permittee in Northern Kentucky's Regional Storm Water Quality Management Program. The cities of Florence, Cold Spring and Covington are responsible for developing and implementing their own storm water management programs.

The community leaders from the Phase II cities and counties listed in the previous chart have determined that the most cost effective and efficient approach for addressing local storm water management issues, including compliance with the federal Phase II storm water requirements, was to develop and implement a regional approach under the guidance of a single entity - SD1. This approach has been formalized through the development and adoption of the Interlocal Agreement to provide KPDES Storm Water Discharge Permit Services and other storm water related services in Boone, Campbell and Kenton Counties, Kentucky ("Agreement"), which is incorporated herein by reference. SD1 continues to assist these communities by serving in the capacity of a regional storm water management agency with primary responsibility for development and implementation of the storm water quality management program as provided in the Agreement and detailed in this document.

During the first permit cycle, SD1, the local cities and counties, and KYTC were all listed as a co-permittees; however, KYTC was issued an independent KPDES Phase II General Permit for the second permit cycle. SD1 and KYTC will continue to partner on Phase II storm water activities as much as practicable.

The following information provides the details of the regional program that has been developed for the designated communities in Northern Kentucky (28 cities and three counties) to comply with the federal Storm Water Phase II regulations.

4. Storm Water Quality Management Plan

The information included in this Storm Water Quality Management Plan (SWQMP) is a result of actively seeking public input and feedback about the future of Northern Kentucky's Storm Water Quality Management Program. On August 28, 2018 SD1 conducted a joint Co-permittee and Storm Water Advisory Committee meeting to review the SWQMP and provide instructions for submitting feedback. SD1 received feedback forms from two attendees with one specific comment, which has been addressed in this SWQMP. Appendix 5 contains the meeting announcement, presentation and other documentation for this event.

II. COMPONENTS OF THE NPDES PHASE II PROGRAM

The Phase II communities in Northern Kentucky, as owners/operators of small MS4s, are required to reduce the discharge of pollutants from the MS4 to waters of the Commonwealth and the United States to the “maximum extent practicable” to protect water quality. The KDOW regulations require a Storm Water Quality Management Program provide controls that consist of a combination of the following to limit the discharge of pollutants from the MS4 conveyances:

- Best management practices (BMPs);
- Control techniques and systems;
- Design and engineering methods;
- Public participation and education.

These requirements of the Storm Water Quality Management Program shall be implemented to the Maximum Extent Practicable (MEP).

The six minimum controls as defined by EPA and KDOW regulations are as follows:

- Public Education and Outreach
- Public Involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

The following sections outline the regional management plan that has been prepared, as required by the general KPDES permit for storm water discharges from small MS4s. The plan includes a description of the six minimum control measures and an action plan for the third permit cycle addressing each minimum measure with an associated schedule.

A. LEGAL AUTHORITY REQUIREMENTS

SD1 will continue to enforce previously established legal authority to control discharges to and from the MS4 within the KPDES Storm Water Permit Compliance Area. SD1 has established this legal authority through Interlocal Agreements with Co-Permittees and the Northern Kentucky Regional Storm Water Rules and Regulations (Rules and Regulations) that govern the storm water utility.

1. SD1's authority will continue to prohibit illicit discharges to the MS4. SD1's Illicit Discharge Detection and Elimination Program will continue to implement enforcement actions for illicit discharges to the MS4.

2. SD1's authority will continue to prohibit the discharge of spills and the dumping or disposal of materials (industrial/commercial wastes, trash, used motor vehicle fluid, leaf litter, grass clippings, animal wastes, etc.) into the MS4.

3. SD1's authority will continue to allow control of the contribution of pollutants to the MS4 by storm water discharges associated with construction activity and post-construction activity for all new development and redevelopment projects that disturb one acre or greater, and projects less than one acre that are a part of a larger common plan of development.

4. SD1 will continue to enforce compliance of SD1's SWQMP for discharges to the MS4.

5. SD1 will continue to perform the necessary inspection and monitoring procedures needed to determine compliance with the permit conditions.

B. STORM WATER QUALITY MANAGEMENT PROGRAM

SD1 will implement a storm water quality management program to effectively reduce pollutants in discharges from MS4s within the service area. The program includes procedures for implementing the six minimum control measures as listed below and in table format in Appendix 7.

1. Public Education and Outreach

The key to implementing and managing an effective storm water management program begins with community awareness. With this, greater support is typically achieved as the public gains an understanding of the reasons why storm water management is necessary and important. Public support is also beneficial when MS4 operators seek public participation. In addition, greater compliance with program requirements is realized as individuals become aware of their role in protecting the environment and their ability to impact the quality of local waterways.

a. SD1 will continue to maintain an effective and successful public education program and conduct public outreach activities in Northern Kentucky that focus on impacts from storm water discharges to water bodies and the steps that the public can take to reduce pollutants in storm water runoff. In addition to SD1's own education and outreach efforts, SD1 will continue to collaborate with other organizations such as the Regional Stormwater Collaborative, the University of Kentucky Cooperative Extension Service, Conservation Districts and local watershed groups as much as possible to enhance education and outreach efforts.

b. SD1 will attempt to prioritize public education and outreach efforts to focus on pollutants impairing or threatening local waterways. SD1 has identified the following pollutants of concern for the focus of education and outreach efforts: bacteria indicators, nutrients, and sediment. SD1 will continue to utilize existing education efforts to target these pollutants of concern including elementary educational programming, website content, bill inserts and public service announcements. In addition to these ongoing efforts, SD1 will target future outreach efforts on one or more of the identified pollutants of concern such as:
    i. Failing sanitary systems, pet wastes, etc. (bacteria indictors);
    ii. Turf and landscape maintenance activities (nutrients);
    iii. Construction and post-construction impacts (sediment).

c. SD1 will continue to utilize components of the Storm Water Education Toolkit, developed by KYTC, as a resource to achieve the goals of the storm water management plan. In addition, other materials developed by SD1 or partner organizations will be utilized to provide an effective equivalent of storm water education and outreach efforts. These efforts may include brochures, television and radio ads, SD1's website and curriculum developed for local schools.

d. SD1 will target appropriate audiences with education and outreach efforts and will balance these efforts between policy-makers, local citizens, students, and other stakeholders. Examples of target audiences and associated outreach efforts may include:
    i. Community Leaders
        1. SD1 will continue to communicate with city and county leaders through available opportunities including attending local meetings to keep them apprised of storm water related issues.

2. SD1 staff will continue to maintain dialogue, including emails, presentations, memos and letters, with local organizations and leaders such as the Board of Directors, Northern Kentucky City/County Administrators Association, the Northern Kentucky Chamber of Commerce, local mayors and city administrators and Co-Permittees to keep these groups and individuals informed on the status of the storm water quality management program and current storm water issues.
3. SD1's website, www.sd1.org, will continue to provide updated information on the storm water program.

ii. Stakeholder Groups

1. SD1 is fortunate to have multiple watershed groups within the service area including the Banklick Watershed Council, and the Gunpowder and Woolper Creek Watershed Initiatives. SD1 will continue to provide technical support to these groups as well as support the formation of new groups to collaborate on storm water efforts.
2. SD1 will continue to attend meetings and present topics regarding storm water requirements to local organizations including the Building Industry Association of Northern Kentucky and the Northern Kentucky Society of Professional Engineers.

iii. General Public

1. SD1 will develop bill inserts that contain information about issues of concern that will continue to be sent to citizens who receive a storm water bill. The inserts will address topics such as the storm water utility, NPDES

Phase II requirements, and general information on water quality.

2. Brochures and other publications relating to the regional storm water management program will continue to be made available at local government buildings for distribution and to SD1's customers.
3. SD1 staff will make efforts to convey important messages about storm water management to a diverse audience in the community through mediums such as radio, TV and print.
4. SD1 staff will continue to participate in community events to provide information on proper storm water management and the services SD1 provides to the community.
5. SD1's website, www.sd1.org, will provide information on storm water and water quality related issues to customers and others interested in SD1's programs.
6. SD1 will continue to operate a dispatch call line and email account that allows customers to report storm water or wastewater issues. The call line is monitored by assigned staff 24 hours/day, seven days a week and the email account is monitored during normal business hours. These options also allow customers with general storm water questions or requests to be directed to the appropriate SD1 employee for a response.
7. Opportunities will continue to be available upon request for adults, corporations and other organizations to tour SD1's Public Service Park. Public Service Park also includes signage with on-demand electronic information, which will continue to be updated and improved

iv. Schools

1. SD1 has worked with local teachers and curriculum coordinators to develop five one-hour, interactive, storm water lessons targeted to 4th and 5th grade students. These lessons will continue to be taught in elementary schools (currently more than 45 schools) in the Northern Kentucky area.
2. SD1 will continue to provide classroom presentations and curriculum that teach elementary students about storm water runoff and its effect on the quality of our water. The Enviroscape, an interactive lesson that demonstrates the cause and effect of storm water pollution, has been incorporated into this effort.
3. SD1's administrative complex has been designed to accommodate classroom field trips. SD1 will continue to offer field trip opportunities to school groups in an effort to educate students on local water quality issues through direct interaction and hands-on experiences.
4. SD1 will continue to engage with students at higher education levels such as middle schools, high schools, and local colleges/universities, in order to provide academic, technical, and career training in the field of water resource protection.

e. SD1 will measure the targeted audiences understanding of their impacts on water quality and the adoption of targeted behaviors resulting from the public education and outreach efforts.
    i. As a mechanism to gauge the success of SD1's public education efforts, and as a way to gauge the public's knowledge of the effects of storm water runoff on local waterways, SD1 will conduct public surveys when possible. These surveys may be conducted through informal means during outreach events or

through more formal surveys. After the completion of each survey SD1 will gauge the public's behavior and compare the changes over time.

ii. SD1 will continue to issue pre and post-tests to students who participate in storm water curriculum and field trips to gauge their understanding of storm water and water quality.

iii. As mentioned above SD1 is engaging in educational programing toward higher education levels. With these efforts, SD1 will work with middle school, high school and college level faculty to gauge older students' understanding and behavior relative to storm water and water quality issues.

iv. SD1 will use this feedback and resulting measurements to direct education and outreach resources more effectively. This will be evaluated on an annual basis as part of the annual reporting process.

f. SD1 will track activities relative to public education and outreach to document compliance with permit requirements and for purposes of the annual report. Efforts to be tracked include:

i. Number of additional education efforts focused on bacteria indicators, nutrients or sediment;

ii. Number of meetings/presentations, emails/letters and memos directed to community leaders regarding the storm water quality management program;

iii. Number of meetings attended and collaboration efforts with local watershed groups;

iv. Number of meetings attended and of presentations provided to local stakeholder groups;

v. Number and type of tools and outlets utilized to provide storm water information to the general public;

vi. Number of schools completing the storm water curriculum;

vii. Number of Enviroscape lessons taught for local schools;
viii. Number of Public Service Park Field Trips conducted for local schools;
ix. Number of opportunities/events engaging higher education levels;
x. Number of surveys conducted;
xi. Number of pre and post tests and comparison of results.

2. Public Participation and Involvement

SD1 believes that the public can provide valuable input and assistance toward implementing a Phase II Storm Water Quality Management Program. The NPDES Phase II program requires public participation and involvement in the development and implementation of a storm water quality management program. Providing the public an opportunity to share their input for the program will help to broaden public support, increase the number of potential ideas to meet the permitting requirements, and provide a conduit to other community programs.

a. SD1 will continue to implement a public involvement/participation program providing local citizens and the community opportunities to participate in storm water management activities. The details of this program are outlined below.

b. SD1 will facilitate opportunities for citizen volunteers who would like to participate in the MS4 program. Opportunities will include the following:
    i. In an effort to educate the community about the importance of protecting water resources, SD1 will continue to promote and sponsor creek and river cleanups such as the Ohio River Sweep on an annual basis. The Ohio River Sweep (River Sweep) is a riverbank cleanup of the Ohio River and its tributaries. River Sweep encompasses the entire length of the river, from its origin at Pittsburgh to its end at Cairo, IL, including 3,000 miles of shoreline and many tributaries. These cleanup efforts are completed through the general public volunteering time to perform cleanup activities.
    ii. SD1 will continue to promote and encourage participation in the storm drain marking program and will continue to partner with youth, scouts, clubs and community groups to assist with the earning of environmental badges and learning

targets, whether it is through the storm drain marking program, presentations, or by touring Public Service Park.

iii. SD1 will continue to host the citizen SWAC on a regular basis to provide the committee with updates on the progress of the storm water program and to gain input from the committee on program implementation.

iv. SD1 will continue to explore opportunities to promote community involvement to help support both new initiatives as well as programs that are already in place, such as the Household Hazardous Waste Event. The Household Hazardous Waste Event is an annual event conducted by the Boone, Campbell and Kenton county solid waste departments and SD1. It provides an opportunity for Northern Kentucky residents to properly dispose of household hazardous waste.

v. SD1 will continue to implement and explore additional opportunities to promote the Disconnection, Redirection, Infiltration Program (DRIP). The DRIP program provides homeowners with step-by-step guides to help them implement methods of managing storm water runoff in their own yards and neighborhoods.

c. SD1 will continue to utilize several methods for advertising public involvement activities including:

i. SD1 will encourage citizens to participate in activities that will protect or restore local waterways. This will be done through the use of one or more mediums such as SD1's website, direct mail, radio or television spots, newspaper press releases, announcements in city newsletters and email.

ii. To promote public involvement and participation events, SD1 will engage with community members by providing staff, displays, and information to relevant events and community programs. SD1 will also continue to create flyers and circulate them to environmental groups, community partners, and government officials.
iii. SD1 will take advantage of social media outlets such as blogs, web pages and other agency and/or city newsletters when appropriate.
iv. SD1 will continue to create newspaper ads, brochures, bill inserts, calendars and/or other promotional give-aways.
v. SD1 will continue to utilize mascot Splash McClean. Splash makes appearances at community events (both those hosted by SD1 and those hosted by other organizations).

d. SD1 will track activities relative to public involvement and participation to document compliance with permit requirements and for purposes of the annual report. Efforts to be tracked include:
    i. Number of clean-ups promoted and/or sponsored;
    ii. Number of groups participating in the storm drain marking program and number/location of drains marked;
    iii. Number of SWAC meetings, number of participants and topics discussed;
    iv. Number of participants in the HHW event and quantification of the amount of each item collected;
    v. Number of DRIP activities completed;
    vi. Number of community events/programs with SD1 participation;
    vii. Number of community events/programs attended by Splash McClean;
    viii. Number of opportunities/events advertised by SD1.

3. Illicit Discharge Detection and Elimination

To improve water quality, permittees are required to develop a strategy to detect and eliminate illicit discharges. An illicit discharge has been defined by the EPA as “any discharge into a separate storm sewer system that is not composed entirely of storm water.” Typically, illicit discharges enter a storm sewer system either through direct connections (e.g. sanitary sewer piping) or indirectly from cracked sanitary sewer conveyance systems, spills collected by storm drains, or from contaminants dumped directly into a storm drain inlet. Pollutants associated with illicit discharges include heavy metals, toxics, oil and grease, solvents, nutrients and bacteria indicators. These untreated discharges have the potential to cause significant degradation to receiving water bodies. The following are typical examples of illicit discharges:

- Sanitary wastewater
- Leachate from failing septic tanks
- Laundry wastewater
- Commercial car wash discharges
- Improper disposal of household or automotive toxics
- Spills from roadway accidents

Substantial levels of these contaminants can damage fish and wildlife habitats, decrease aesthetic value, and threaten public health.

a. SD1 has already established legal authority to prohibit illicit discharges to the MS4s in the respective municipalities through the Rules and Regulations. SD1 will continue to enforce these Rules and Regulations to prohibit illicit discharges to the MS4s located within the KPDES Storm Water Permit Compliance Area.

b. SD1 developed a comprehensive storm-sewer system map as part of the previous permit cycle. The system was mapped in a

Geographic Information System (GIS). SD1 will continue to update the GIS layers as new storm infrastructure is installed or changes in ownership occur. Submitted with this SWQMP is a file geodatabase containing SD1's storm sewer system boundary in ESRI format.

c. SD1's overall program for identifying and eliminating illicit discharges to the public storm drainage system contained within the KDOW defined KPDES Storm Water Permit Compliance Area was approved during the first permit cycle. As the program has developed and gained feedback, SD1 has developed a more detailed Illicit Discharge Detection and Elimination (IDDE) Implementation Plan to further specify procedures within the program. The IDDE Implementation Plan contains detailed procedures on inspections, investigations, elimination and documentation, as well as a detailed field guide and improved technologies being utilized in the program. The Implementation Plan utilizes a phased approach to improve and maintain water quality within the storm water service area:
    - Phase 1: Detection – Locate Areas with Illicit Discharge
    - Phase 2: Investigation – Identify illicit discharge sources
    - Phase 3: Elimination – Remove/correct illicit connections

SD1 will continue to implement and enforce this plan.

The following outlines the protocols established in SD1's IDDE Implementation Plan:

1. As outlined in the IDDE Implementation Plan, SD1 will utilize several data sources for determining priority areas likely to have illicit discharges. Identifying priority areas are based upon the following:

i. The Permit Compliance Inventory which identifies locations of major outfalls within the storm water collection system;
ii. The Illicit Discharge Screening Factors (IDSF) which identifies storm water structures based on illicit discharge potential criteria within the storm water collection system;
iii. Public complaint notifications regarding potential illicit activities.

2. SD1 conducted dry weather screening on major outfalls identified meeting the Permit Compliance inventory criteria during the last permit cycle. Because storm water infrastructure ownership continues to be evaluated and new storm systems are constructed, SD1 will update the GIS inventory to reflect the potential increase in the number of major outfalls. SD1 will incorporate these additional outfalls into the inventory for inspection and the IDDE program.

   Since the dry weather screening of existing major outfalls was completed during the previous permit cycle, SD1 has developed an alternative approach for this permit cycle, which is based on Illicit Discharge Screening Factor (IDSF) criteria. This approach uses available data to determine the potential severity of illicit discharges within the storm water service area. Storm water subbasins were ranked according to a score relating to three screening factors (density of generating sites, density of outfalls and critical sewer infrastructure) and then grouped into low, medium and high priorities according to their score from the model. MS4 storm water structures within the high priority subbasins will be incorporated into the dry weather screening program during this permit cycle. SD1 has identified high priority subbasins and will conduct dry weather screening on

established storm water structures within these high priority subbasins with a goal to compete 20% of the structures per year. SD1 will conduct dry weather screening of the structures, as detailed above, within the permit term. At a minimum, screening will include the visual inspection of the discharge for indicators of pollutants, which are included in the field guide and SD1's asset management system (i.e., Lucity Sampling Module). If in the course of inspection illicit activities are identified, SD1 will utilize the IDDE Implementation Plan for investigation and removal procedures. SD1 will submit a more detailed summary of this IDSF approach to KDOW prior to December 31, 2018.

3. SD1 will continue to investigate any public complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping:
    i. To report emergency storm water quality issues, SD1 will continue to utilize the 24- hour dispatch number (859-578-7450, option 1). For emergencies, SD1 trouble-call staff will be dispatched promptly to investigate the storm water quality issue and determine appropriate next steps to remediate the problem;
    ii. To report non-emergency storm water quality issues, SD1 will utilize an email reporting system (info@sd1.org). Emails will be distributed to the appropriate SD1 employee to determine next step actions.
    iii. SD1 will immediately investigate problems determined to be urgent and will continue to implement previously developed protocol to immediately notify the Department for Environmental Protection's Environmental 24-hour

hotline at (502) 564-2380 or (800) 928-2380, as outlined in the IDDE Implementation Plan.

4. SD1 will continue to enforce the correction of all identified illicit discharges, based on established timeframes identified in the Enforcement Response Plan.

5. As part of the updated IDDE Implementation Plan, SD1 has created various Standard Operating Procedures (SOPs) for tracing the source of an illicit discharge. SD1 will utilize various methods of tracing illicit discharge sources that include:
   i. Monitoring and sampling data;
   ii. Dyed water testing;
   iii. CCTV activities;
   iv. Post-correction inspections.

6. The IDDE Implementation Plan defines the procedures for removing the source of an illicit discharge, which includes the utilization of SD1's Enforcement Response Plan. The enforcement response which SD1 utilizes will be proportional to the magnitude and duration of the violation, along with the compliance history of the individual. Enforcement options listed in the plan include a variety of responses such as:
   i. Verbal Notification
   ii. Correction Notice
   iii. Notice of Violation
   iv. Cease and Desist Orders (a.k.a. Stop Work Order)
   v. Administrative Fines

7. SD1 will continue to track information associated with the IDDE program in SD1's asset management system.

d. SD1 will continue to provide a mechanism for public reporting (refer to items 3 i and ii above). In conjunction with the Public Education and Outreach program, SD1 will also inform public employees, businesses and the general public of the hazards associated with illegal discharges and improper disposal of waste. Education efforts will include the following:

    i. Illicit discharge education incorporation into Public Service Park field trips through the Creek Overlook: Make the Connection education activity. Students are able to pour dyed water down a storm drain that discharges into Banklick Creek. Students watch the dye empty into the creek and make the connection that storm drains lead directly to local waterways.

    ii. The development of programs to educate the citizens of Northern Kentucky on the potential harms associated with improper connections to the storm sewer system. In partnership with other local entities, SD1 will continue to develop and distribute literature on the detrimental effects of many household toxics. SD1 will also continue to have pamphlets or flyers available for municipalities to distribute at their public facilities that specifically target these household toxic pollutants to educate citizens on proper disposal methods.

    iii. The development and implementation of programs and materials to educate industries particularly susceptible to producing illicit discharges.

    iv. SD1 will continue to be an active member of the Northern Kentucky Household Hazardous Waste Action Coalition. SD1 partners with this organization in raising awareness of the proper disposal of hazardous waste.

e. SD1 will provide sufficient training opportunities for field staff to ensure inspections are performed and reports are completed correctly. Safety of the field staff from hazards of illicit discharges will also be of high importance. Training for illicit discharge detection and elimination will be included as part of pollution prevention training, as outlined below in MCM 6.

f. SD1 has developed several programs to detect and correct sanitary sewer failures and defects. These programs include the Continuous Sewer Assessment Program (CSAP), Sanitary Sewer Evaluation System (SSES) and Sewer Overflow Response Plan (SORP). Where a sanitary sewer failure or defect is found as an illicit discharge, SD1 will utilize one of the above approved programs to remedy the illicit discharge. In areas that may not be remedied by one of these programs, SD1 will notify the Division of Water if a sanitary sewer defect or failure acts as an illicit discharge to the MS4. SD1 will prepare a stand-alone action plan and schedule to remedy the individual discharge and submit it to the Division of Water for approval.

g. SD1 will track activities in SD1's asset management system relative to illicit discharge detection and elimination to document compliance with permit requirements and for purposes of the annual report. Efforts to be tracked include:
   i. Updates to the mapped MS4 system and the service area boundary;
   ii. Number of IDSF priority areas identified;
   iii. Number of storm sewer structures investigated annually as part of the IDSF approach (compete 20% of the structures per year);

iv. Number of reported suspect illicit discharges and number investigated;

v. Number of illicit discharges detected and eliminated;

vi. Number and type of educational trainings about illicit discharges conducted each year;

vii. Number of citizens participating in and the amount of material collected from the Annual Northern Kentucky HHW Event;

viii. Number and type of trainings about illicit discharges conducted or attended each year.

4. Construction Site Storm Water Runoff Management

Uncontrolled storm water runoff from construction sites is a major source of pollution to the nation's receiving waters. The Rules and Regulations require the design and the implementation of BMPs for construction sites. SD1 has established a regulatory program that requires all land disturbing activities (excluding agriculture) greater than one acre, as well as those less than one acre but part of a larger common plan of development or sale, to apply for a clearing, grading, or land disturbance permit from SD1. In order to receive any of these permits, the applicant must submit an erosion prevention and sediment control plan for the proposed activity, which is reviewed by SD1. Additionally, inspections are performed on construction sites to enforce compliance with the erosion and sediment control requirements.

a. SD1 has established a regulatory mechanism to address storm water runoff from construction sites that disturb one acre or more, as well as sites less than one acre but are part of a larger common plan of development or sale, through the Rules and Regulations. SD1 will continue to enforce these Rules and Regulations that establish storm water management requirements for all construction sites within the KPDES Storm Water Permit Compliance Area.
b. Per the Rules and Regulations, SD1 will continue to implement and enforce a program (sediment and erosion control BMPs) to reduce pollutants in storm water runoff from construction sites.
    i. SD1 will continue the permitting process established for all projects one acre or larger, as well as those less than one acre but part of a larger common plan of development or sale. Either a clearing, grading, or land disturbance permit will be issued upon plan review and compliance with Rules and Regulations, inspections, and enforcement as follows:

1. Developer/applicant submits the appropriate permit application (clearing, grading, or land disturbance permit application) and all required documents as noted on the application;
2. SD1 reviews the submitted application and documents for compliance with the Rules and Regulations;
3. SD1 notifies the applicant of any deficiencies requiring re-submittal of the permit application. Upon approval, SD1 issues the appropriate permit;
4. Upon completion of the project, the applicant is required to submit a Notice of Termination. If all permit conditions have been met, SD1 will terminate the permit.

ii. SD1 will continue to conduct inspections of all permitted sites during construction to verify proper installation and maintenance of required erosion and sediment controls. SD1 will conduct a pre-construction meeting with the permittee to review the requirements and expectations. During construction, SD1 will inspect the site according to the established frequency, which is based on factors such as nature of construction activity, topography, and characteristics of the soil and receiving stream water quality.

iii. SD1 will continue to utilize an escalating enforcement procedure to respond to issues of non-compliance. All enforcement actions will continue to be documented by SD1. Escalating enforcement actions are as follows and further defined in the Rules and Regulations and the Enforcement Response Plan:

1. Verbal warning given by the SD1 inspector to the permittee or authorized representative;
2. SD1 issues a Corrective Notice (CN) to the permittee;
3. SD1 issues a Notice of Violation (NOV) to the permittee;

4. SD1 issues a fine to the permittee for significant or unresolved violations;
5. SD1 issues a Stop Work Order to the permittee.

iv. SD1 will continue to implement standard procedures for the inventory of projects and prioritization of sites for inspection. SD1 will continue to track the following information:
1. All construction sites that have a land disturbance area of one acre or greater, or those that are less than one acre but are part of a larger common plan of development;
2. Contact information for each project;
3. Size of the project and area of disturbance;
4. If the project has submitted for permit coverage under KYR100000;
5. Date SD1 issues the appropriate permit;
6. Permit tracking number;
7. Date of site inspection(s);
8. All enforcement procedures taken.

v. SD1 will continue to provide training for plan review and inspection staff annually regarding erosion prevention and sediment control best management practices.

vi. SD1 will continue to promote and provide educational training opportunities for contractors and developers in Northern Kentucky:
1. SD1 will continue to provide information on existing training opportunities, utilize existing outreach tools and educational materials directed at area contractors, developers and engineers;
2. Contractors will also be kept informed of any new regulatory requirements adopted by SD1;

3. SD1 will continue to make available a link to the *Kentucky Erosion Prevention and Sediment Control Field Guide* for local engineers, developers and contractors;
4. SD1 will conduct a performance-based Contractor and Developer Excellence Award program annually. Contractors and developers will be recognized for demonstrating proper use of sediment and erosion control BMPs, incorporating innovative BMPs into the site design and maintaining compliance with the Rules and Regulations throughout construction.

c. SD1 will track activities relative to construction site storm water runoff control to document compliance with permit requirements and for purposes of the annual report. Efforts to be tracked include:
    i. Number and types of permits issued;
    ii. Number of construction sites inspected;
    iii. Number and types of violations issued annually;
    iv. Number of public information requests received related to construction sites;
    v. Number of SD1 employees trained;
    vi. Number of contractor/developer training opportunities or notifications of training and number of recipients.

5. Post-Construction Storm Water Management

Post-construction storm water controls are necessary because the increase in volume and peak runoff flows from developed sites will significantly impact receiving water bodies. This impact typically occurs in two forms. The first impact is due to an increase in the type and quantity of pollutants in storm water runoff from disturbed areas. The second post-construction impact typically occurs as a result of increased storm water runoff due to an increase in impervious surfaces.

a. SD1 will continue to enforce, as adopted in the Rules and Regulations, post-construction storm water management regulations that require the proper design, construction and post-construction maintenance of storm water management facilities.

b. SD1's post-construction storm water requirements in the Rules and Regulations will continue to apply to private and public developments, including city and county roads, for all sites that disturb at least one acre, and those less than one acre that are part of a larger common plan of development or sale.

c. SD1 will continue to enforce the quality treatment standard for all new development and redevelopment projects according to the Rules and Regulations. All new development projects are required to implement water quality controls to manage the runoff produced from the first 0.8 inches of rainfall, which is based on the region's 80th percentile precipitation event. All re-development projects are required to implement water quality controls to manage the runoff produced from the first 0.4 inches of rainfall.

d. For areas of development and redevelopment that result in new or expanded discharge from the MS4 to high quality waters, SD1 will require runoff controls that are considered sufficient to protect existing in-stream water uses and the level of water quality necessary to protect the existing uses. To supplement the Rules and Regulations, SD1 developed a BMP Manual, which provides design guidance for post-construction storm water management. Design criteria for these BMPs take into consideration pollutants of concern for Northern Kentucky. By addressing the area's pollutants of concern, the BMPs utilized will be sufficient to protect existing in-stream water uses. This manual will be reviewed annually and updated as necessary.

e. SD1 has developed an Offsite Mitigation and Payment-In-Lieu Policy, which outlines the requirements associated with these options for projects unable to meet the water quality criteria on-site.

f. SD1 will continue to work with local planning authorities to provide input on comprehensive planning documents and promote planning initiatives that have a positive impact on storm water management. This includes opportunities for innovative storm water management, such as green infrastructure, incorporation of regionally-based Q-critical flow requirements and watershed planning.

g. SD1 will continue to enforce previously developed project review, approval, and enforcement procedures for new development and redevelopment projects that disturb one acre or greater, and projects less than one acre that are part of a common plan of development.
    i. The following outlines the procedure for site plan review and approval process, and a required re-approval process when

changes to the storm water management measures are required:

1. Developer/applicant submits the appropriate permit application (clearing, grading, or land disturbance permit application) and all required documents as noted on the application;
2. SD1 reviews the submitted application and documents for compliance with the Rules and Regulations;
3. SD1 notifies the applicant of any deficiencies requiring re-submittal of the permit application. Upon approval, SD1 issues the appropriate permit;
4. Upon completion of the project, the applicant is required to submit a Notice of Termination. If all permit conditions have been met, SD1 will terminate the permit.
5. If, during construction, changes to the storm water management system are required, an SD1 field inspector will notify the SD1 plan reviewer of the proposed modifications. The plan reviewer will review the proposed modifications for compliance with the Rules and Regulations. All modifications to storm water management systems must meet requirements of the Rules and Regulations and the appropriate SD1 permits before SD1 will terminate the permit and accept the project as complete.

ii. The following outlines the procedure for a post-construction process to demonstrate and document that storm water measures have been installed per design specifications and provide enforceable procedures for noncompliance:

1. As-builts or record drawings will be required for all post-construction BMPs to verify they have been installed per design specifications.

2. SD1 may require a Developer Certification to ensure that all post-construction BMPS (rain gardens, porous pavements, etc) have been installed per design specifications.
3. SD1 will implement enforcement measures to bring non-compliant projects into compliance. Enforcement procedures are outlined in the Enforcement Response Plan and include measures such as:
    i. Verbal Notification
    ii. Correction Notice
    iii. Notice of Violation
    iv. Cease and Desist Orders (a.k.a. Stop Work Order)
    v. Administrative Fines

h. SD1 requires all new development and redevelopment property owners to submit a standard long-term maintenance agreement to be entered into by all property owners to ensure the continuation of long-term maintenance for all storm water control measures. The long-term maintenance agreement allows SD1, or the appropriate designee, to:
    i. Conduct inspections of the post-construction BMPs;
    ii. Account for transfer of responsibility in leases and/or deed transfers;
    iii. Perform necessary maintenance or corrective actions neglected by the owner and to recover cost from the owner.

i. SD1 will continue to implement Standard Operating Procedure for the post-construction maintenance inspection of structural and non-structural storm water control measures. SD1 will inspect a representative number of BMPs annually, dependent upon the number of BMPs constructed each year, with the goal of ultimately

inspecting all BMPs with long-term maintenance agreements within the permit cycle. SD1 will continue to explore the alternative of developing a program for property owners to perform self-inspection and provide appropriate documentation with oversight from SD1. Inspection procedures for approved controls will include:

i. Inspection date;
ii. Name of the inspector;
iii. Project location;
iv. Current ownership information;
v. Photographic documentation of components;
vi. Description of the condition of the control measures;
vii. Maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and re-inspection dates.

j. SD1 will continue to implement the Standard Operating Procedure to notify the owner of deficiencies found during inspections. The notification will identify the timeframe for the owner to bring the control into compliance. SD1 will issue escalated enforcement if the site owner/operator fails to take action in the specified timeframe. SD1 will continue to implement the following strategies:

i. Notify property owner of deficiency through letter or email;
ii. Identify appropriate timeline for corrective actions;
iii. Re-inspect the storm water controls after corrective action is taken;
iv. If corrective action is not taken in the appropriate timeframe, SD1 will escalate enforcement;
v. If corrective action is still not taken, SD1 may perform the necessary maintenance and seek to recover the cost from the owner or proceed with further legal action.

k. SD1 will track activities relative to post-construction storm water management to document compliance with permit requirements and for purposes of the annual report. Efforts to be tracked include:
    i. Number of opportunities SD1 provides comments/feedback on comprehensive plans or other collaborative planning efforts to have a positive impact on storm water management;
    ii. Number and types of permits issued annually;
    iii. Number, type and location of permitted post-construction BMPs installed within the reporting year;
    iv. Number, type and location of post-construction BMPs inspected as part of long-term operation and maintenance inspections;
    v. Number of long-term operation and maintenance inspections conducted, highlighting the number of BMPs requiring maintenance or repair and the number of enforcement actions taken;
    vi. Number of SD1 staff trained in the fundamentals of long-term storm water quality treatment management practices, how to review such practices on construction plans, and how to inspect practices for long term protection, operation and maintenance.

6. Pollution Prevention and Good Housekeeping

The final control measure required by the NPDES Phase II program involves the examination and possible alteration of municipal operations. This measure requires that municipalities evaluate their actions to ensure a reduction in the amount and type of pollution that accumulates on municipal streets, parking lots, open spaces and storage and vehicle maintenance areas that discharge into local water bodies. In addition, this measure requires an evaluation of results from land development activities that may be environmentally damaging. The primary intent of the EPA with this measure is to improve and protect water quality by altering the performance of municipal operations.

a. SD1 has developed and will continue to update and implement an Operation and Maintenance (O&M) Program with a goal of preventing or reducing pollutant runoff from SD1 operations. SD1 recognizes the importance of an O&M Program for all of the Co-Permittees' municipal facilities; SD1 will provide appropriate resources as outlined below to support the development of an O&M Program for all Co-Permittees. SD1 will continue to provide training for internal staff and will provide the Co-Permittees with the appropriate educational resources to develop and conduct training for their municipal staff.

b. Within the O&M Program, SD1 will provide opportunities for training and educating internal staff as well as the development of resources to be used for the training of municipal staff (Co-Permittees).
    i. SD1 internal training:
        1. SD1 will continue to conduct new hire orientation that includes an Excal pollution prevention training video and

an administered quiz after the video on pollution prevention;

2. SD1 will conduct annual training to inform appropriate staff of the importance of maintaining sites properly in an effort to protect water quality;
3. SD1 will maintain and update pollution prevention signs located throughout SD1 facilities that demonstrate proper pollution prevention procedures such as proper storage and disposal of facility materials.

ii. Co-Permittee training:

1. SD1 will create an updated Storm Water City and County Handbook which will provide access to key storm water resources such as a copy of the general permit, the submitted Notice of Intent (NOI) and the Storm Water Quality Management Plan;
2. SD1 will host Co-Permittee meetings for city clerks, city/county administrators, mayors and public works directors to discuss the Co-Permittee requirements for each minimum measure and to gauge the needs of the Co-Permittees;
3. In addition to providing appropriate education resources to Co-Permittees to develop and conduct training for their municipal staff, SD1 will host an annual Pollution Prevention Training for Co-Permittees;
4. SD1 will distribute an updated pollution prevention toolkit for Co-Permittees on its website, as a way to help municipalities understand the importance of storm water pollution prevention and good housekeeping. This will be completed in year one. SD1 will also make available an SD1 employee to visit a Co-Permittee's site. This person

will make suggestions of good housekeeping practices and appropriate BMPs for the specific site.

c. The following outlines SD1's O&M Program and efforts with Co-Permittees to ensure proper pollution prevention and good housekeeping.
    i. An inventory of facilities, maintenance activities, maintenance schedules and ongoing inspection procedures for structural and non-structural BMPs will be maintained for all of SD1's facilities as identified in the permit:
        1. SD1 will continue to implement O&M Plans for its administrative complex, Eastern Regional Water Reclamation Facility, Western Regional Water Reclamation Facility and Dry Creek Wastewater Treatment Plant. In addition, the plans will be revisited periodically to ensure effectiveness and will continue to be promoted to staff. SD1 will utilize the O&M Plans to educate and promote pollution prevention plans to all Co-permittees;
        2. SD1's Pollution Prevention Team will continue to conduct annual audits to ensure all SD1 facilities are properly operated and maintained. The Pollution Prevention Team will evaluate the results of each audit to determine if any updates are needed for the various O&M Plans. The audit results will be utilized to determine focus areas of training efforts for the following year.
    ii. An inventory of facilities, maintenance activities, maintenance schedules and ongoing inspection procedures for structural and non-structural BMPs will be maintained by the Co-permittees for all of the Co-Permittee facilities as identified in the permit. SD1 will continue to assist Co-

Permittees with their O&M Programs to be implemented by Co-Permittees for their respective municipal facilities by:

1. SD1 will continue to work with the Co-Permittees on any needed updates to their O&M Plans for their various facilities. In addition to the toolkit mentioned above, SD1 will continue to provide support on storm water pollution prevention topics such as, proper maintenance, storage, and recommended inspection procedures. Co-Permittees will be responsible for providing site specific information for each facility;
2. Co-Permittees will conduct and keep record of annual inspections for all municipal facilities. SD1 will send annual reminders to all Co-Permittees to conduct and document these facility inspections;
3. Co-Permittees will conduct annual pollution prevention training (or attend SD1's training) and document the type of training and number of attendees;
4. Many communities have implemented street sweeping operations. Communities that have already implemented these programs will continue them. Communities that currently do not have street sweeping programs in place will continue to investigate the feasibility of developing a street sweeping program or partnering with adjacent communities to utilize previously established programs. If street sweeping proves to be infeasible, some communities may develop alternatives (e.g. road side litter pick-up programs).

d. SD1 will demonstrate compliance with the requirements for pollution prevention and good housekeeping by tracking and summarizing the following in the Annual Report:

i. Number of SD1 new hires who have completed Excal training on an annual basis and the results of the pollution prevention quiz;
ii. Number of attendees at the annual training sessions for SD1 staff to address pollution prevention issues found on site;
iii. Number of Co-Permittees conducting or attending annual training sessions for municipal staff to address pollution prevention issues found on site;
iv. Number of O&M Plans being maintained and site audits conducted for SD1 owned facilities;
v. Number of O&M Plans being maintained and site audits conducted for Co-Permittee owned facilities;
vi. Number of Co-Permittees conducting street sweeping in cities/counties;
vii. Number of Co-Permittees investigating the feasibility of implementing street sweeping in communities without existing programs or alternative.
viii. Number of Co-Permittees using salt and/or sand for snow and ice prevention and the amount being used.

C. STORM WATER QUALITY MANAGEMENT PLAN REVIEW AND MODIFICATION

1. SD1 will annually evaluate the effectiveness of the Storm Water Quality Management Plan to ensure compliance with the general permit.

2. If necessary, SD1 will modify ineffective BMPs and any ineffective schedules. During the permit period, SD1 may modify the SWQMP as follows:

   a. SD1 may make modifications that add components, requirements or controls, and will provide a description of the modification in the Annual Report.

   b. If necessary, SD1 will modify the SWQMP to replace any ineffective or infeasible storm water controls. SD1 will describe the modification in the following Annual Report and provide the following information:

      i. Analysis of why the storm water control was ineffective or infeasible;
      ii. Expectations of the effectiveness of the replacement control;
      iii. Analysis of why the new control is expected to achieve goals of the control being replaced.

   c. If necessary, SD1 will make modifications to adjust the schedule for maintenance activities or inspection frequency as outlined above. SD1 will include a description of the adjustment in the Annual Report to include:

      i. Analysis of why the schedule was ineffective or infeasible;
      ii. Expectations on the effectiveness of the replacement schedule.

   d. Any modifications included in the Annual Report will be reviewed and approved by any Co-Permittees the modification will affect. The

modification will include a certification that any affected Co-Permittees had an opportunity to comment on the proposed changes.

e. SD1 will implement the SWQMP for all new MS4 areas added to the service area.

D. TOTAL MAXIMUM DAILY LOADS AND IMPAIRED WATERS

1. Total Maximum Daily Loads (TMDLs)

Currently, there are no approved TMDLs for any impaired water bodies with respect to the MS4 discharges within SD1's service area. However, Elijah's Creek and Gunpowder Creek have an approved TMDL for an impairment of ethylene glycol. This TMDL is specifically designed and implemented through the storm water permit for the Cincinnati/Northern Kentucky International Airport (CVG); the MS4 does not cause or contribute to the ethylene glycol impairment in those streams.

There is a TMDL Alternative for the Gunpowder Creek Watershed. The alternative is currently being implemented and a report regarding the implementation progress is submitted to KDOW annually.

2. Evaluation of TMDL Allocations

If during the permit term there is an approved TMDL established within SD1's service area, SD1 will update the SWQMP if KDOW determines the plan is not adequately achieving the MEP standard.

3. Impaired Water Bodies

As Kentucky's Section 303(d) list of impaired waters is updated every two years, SD1 will identify any new water bodies within the service area that become listed as impaired. SD1 will ensure that pollutants of concern for which a water is listed as impaired relative to the MS4 are addressed in the Storm Water Quality Management Plan. SD1 will include this information, at a minimum, in the annual report.

E. IMPLEMENTATION OF AN MS4 PROGRAM MONITORING PLAN

SD1 will continue to implement the monitoring program that was submitted to KDOW on March 31, 2015 (Appendix 6). SD1 will continue to review and update the plan as needed. Any updates will be submitted to KDOW.

F. MS4 TRAINING

The Environmental Compliance Manager will receive at least 12 hours of documented training per permit year to further the goals and objectives of the MS4 general permit requirements.

G. FISCAL REQUIREMENTS

SD1 will continue to utilize the storm water utility to generate revenue for the Storm Water Quality Management Program. SD1's utility is based upon an impervious area rate methodology.

Residential property owners pay a flat fee based upon one Equivalent Residential Unit (ERU). Non-residential property owners pay a fee based upon

the measured amount of impervious area contained on the parcel. This amount of impervious area is then equated into an appropriate number of ERUs; the fee for non-residential properties is based upon this equivalent number of ERUs. The minimum fee for any improved parcel is based upon one ERU.

The storm water fee is reviewed annually and is subject to change based upon SD1's Board of Directors and the County Judges Executive approval. Currently the storm water fee, along with other fees, generates approximately $13.5 million per year. The revenue generated is used as follows:

- Compliance with regulations set forth in the EPA Storm Water Phase II Rule and the Kentucky Phase II MS4 general permit as described in the SWQMP.
- Operation and maintenance of the public storm sewer system, as well as replacing and upgrading existing public storm water infrastructure.
- Other projects with storm water related impacts.

III. REPORTING

A. REPORTING REQUIREMENTS

1. As part of the KPDES Phase II permit issued to SD1 and the Co-Permittees, SD1 will prepare an annual system-wide report to be submitted no later than April 15th of the year following the calendar year covered by the report.

   For the purposes of the regional management program developed by SD1, each Co-Permittee will be responsible for providing an annual status report to SD1 that addresses each of the action items for which city/county is listed as the responsible entity. Co-Permittees will submit this report to

SD1 one month prior to the annual report deadline set by KDOW. This will allow SD1 enough time to compile the information from each of the Co-Permittees into a single report for submission to KDOW.

2. SD1 will retain all records pursuant to the general permit for no fewer than three years following the termination of the permit.

B. CERTIFICATION

All applications or reports submitted to the Division of Water will be signed and certified by SD1 pursuant to KAR 5:060. Each report will contain the completed declaration as shown in the general permit, Section 3.2.

IV. REFERENCES

1. Federal Register, Volume 64, No. 235, Wednesday, December 8, 1999, Rules and Regulations.

2. Kentucky Department for Environmental Protection, KYR100000 (KPDES General Permit for Storm Water Discharges Associated with Construction Activities), AI No: 35050, Division of Water, 2014

3. United States Environmental Protection Agency, MS4 Permit Improvement Guide, Office of Water, 833-R-10-001, 2010

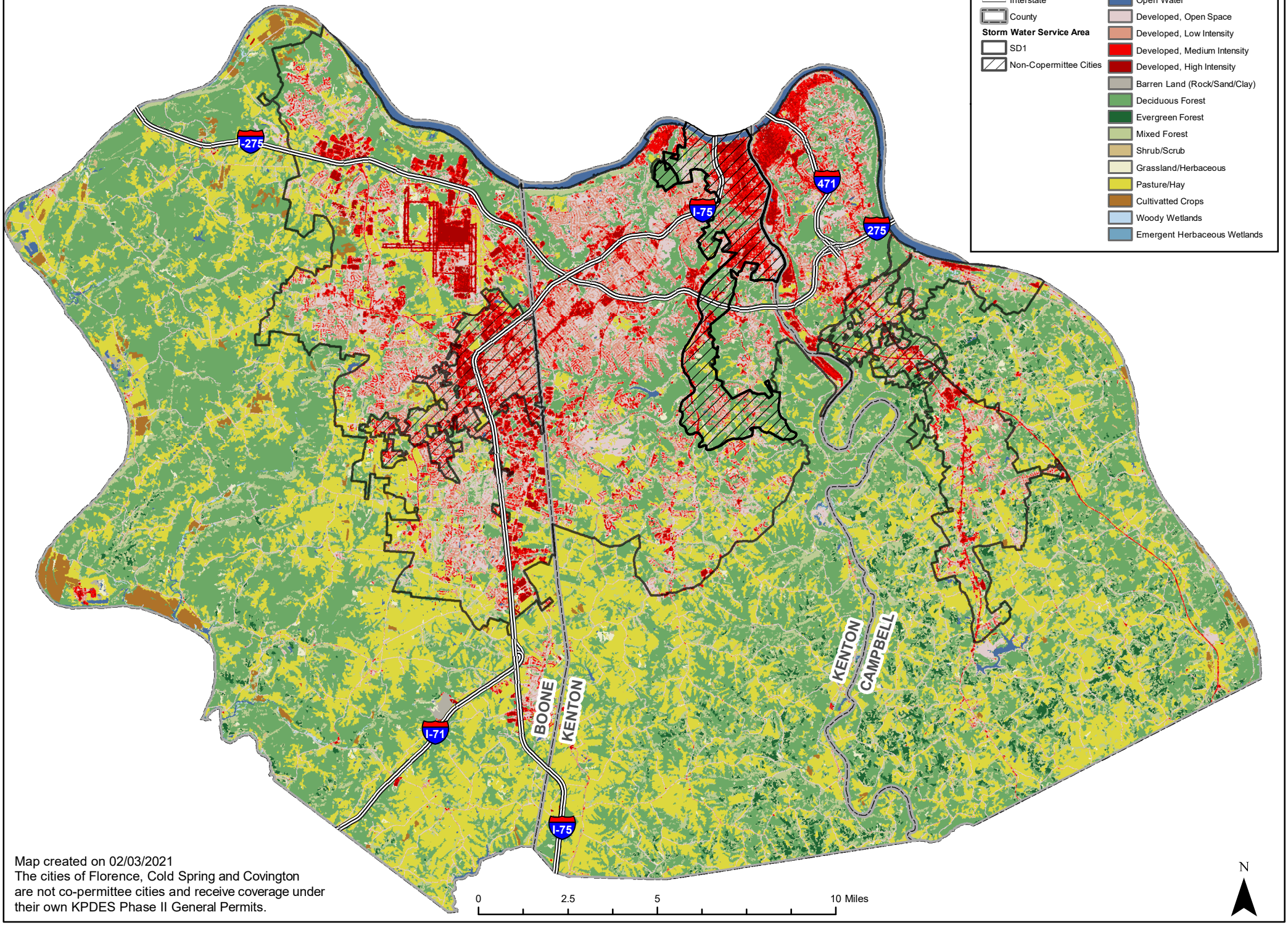
4. United States Environmental Protection Agency, Storm Water Phase II Final Rule Fact Sheet Series, Office of Water, 833-F-00-001 through EPA 833-F-00-010.

5. Kentucky Department for Environmental Protection, KYG200000 (KPDES General Permit for Phase II Municipal Separate Storm Sewer Systems), AI No: 35050, Division of Water, 2018

V. APPENDICES

Appendix 1: Map of SD1 Storm Water Service Area and Land Cover (see following page)

SD1 Storm Water Service Area and Land Use



Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

Appendix 2: SD1 Notice of Intent for Phase II Permit (see following pages)

SD1
Managing Northern Kentucky's
Wastewater and Storm Water

May 29, 2018

Ms. Abigail Rains
MS4 Coordinator
KPDES Branch, Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

RE: Phase II MS4 General Permit Renewal
KPDES No.: KYG200007
AI: 7556

Dear Ms. Rains:

Attached please find a completed KPDES Form NOI-SW/SMS4 that has been prepared by Sanitation District No. 1 (SD1) on behalf of 32 Northern Kentucky communities.

The relationship between SD1 and the co-permittees has been formalized through Interlocal Agreements, which were provided with the previous NOI submitted to the Kentucky Division of Water (KDOW) on April 29, 2010. SD1 will work cooperatively with these entities to revise the KPDES Phase II Storm Water Quality Management Plan (SWQMP) for the third permit cycle which will designate the roles and responsibilities of SD1 and the co-permittees in order to comply with the renewed Phase II MS4 general permit issued on May 1, 2018.

A map indicating the location of MS4 major outfalls (owned and maintained by SD1 or its co-permittees) within the current Northern Kentucky KPDES defined Phase II permit area is included as Attachment C of the NOI. SD1 received approval from KDOW to revise the Phase II permit area boundary, which will take effect on July 1, 2018. SD1 will submit an updated map and GIS file with the permit area and MS4 outfalls to KDOW following the effective date. SD1 is also currently reviewing and updating storm system ownership with the co-permittee communities. Any additional changes resulting from this process as well as updates resulting from the addition of new public storm systems, will be provided to KDOW each year with the Annual Report.

Please refer to SD1's 2017 Annual Report, submitted to your office on March 20, 2018, for a report of best management practices and program activities already implemented.

1045 Eaton Drive • Ft. Wright, KY 41017 • phone 859-578-7450 • fax 859-331-2436 • www.sd1.org

We look forward to continued collaboration with you on the storm water program. If you have any questions or require additional information, please don't hesitate to contact us.

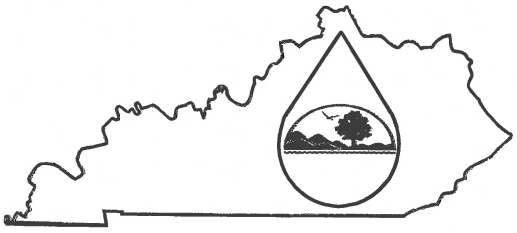
Best regards,

James P. Gibson, Jr.
Director of Water Resources

Enclosures 4

CC: All co-permittees (as listed in Attachments A and B of the NOI) via email

KPDES FORM NOI-SW/SMS4



Kentucky Pollutant Discharge Elimination System (KPDES)
Notice of Intent (NOI)
for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (sMS4)
KPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges from a small municipal separate storm sewer system (sMS4). Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Attached Instructions)

I. Permittee Information (attach co-permittee information to this application, if applicable) ***Refer to Attachment A&B***

Name:	Sanitation District No. 1 of Northern Kentucky (SD1)	**Contact Person:**	James P. Gibson Jr., Director of Water Resources
Address: (If PO Box, include street address)	1045 Eaton Dr.	**Phone:**	(859) 578-6882
City, State, Zip Code:	Fort Wright, KY 41017		

II. Storm Sewer Map

Submit a storm sewer system map indicating the location of all major storm sewer outfalls and names and locations of the receiving streams, and delineation of watershed drainage areas. ***Refer to Attachment C***

III. Minimum Controls:

Submit a report of the best management practices already implemented or scheduled to be implemented to meet the minimum control measures, including any measurable goals to aid in the development and implementation of the controls (an MS4's existing SWQMP and/or annual report may be submitted to satisfy this requirement). ***Please refer to SD1's 2017 Annual Report, which was submitted to KDOW on March 20, 2018.***

Indicate by marking the appropriate box whether you or another entity is responsible for the respective control measure. If another entity, indicate the name of the responsible party next to the appropriate box.
Are you responsible for the control measure? If no, indicate the responsible party.

A. Public Education and Outreach	Yes ☒*	No ☐
B. Public Involvement and Participation	Yes ☒*	No ☐
C. Illicit Discharge Detection and Elimination	Yes ☒*	No ☐
D. Construction Site Runoff Control	Yes ☒*	No ☐
E. Post Construction Management for Development and Re-Development	Yes ☒*	No ☐
F. Pollution Prevention and Good Housekeeping for Municipal Operations	Yes ☒*	No ☐

In accordance with Northern Kentucky's SWQMP

IV. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			
Printed or Typed Name:	Adam Chaney, Executive Director		
Signature:		**Date:**	5/29/18

Kentucky Pollutant Discharge Elimination System (KPDES) Instructions

Notice of Intent (NOI) for Storm Water Discharges Associated with Small Municipal Separate Storm Sewer Systems (SMS4) To Be Covered Under the KPDES General Permit

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

The operator of a small MS4, in accordance with 40 CFR Parts 9, 122, 123, and 124 and 401 KAR 5:060, must submit a NOI to obtain coverage under the small MS4 KPDES Stormwater General Permit. Any questions regarding whether a permit is needed under the small MS4 KPDES Stormwater Program can be addressed by the **Kentucky Division of Water at (502) 564-3410.**

WHERE TO FILE NOI FORM

NOIs must be completed and submitted online. Applicants can access the system at the following web address: https://dep.gateway.ky.gov/eportal/default.aspx

COMPLETING THE FORM

Type or print legibly in the appropriate areas only. Any questions regarding the completion of this form should be directed to the MS4 Coordinator at (502) 564-3410 or SWPBSupport@ky.gov.

SECTION I - Permittee Information

Give the legal name of the person, firm, public organization, or entity legally designated as the Permittee responsible for maintaining compliance with the approved Stormwater Phase II MS4 permit. Enter the complete address and phone number of the operator of the small MS4 system(s) and co-permittees bound by the Stormwater Phase II MS4 permit as a part of this NOI. Attach a list of co-permittees if applicable. Also, include co-permittee list and legally binding MOU's in the Stormwater Quality Management Plan (SWQMP).

SECTION II – Storm Sewer Map

Include a detailed map of the storm sewer system indicating all storm water outfalls to the waters of the Commonwealth and delineating the separate watershed drainage areas.

SECTION III – Minimum Control Measures

Include the current status of the listed control measures. If another entity is responsible for a particular control measure, indicate the entity as appropriate.

SECTION IV - CERTIFICATION

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

Attachment A

List of KPDES Storm Water Phase II Co-permittees for Northern Kentucky

The attached NOI has been prepared by Sanitation District No.1 (SD1) on behalf of the following entities:

Cities (29)			Counties (3)
Alexandria	Erlanger	Newport	Boone
Bellevue	Fort Mitchell	Park Hills	Campbell
Bromley	Fort Thomas	Silver Grove	Kenton
Covington	Fort Wright	Southgate	
Crescent Springs	Highland Heights	Taylor Mill	
Crestview	Independence	Union	
Crestview Hills	Kentonvale	Villa Hills	
Dayton	Lakeside Park	Wilder	
Edgewood	Ludlow	Woodlawn	
Elsmere	Melbourne		

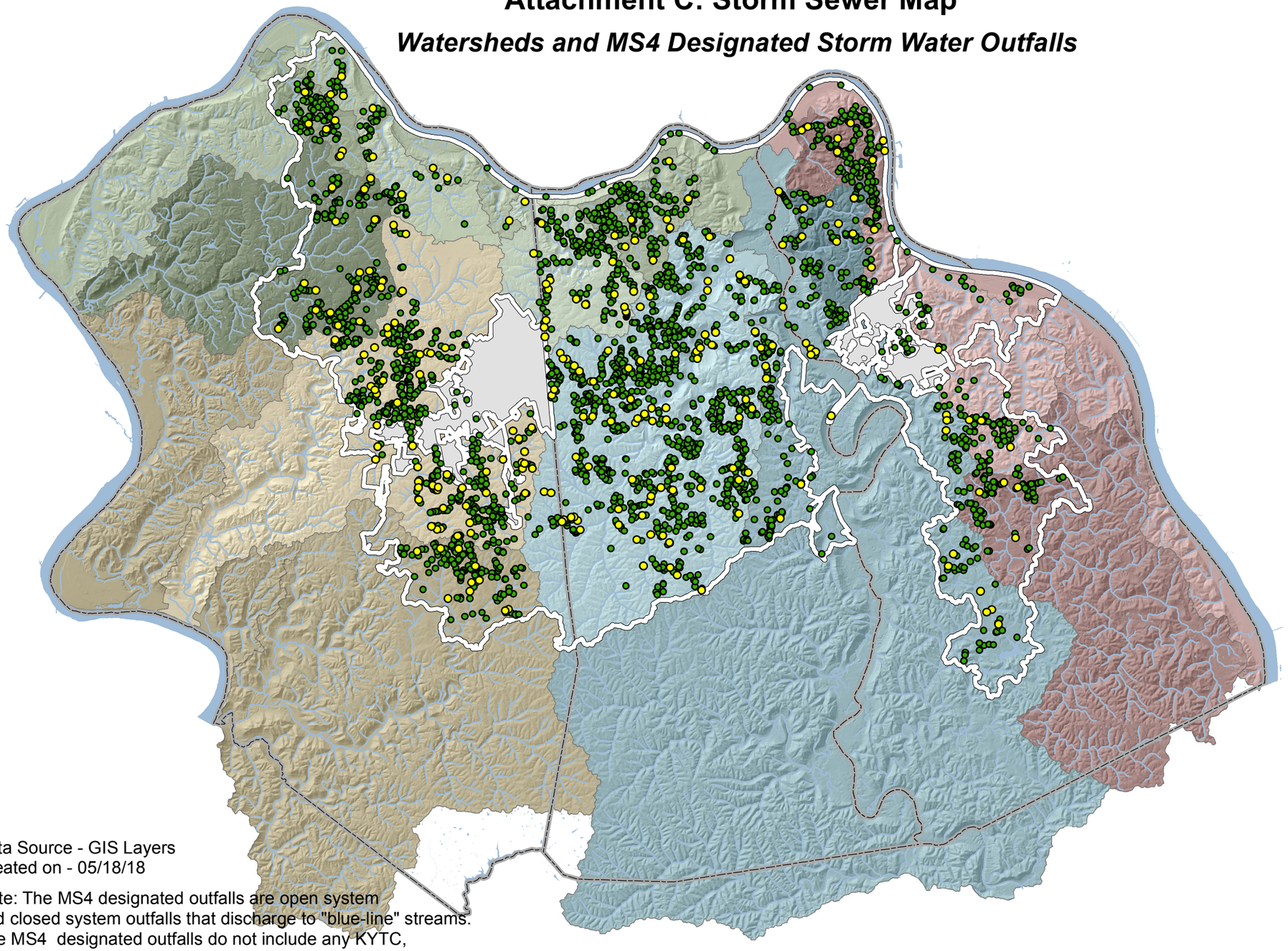
In regards to Section III. Minimum Controls of KPDES Form NOI-SW/SMS4, SD1 will take primary responsibility for complying with minimum control measures A through E (Public Education and Outreach, Public Involvement and Participation, Illicit Discharge Detection and Elimination, Construction Site Runoff Control, and Post Construction Management for Development and Re-Development); however, the co-permittees (cities and counties) will provide support, as needed. Minimum control measure F (Pollution Prevention and Good Housekeeping for Municipal Operations) will be a joint responsibility between SD1 and the co-permittees. Each entity will be responsible for compliance of their individual facilities. However, SD1 will provide the co-permittees with guidance materials and assistance, as requested.

Additional details will be described in Northern Kentucky's KPDES Phase II Storm Water Quality Management Plan, which will be updated to reflect the permit conditions associated with the renewed MS4 general permit released by KDOW with an effective date of May 1, 2018.

Note: Attachment B of this document has been omitted but can be made available upon request.

Attachment C: Storm Sewer Map

Watersheds and MS4 Designated Storm Water Outfalls



Data Source - GIS Layers
Created on - 05/18/18

Note: The MS4 designated outfalls are open system and closed system outfalls that discharge to "blue-line" streams. The MS4 designated outfalls do not include any KYTC, Cold Spring, Florence, or privately owned outfalls.

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

MS4 Outfalls

- Major Outfalls (215)
- Minor Outfalls (2,977)

Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

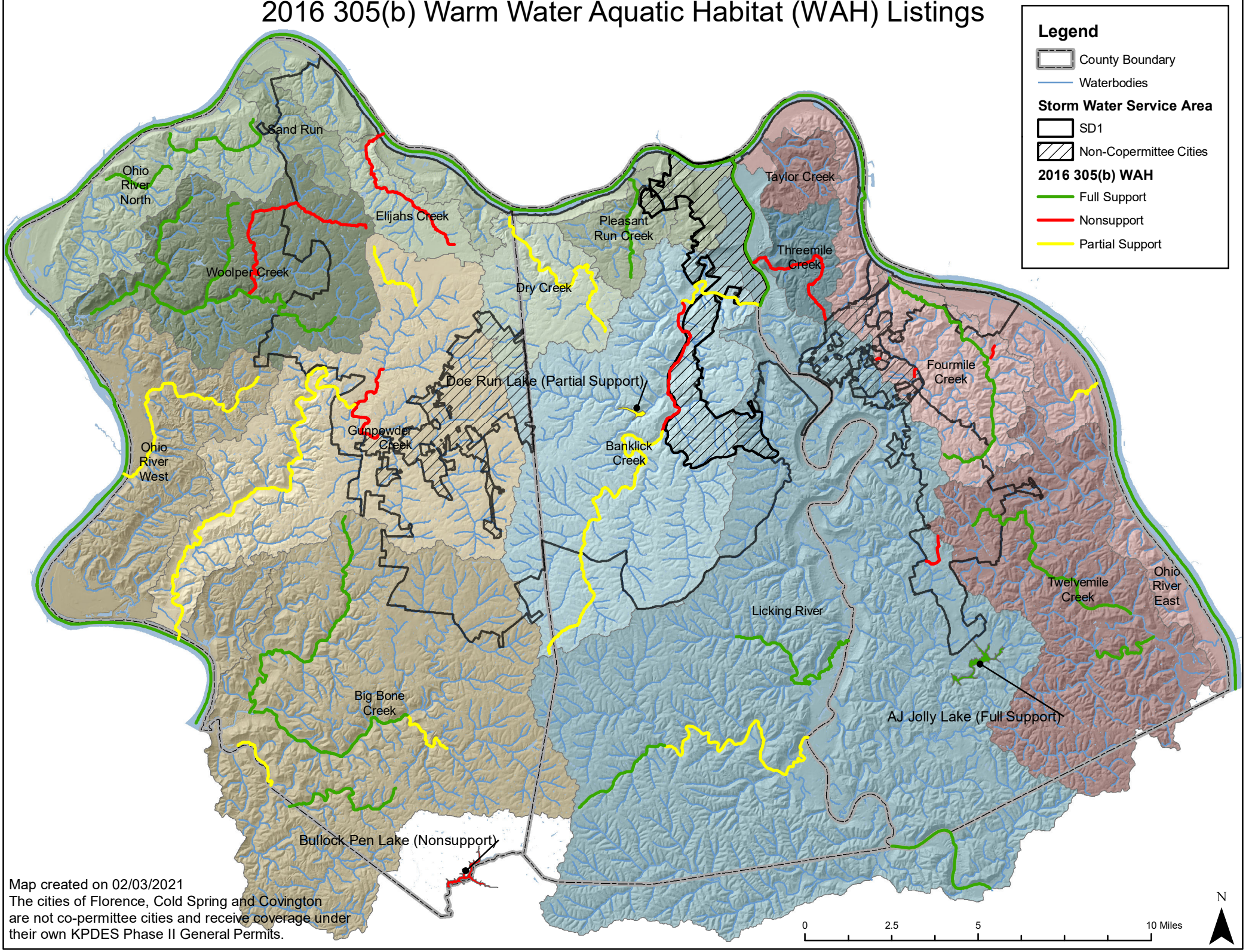
- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

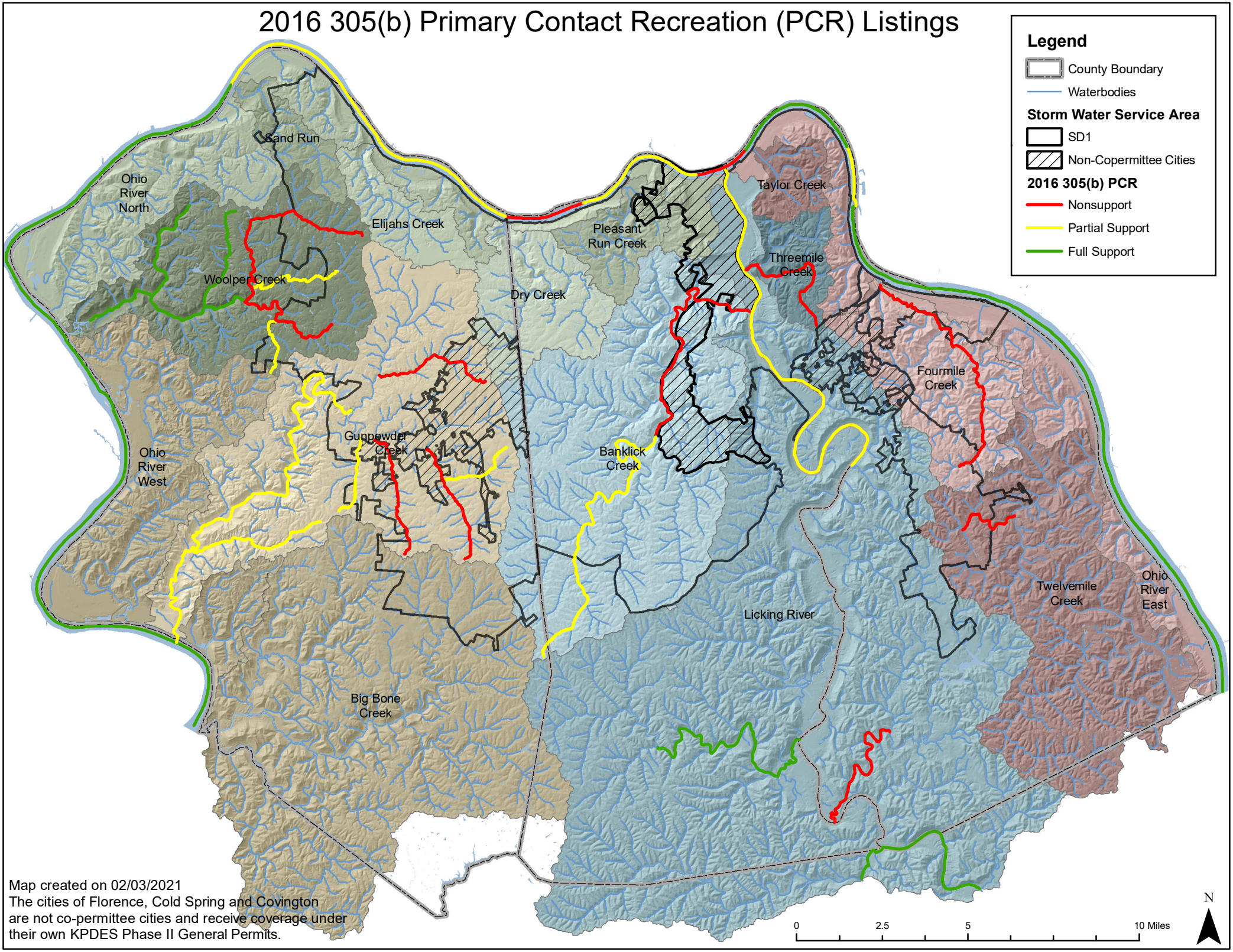
Appendix 3: Maps of 2016 305(b) Listed Segments and Outstanding State Resource Waters (see following pages)

2016 305(b) Warm Water Aquatic Habitat (WAH) Listings



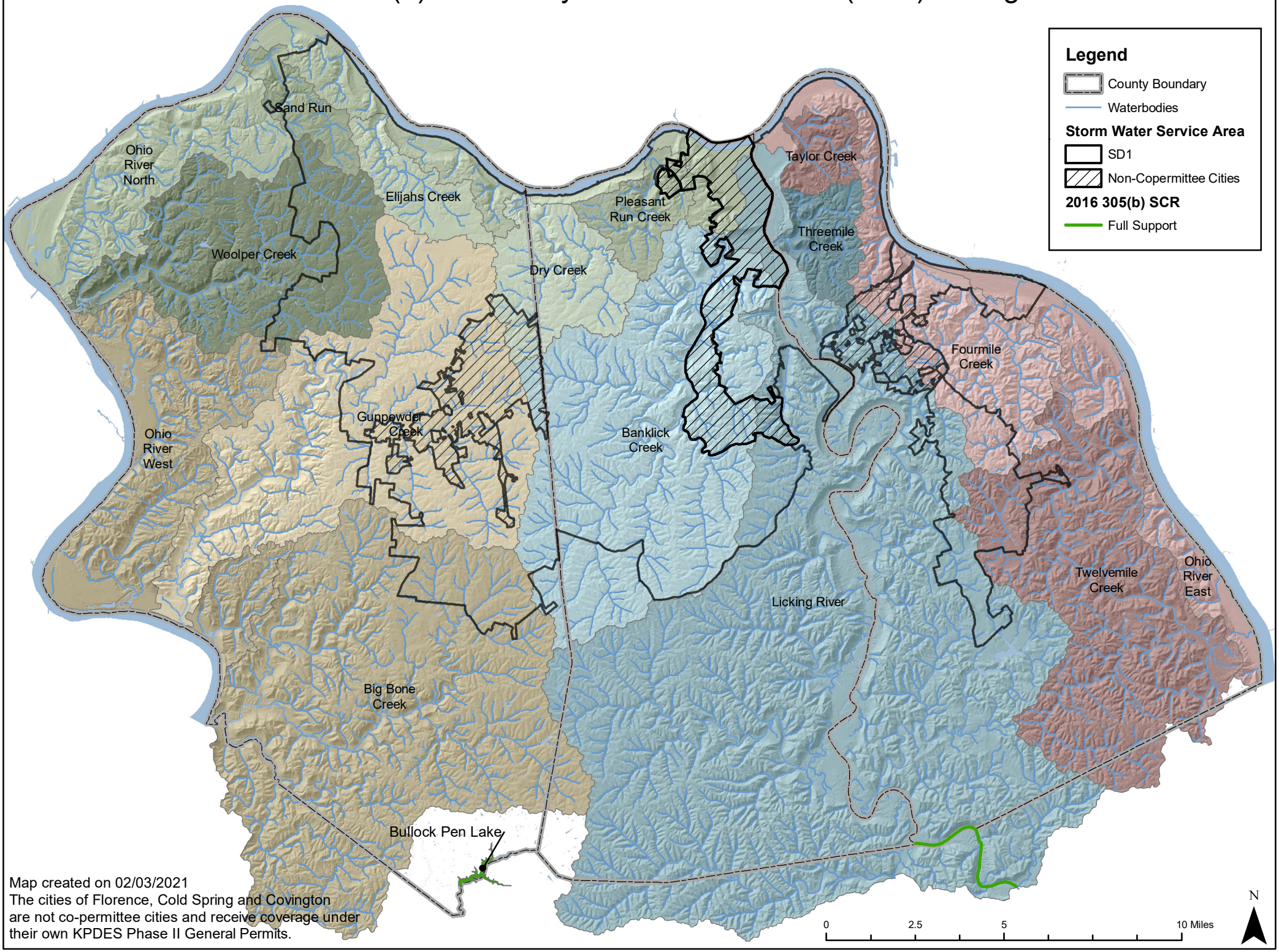
Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

2016 305(b) Primary Contact Recreation (PCR) Listings



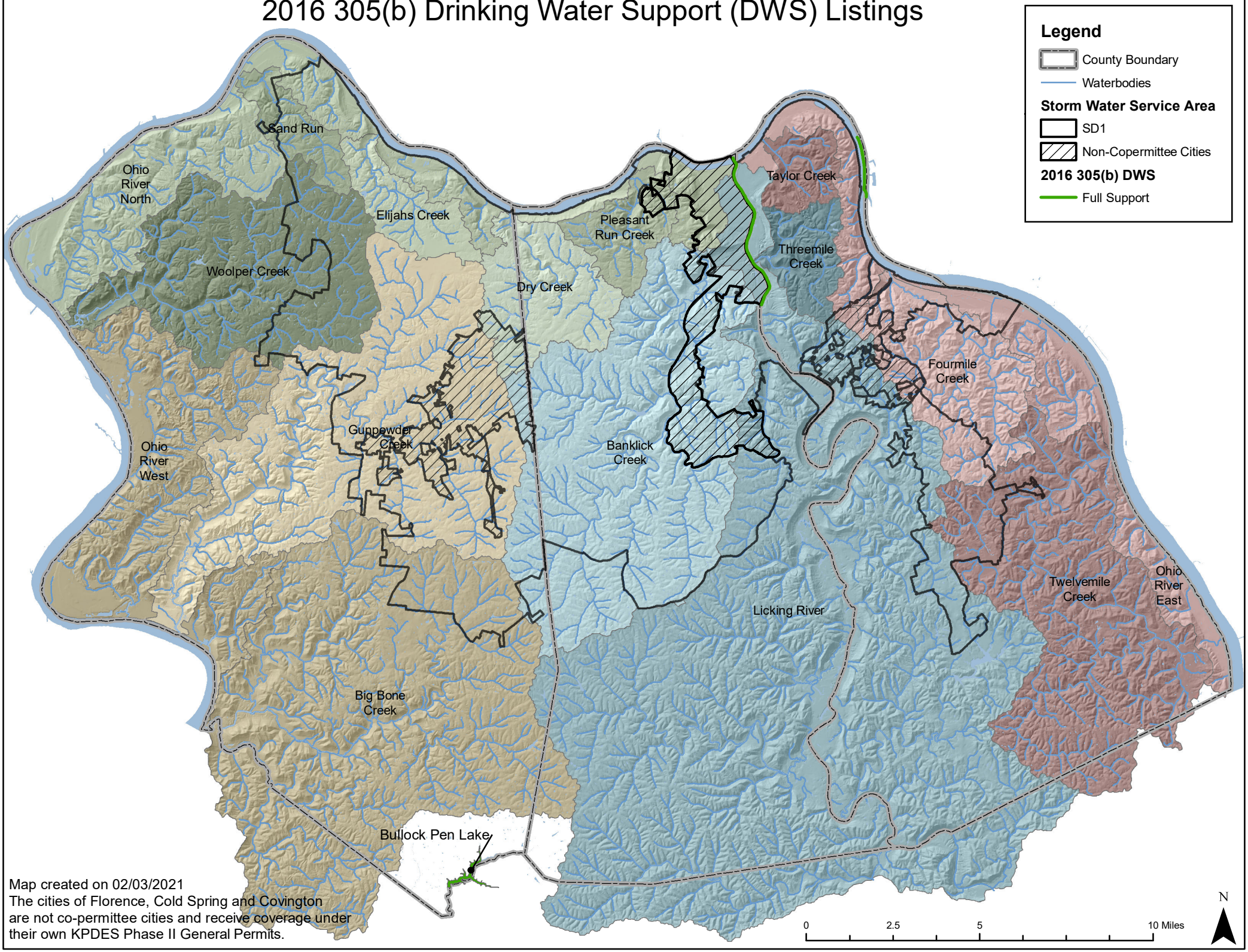
Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

2016 305(b) Secondary Contact Recreation (SCR) Listings



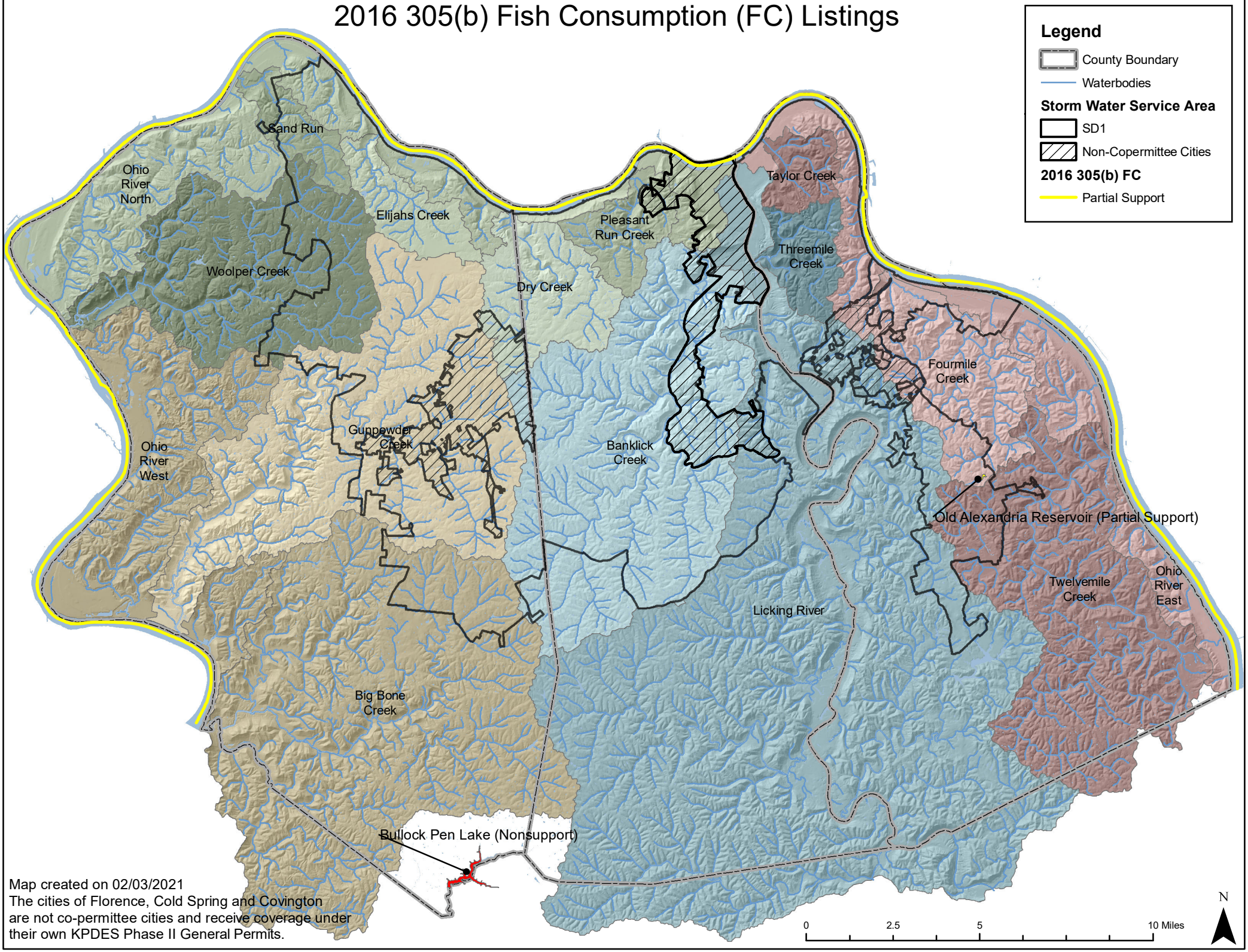
Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

2016 305(b) Drinking Water Support (DWS) Listings



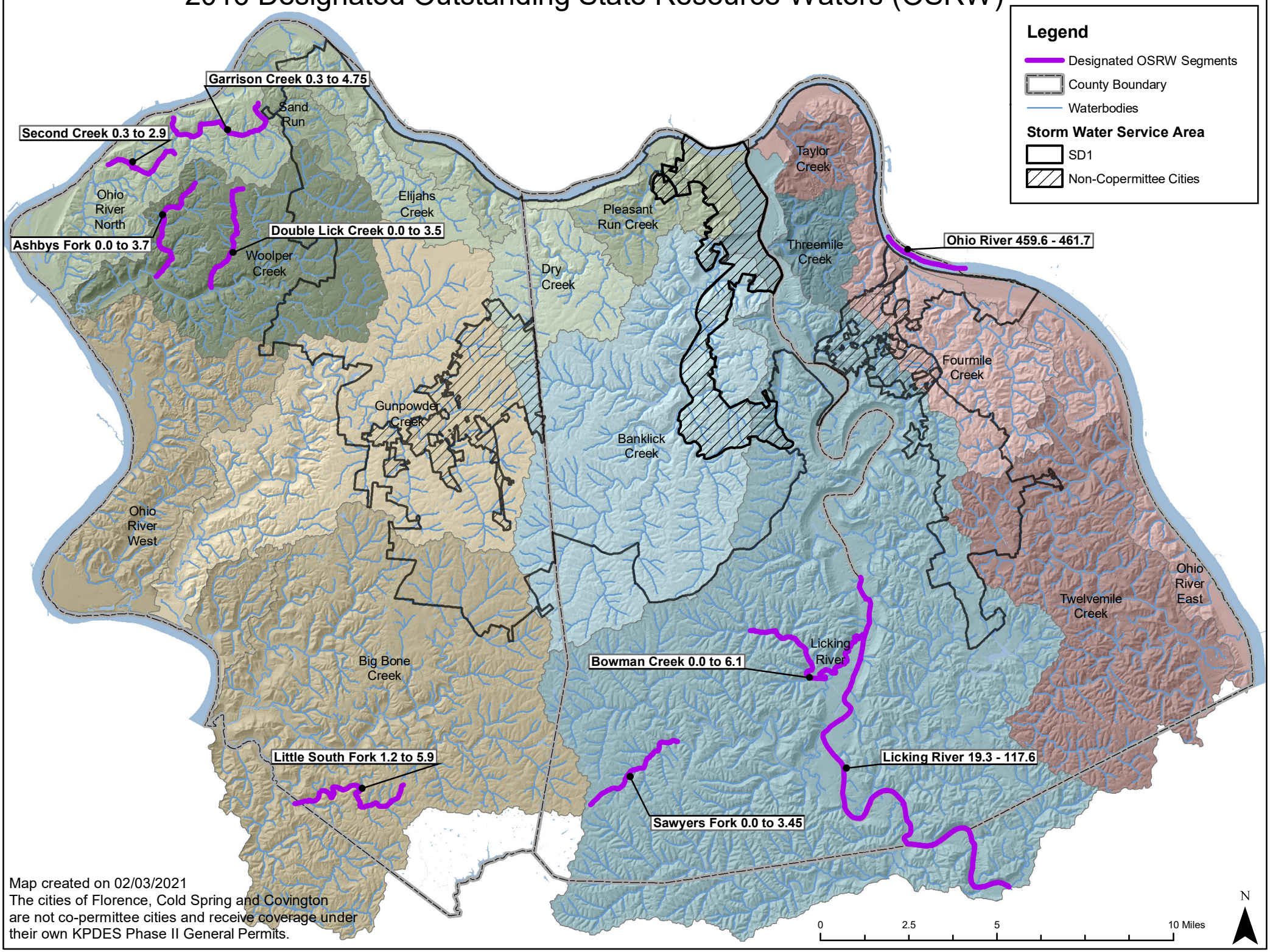
Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

2016 305(b) Fish Consumption (FC) Listings



Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

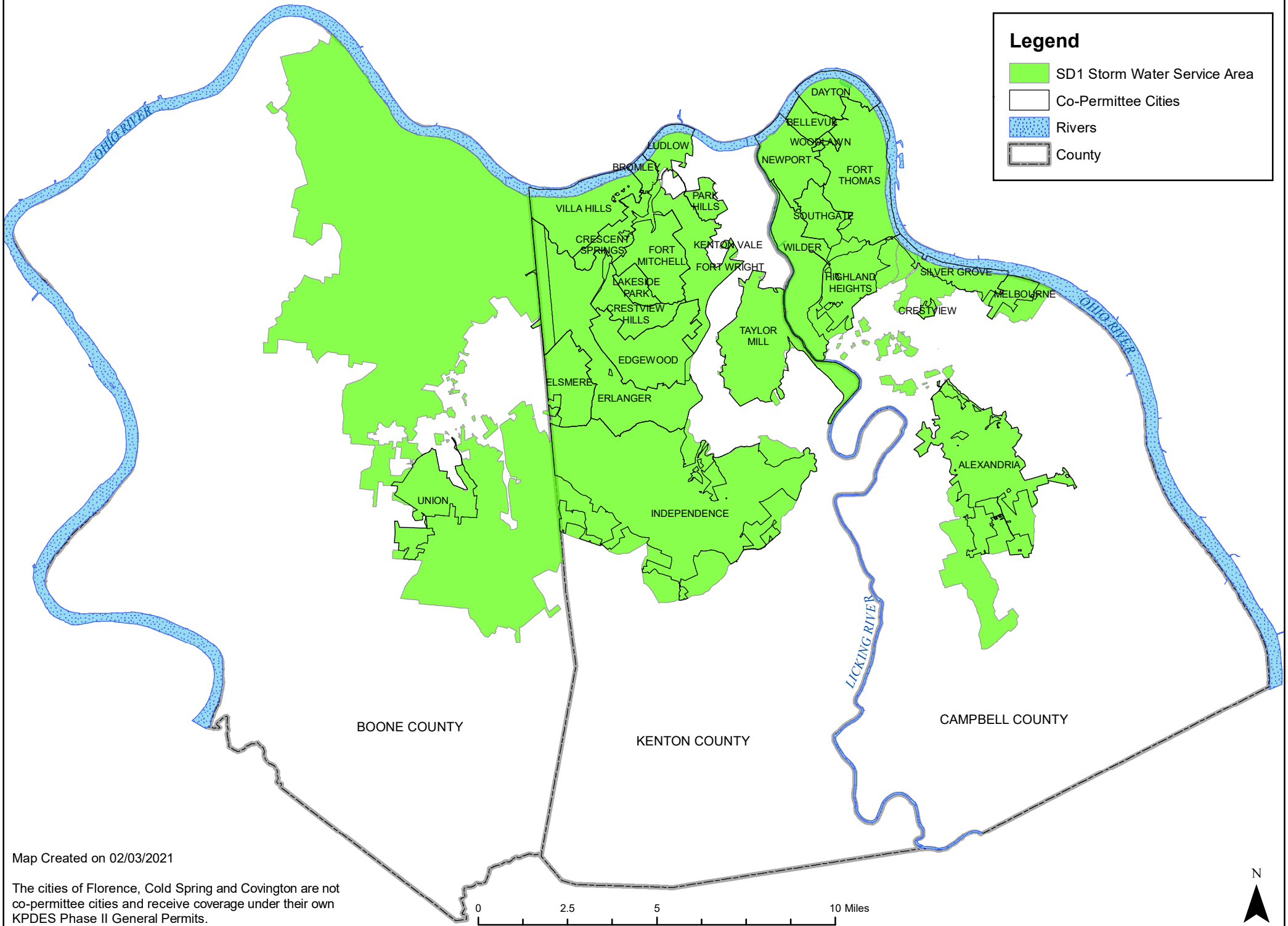
2016 Designated Outstanding State Resource Waters (OSRW)



Map created on 02/03/2021
The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

Appendix 4: Map of SD1 Storm Water Service Area and Co-Permittees (see following pages)

SD1 Storm Water Service Area and Co-Permittee Cities



Map Created on 02/03/2021

The cities of Florence, Cold Spring and Covington are not co-permittee cities and receive coverage under their own KPDES Phase II General Permits.

Appendix 5: Co-permittee and SWAC Meeting Documentation (see following pages)

2018 Joint Co-Permittee & Storm Water Advisory Committee Meeting

Join us for this annual meeting to discuss and learn more about the following topics:

- Recent storm water service area updates
- New and revised MS4 Phase II Permit
- Proposed Storm Water Quality Management Plan
- Storm Water Cost Share Program

Meeting Details

Date: Tuesday, August 28, 2018

Time: 9 - 11:30 a.m.

Location: SD1 Board Room
1045 Eaton Drive
Ft. Wright, KY 41017

RSVP: Tuesday, August 21, 2018
Contact: Lora Bonno
Email: lbonno@sd1.org
Phone: 859-547-4441

A light breakfast will be provided.

*Due to this being a joint meeting with limited space, there is a limit of two attendees from each co-permittee community.

SD1

Managing Northern Kentucky's Wastewater and Storm Water

SD1
Managing Northern Kentucky's Wastewater and Storm Water

Joint Co-Permittee and SWAC Meeting

Meeting Date: August 28, 2018
Meeting Time: 9:00-11:30 a.m.
Meeting Location: SD1 Board Room
Meeting Attendees: Co-Permittees and Storm Water Advisory Committee (SWAC)

Meeting Agenda

I. **Welcome** *(9 – 9:10)*
Adam Chaney, Executive Director

II. **Storm Water Service Area Updates –** Jim Gibson *(9:10 – 9:30)*

III. **Storm Water Quality Management Plan –** Brooke Shireman *(9:30 – 10:30)*
   a. Overview of the revised MS4 Phase II Permit
   b. Review of the updated Storm Water Quality Management Plan
   c. Discussion and instructions for providing comments

IV. **Storm Water Cost Share Program –** Sean Blake *(10:30 – 11)*

V. **Additional Questions and Discussion** *(11 – 11:30)*

SD1

2018 Joint Co-Permittee & SWAC Meeting
August 28, 2018
9 a.m. – 11:30 a.m.
SD1 Board Room

NAME	GROUP/AFFILIATION/CITY /COUNTY	EMAIL	PHONE NUMBER
DERICK YELTON	Villa Hills	dyelton@villahillsky.org	859-341-1515
Matt Loschiavo	Villa Hills	mloschiavo@villahillsky.org	859-341-1515
Corey Schalk	Villa Hills	cschalk@villahillsky.org	859 341-1515
Phil Rachal	Crescent Springs	prachel@crescent.springs.ky.us	859-760-7888
John Tucker	City of Silver Grove	JTucker24777 at yahoo	859-468-5104
ALLEN NORWICH	MELBOURNE	MELBOURNE.COM	859-992-6717
Michael C Miller	HAMCO SOIL + WATER	mmmillermcogmail.ca	513-672-0242
BARRY J. BURKE	CITY OF UNION	burkebarry@msn.com	513 476-7235
Ken Hicks	City of Independence	Khicks@cityofindependence.org	859-363-2949
Stacee Hans	KYTC	Stacee.hans@ky.gov	859-341-2700
Robert Krebs	Boone County Planning	rkrebs@booneCountyKY.org	859 334-2196
Kevin Costello	" "	kcostello@boonecountyky.org	859-334-2196
Sean Blake	SD1	sblake@sd1.org	578-7468
ADAM ENGELS	COF	aengels.florence-ky.gov.	647-5416
Brian Miller	BIA	bmiller@buildersnky.com	331-9500
Michael Giffen	Dayton		
DJ Scully	U.K. Campbell Co. Ext. Service	djscully@uky.edu	859-992-1768

2018 Joint Co-Permittee & SWAC Meeting

August 28, 2018
9 a.m. – 11:30 a.m.
SD1 Board Room

NAME	GROUP/AFFILIATION/CITY /COUNTY	EMAIL	PHONE NUMBER
Jason James	City of Erlanger	Jason.James@erlangerpw.com	
Cindy Minter	Campbell County	cminter@campbellcountyky.org	859-292-3880
Mark Jacobs	BCCD	Markjacobs@BCCDKY.org	859-586-7903
Caleb Clayton	City of Ludlow	Cclayton@ludlow.org	859-700-2858
DAVE ORTH	CITY OF ALEXANDRIA	DAVE.ORTH@ALEXANDRIA.ORG	859-393-7150
SAM TRAPP	City of Alexandria	Strapp@alexandriaky.org	859-991-0471
SCOTT PENNINGTON	BOONE COUNTY PW	SPENNINGTON@BOONECOUNTYKY.ORG	859-334-3600
DANIEL J. VONHANDORF	PARK HILLS PW	DVONHANDORF@PARKHILLKY.NET	859-486-9541
Robert Begnoche	City of Edgewood		859-743-8101
Scott Fenny	NKU		
ZACH BORCHERS	CITY OF PARK HILLS	ZACHBORCHERS@BAYERBECKER.COM	859-261-1113
Dana Hinaman	Contech Engineered Sol.	dhinaman@contechcs.com	513-314-7781
Sherry Carran	Banklick WC		

2018 Joint Co-Permittee & SWAC Meeting

August 28, 2018

9 a.m. – 11:30 a.m.

SD1 Board Room

NAME	GROUP/AFFILIATION/CITY /COUNTY	EMAIL	PHONE NUMBER
Dennis Lye		Rylxes@gmail.com	859-512-1953
Mike Brann	Campbell County E.C.	MBRANN@CAMPBELLCOUNTYKY.ORG	743-4145
Richard Stortz	City of Southgate	astortz@southgate.org	991-0976
Nicole Clements	Bankclick	admin@Bankclick.org	509-885-7455
Steve Lehman	City of Highland Heights	SLehman@HHKY.com	859-322-7357
Kevin Barbian	Ft. Thomas	KBarbian@FTThomas.org	859.572.1224
Tim Mattingly	"	TMattingly@ "	859.572.1212
Jake Eubank	Independence	Jeubank@cityofindependence.org	859-640-6759
Rick Lunnemann	City of ~~Florence~~ Crestview Hills	rlunnemann@crestviewhills.com	859-341-7373
Matt Elberfeld	Campbell County EC		

Storm Water Quality Management Plan

Brooke Shireman, SD1

Co-permittee and SWAC Meeting

08/28/18

History and Background

- 1987 - Congress amends CWA with passage of Water Quality Act to address storm water
- 1998 - Northern Kentucky Storm Water Feasibility Study
- 1998 - KRS 220 amended to authorize sanitation districts to manage storm water drainage
- 1999 - U.S. EPA final Phase II storm water regulations
- 2003 - Northern Kentucky Regional Storm Water Utility
- 2009 - Storm Water Asset Transfer

Current Program

- Operation and Maintenance
- Capital Improvements
- Long-term Planning
- Cost Share Projects and Technical Assistance
- **Phase II Municipal Separate Storm Sewer System (MS4) Permit Compliance**

Phase II MS4 Permit

KPDES

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KYG200000

AI NO.: 35050

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Small Municipal Separate Storm Sewer Systems (MS4)

are authorized to discharge

Stormwater runoff from small MS4s to receiving waters of the Commonwealth in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

to receiving waters named

Those water bodies of the Commonwealth that comprise the Mississippi and Ohio River basins and sub-basins within the political and geographic boundaries of Kentucky

in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit shall become effective on May 1, 2018.

This permit and the authorization to discharge shall expire at midnight, April 30, 2023.

March 30, 2018

Date Signed

Sara J Lindersson

Peter T. Goodmann, Director
Division of Water

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601

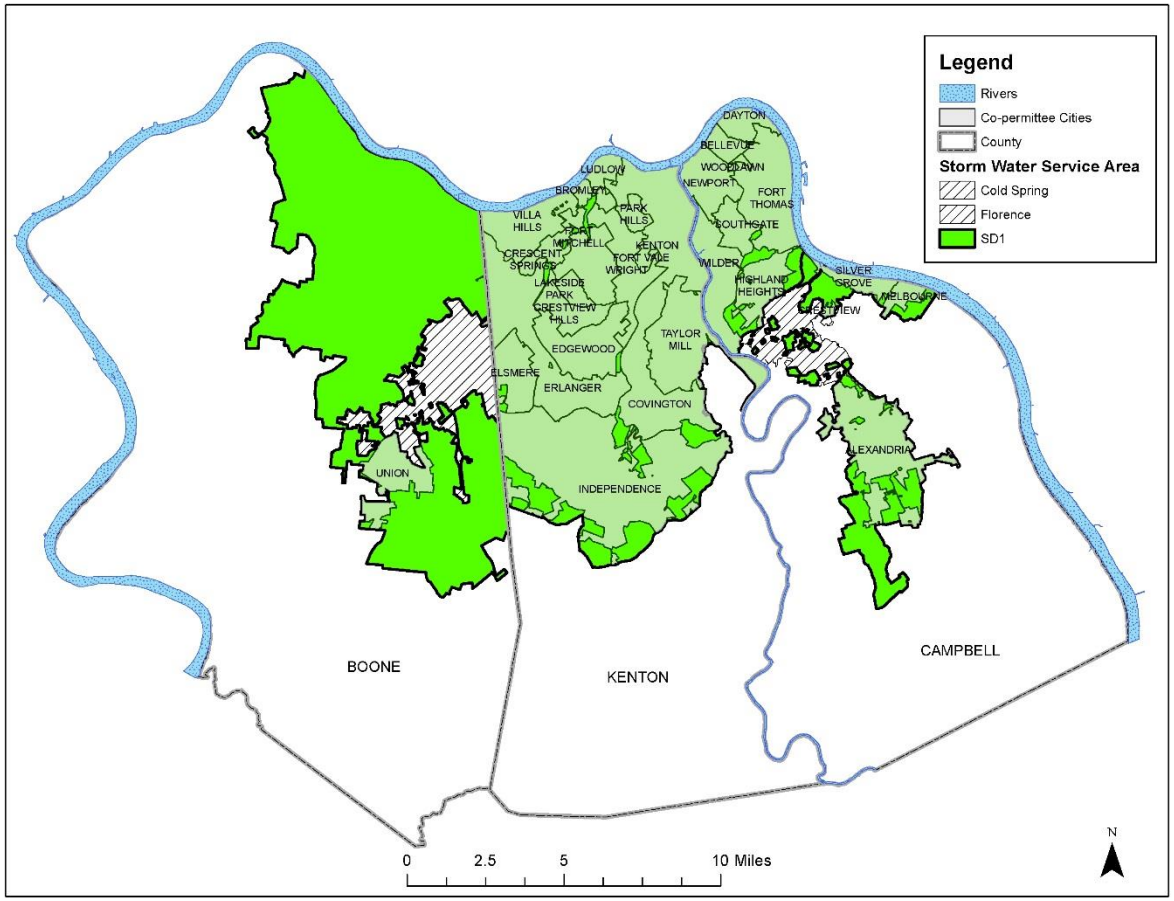
Printed on Recycled Paper

Phase II Permit Summary for NKY

- 1st Permit Cycle (2003 – 2007)
  - Permit extended through 2009
  - Transition Phase *(adjust to new regulations)*
- 2nd Permit Cycle (2010 – 2015)
  - Permit extended through 2018
  - Implementation Phase *(emphasis on metrics)*
- 3rd Permit Cycle (2018 – 2023)
  - Effective Date – May 1, 2018
  - Notice of Intent Submitted – May 28, 2018
  - Continued Implementation and Improvement Phase
  - Storm Water Quality Management Plan – Due Nov 1, 2018

Storm Water Quality Management Plan (SWQMP)

- Outlines activities for permit compliance
- Includes measureable goals
- Covers the 5-year permit cycle



Phase II Permit Requirements

- Phase II MS4 Permit Requirements
  - Minimum Control Measures (MCMs):
    1. Public Education & Outreach
    2. Public Involvement & Participation
    3. Illicit Discharge Detection & Elimination
    4. Control of Construction Site Runoff
    5. Post-Construction Storm Water Management
    6. Pollution Prevention and Good Housekeeping for Municipal Operations
  - MS4 Monitoring Program
  - Total Maximum Daily Load (TMDL) Requirements

MCM1: Public Education & Outreach

- Permit Requirements
  - Implement and maintain a public education program
  - Focus on pollutants impairing or threatening local waterways
  - Direct to multiple audiences
  - Measure the understanding and adoption of behavior changes
  - Improve efforts based on results

MCM1: Public Education & Outreach

- SWQMP Activities
  - Collaborate with other organizations to enhance E&O efforts
  - Focus on pollutants: bacteria, nutrients and sediment
  - Direct to multiple audiences: community leaders, stakeholder groups, general public and schools
  - Measure understanding and adoption of targeted behaviors: surveys, pre and post testing
  - Look for opportunities to improve

MCM 2: Public Participation & Involvement

- Permit Requirements
  - Implement a public involvement/participation program
  - Activities may include advisory councils, public hearings, education volunteers, storm drain markings, riparian planting, stream clean-ups, etc.
  - Track activities

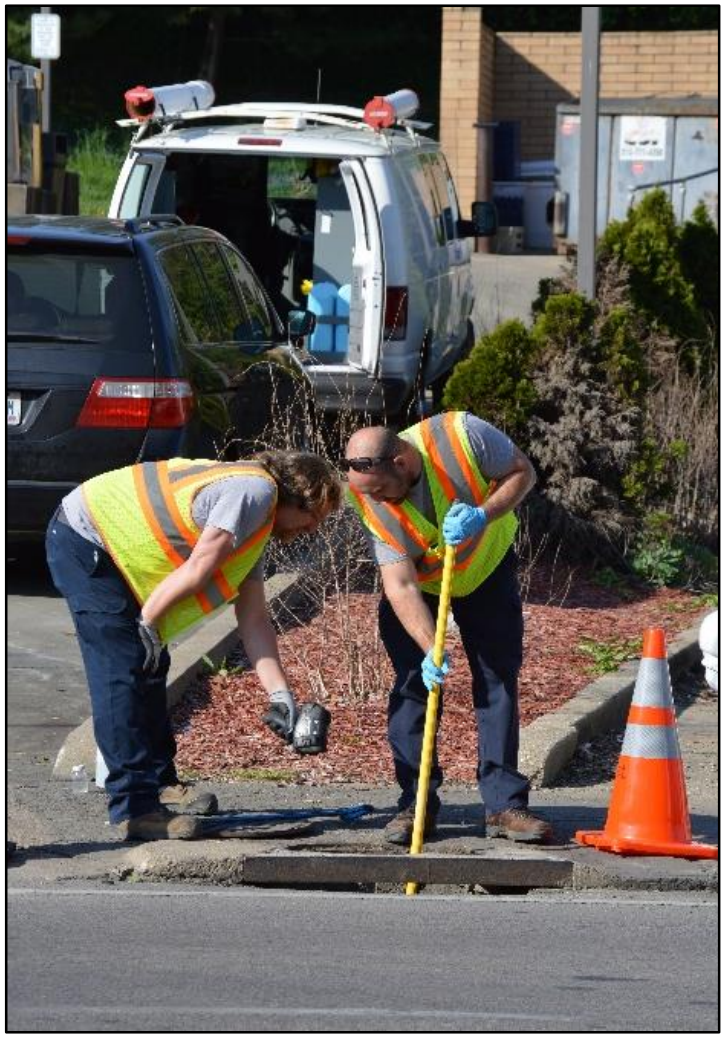
MCM 2: Public Participation & Involvement

- SWQMP Activites
  - Host the Storm Water Advisory Committee (SWAC)
  - Promote and sponsor creek and river clean-ups
  - Implement the storm drain marking program
  - Continued support for the Household Hazardous Waste events
  - Continue to promote and implement DRIP
  - Explore new opportunities with partners

MCM 3: Illicit Discharge Detection and Elimination

- Permit Requirements
  - Implement and enforce regulatory requirements to prohibit illicit discharges
  - Maintain a storm sewer system map
  - Conduct dry weather screening
  - Public reporting and complaint investigation
  - Procedures for detecting and eliminating illicit discharges
  - Track activities

MCM 3: Illicit Discharge Detection and Elimination



- SWQMP Activities
  - Implement and enforce the Rules and Regulations (Section 1200)
  - Update the storm system map
  - Conduct dry weather screening in priority subbasins
  - Investigate all customer reports of illicit discharges
  - Educate public and train employees
  - Follow SOPs for detecting and eliminating illicit discharges

MCM 4: Control of Construction Site Runoff

- Permit Requirements
  - Implement and enforce regulatory requirements to reduce pollutants from construction site storm water runoff
  - Implement a permitting process including plan review
  - Conduct inspections of all permitted construction sites
  - Enforcement procedures
  - Education and training
  - Track activities

MCM 4: Control of Construction Site Runoff

- SWQMP Activities
  - Implement and enforce the Rules and Regulations (Sections 400 & 1000)
  - Continue to implement a permitting process including plan review
  - Conduct inspections of all permitted construction sites based on established frequency
  - Enforce correction of non-compliance issues
  - Promote and partner on education and training opportunities
  - Contractor Awards

MCM 5: Post-Construction Runoff Control

- Permit Requirements
  - Implement and enforce regulatory requirements to address post-construction storm water runoff (water quality treatment standard)
  - Implement project review, approval and enforcement procedures for new and re-development
  - Require BMP owners to establish and enter into long-term maintenance practices
  - Inspect post-construction BMPs and enforce correction of non-compliance
  - Track activities

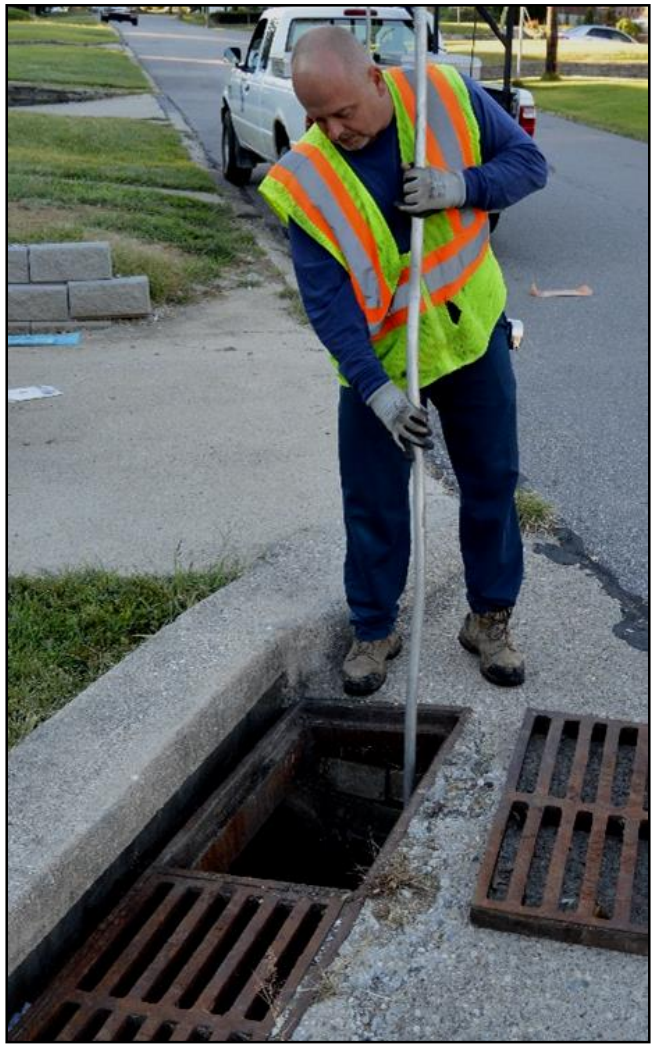
MCM 5: Post-Construction Runoff Control

- SWQMP Activities
  - Implement and enforce the Rules and Regulations (Sections 800 & 900)
  - Continue to implement the permitting process
  - Review and update resources as needed (BMP Manual)
  - Require long-term maintenance agreements
  - Conduct inspections of all permitted post-construction BMPs
  - Enforce correction of non-compliance issues
  - Participate in Comprehensive Plan review

MCM 6: Pollution Prevention & Good Housekeeping

- Permit Requirements
  - Implement the written O&M plans for SD1 and co-permittee-owned facilities
  - Continue to implement and improve BMPs to prevent stormwater pollution from municipal operations
  - Provide ongoing training for employees to reduce pollution from municipal activities
  - Track activities

MCM 6: Pollution Prevention & Good Housekeeping

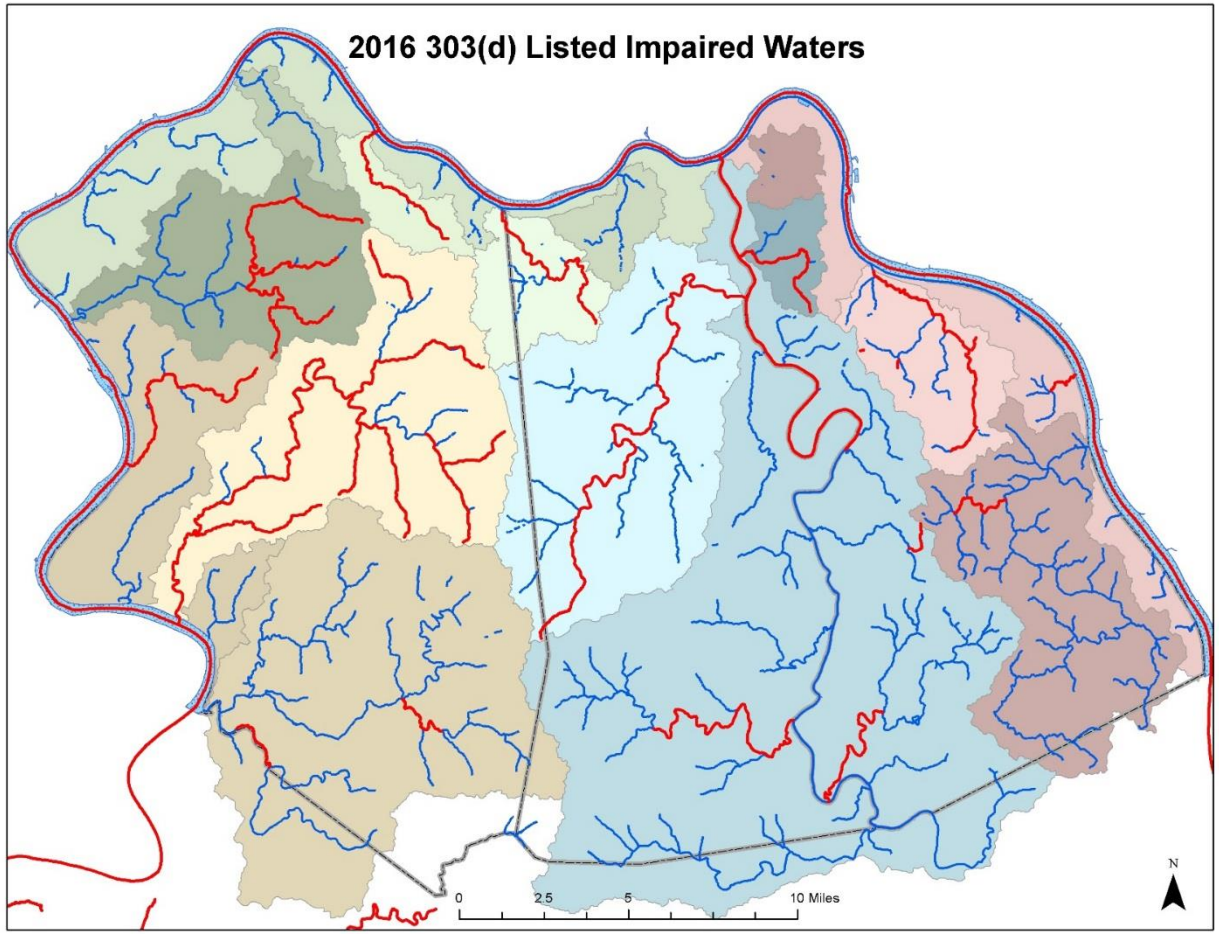


- SWQMP Activities
  - Update and implement the written O&M plans for SD1 and co-permittee-owned facilities
  - Continue the co-permittee pollution prevention training
  - Update and improve education and training resources for co-permittees
  - Continue to perform annual inspections and audits of municipal facilities
  - Review the programs within the communities and determine feasible improvements

MS4 Program Monitoring Plan

- Review and update the monitoring plan
- Improve program evaluation and success monitoring

Total Maximum Daily Loads (TMDLs)



- Statewide Bacteria TMDL
- TMDL Alternatives
  - Gunpowder Creek
  - Explore potential in other watersheds
- TMDL Allocations and SWQMP Updates

SWQMP Next Steps

- Co-permittee and SWAC meeting – Aug 28
- Co-permittee and SWAC comments – Sept 21
- Submit to KDOW – Nov 1

www.sd1.org

Select - Programs and Outreach

Select - Regional Storm Water Management

Quick Links Box – 2018 Storm Water Quality Management Plan

SWQMP Feedback

First Name: *

Last Name: *

Date: *

Date captured on form submission

Organizational Name (if applicable):

Email:

Comments:

File Upload:

Upload

*Allowable extensions: pdf, doc, docx

Submit

Questions?

Quick Links

- Report a Sewer Emergency
- New Customer Information
- Open Records Policy & Requests
- View SD1 Board Meetings
- SD1 Financial Records
- GIS Maps
- Bids/RFPs/RFQs
- Surplus Property Auction

Latest News

- SD1 Saving About $200,000 per Year through Energy Management Initiatives
- SD1 Brings Innovative Approach to Region's Accelerating Erosion Problem
- SD1 2019 Budget Approved

See All News

Subscribe to SD1's E-Newsletter

Upcoming Events

- 09/26/2018 - Billing Working Group Meeting
- 10/11/2018 - Storm Water Working Group Meeting
- 10/16/2018 - SD1 Board of Directors Meeting

See All Events

Storm Water Quality Management Plan

Northern Kentucky's Regional Phase II storm water permit is a general statewide permit that covers more than 40 other Phase II permit communities in Kentucky. The permit for the third cycle (2018-23) became effective on May 1, 2018. To comply with the permit, Phase II communities are required to submit an updated Storm Water Quality Management Plan (SWQMP) to the Kentucky Division of Water by November 1, 2018. This plan must outline the activities that SD1 and the co-permittee communities will conduct over the 5-year permit cycle to address the permit requirements. SD1 is currently working with the co-permittees and stakeholders to update the SWQMP.

Download a copy of the draft SWQMP.
Download a copy of the SWQMP presentation from the Co-permittee and SWAC meeting (August 28, 2018)

We want your feedback

If you would like to submit comments regarding the content of the SWQMP, please do so through the link below. All comments are due by September 21, 2018.

Feedback form

Please note that the SWQMP outlines the activities for Phase II storm water permit compliance, which is focused on the storm water quality aspects of the Northern Kentucky Regional Storm Water Program. Issues such as flooding, infrastructure improvements, long-term planning and billing are covered under different programs and policies. If you have questions or comments regarding these storm water issues, please email info@sd1.org.

SWQMP Feedback

First Name: *

Last Name: *

Date: *

Date captured on form submission

Organizational Name (if applicable):

Email:

Comments:

File Upload:

Upload

*Allowable extensions: pdf, doc, docx

Submit

Appendix 6: KDOW Approved MS4 Monitoring Plan (see following pages)

Northern Kentucky's KPDES Phase II

Storm Water Monitoring Plan

March 2015

Submitted by: Sanitation District No. 1 of Northern Kentucky
Mailing Address: 1045 Eaton Drive, Ft. Wright, KY 41017
Website: www.sd1.org
Contact: Brooke Shireman, Environmental Compliance Manager
(bshireman@sd1.org; 859-547-1666)
Agency Interest Number: 7556
Submittal Date: March 31, 2015

Table of Contents

TABLES:

MAPS:

Part A: Introduction

Sanitation District No. 1 (SD1) serves as the regional storm water management agency with primary responsibility for development and implementation of Northern Kentucky's Regional Storm Water Management Program. Map 1, outlines the KPDES Storm Water Permit Compliance Area (Storm Water Service Area) for Northern Kentucky as determined by the Kentucky Division of Water (KDOW).

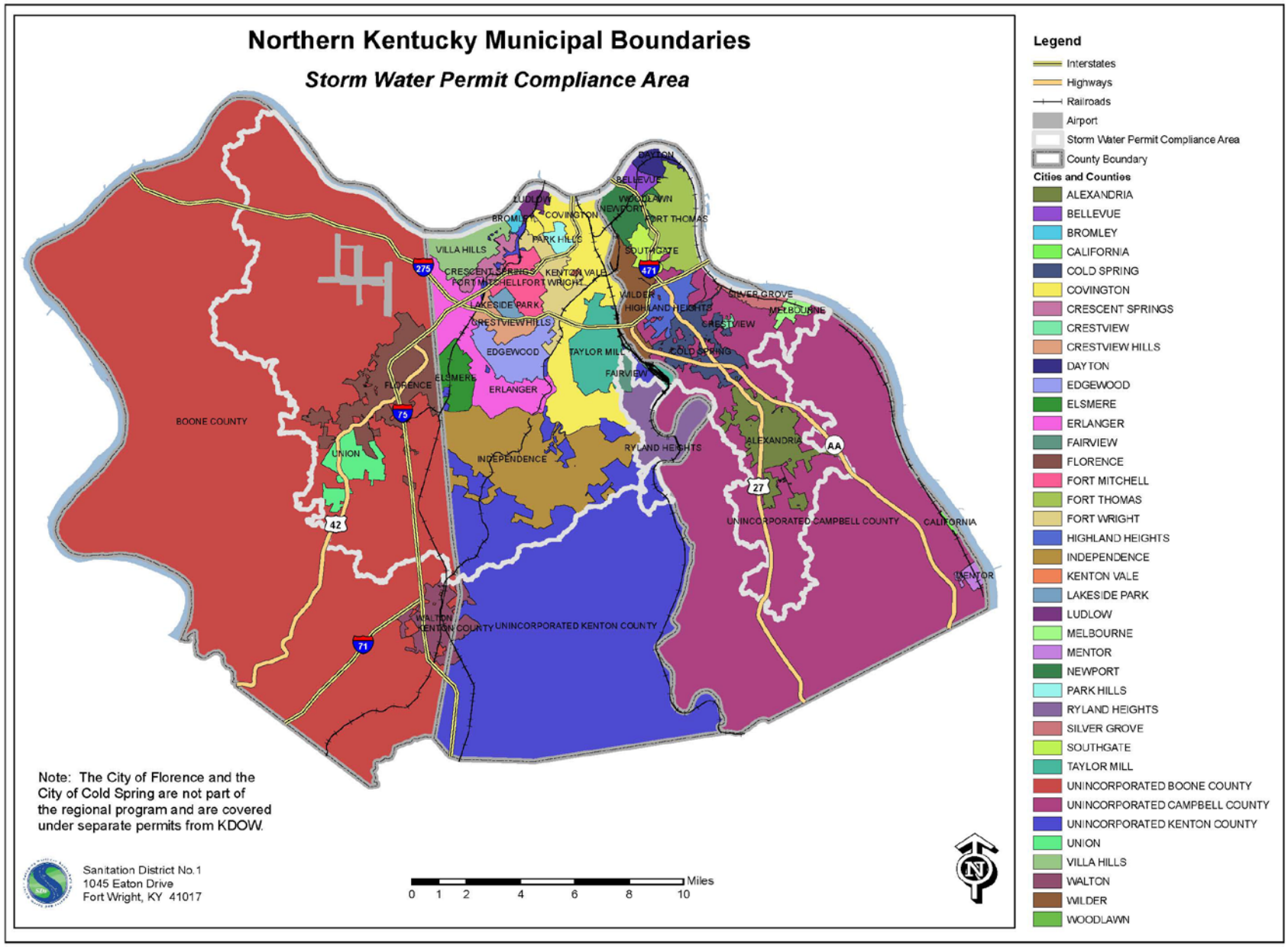
SD1 is implementing a watershed management approach to cost-effectively meet numerous regulatory requirements (e.g., Combined Sewer Overflow (CSO) Program, Municipal Separate Storm Sewer System (MS4) Program, et al.). In complying with these regulatory requirements, SD1 is applying an adaptive approach for identifying impairments and prioritizing areas for action. The monitoring efforts of this approach are presented in the following sections.

Part C provides information about current and future monitoring efforts.

Part D provides information about the monitoring conducted to meet the requirements for the Storm Water General Permit.

Part E provides information about potential future monitoring.

Together, the results of these multiple monitoring efforts will inform decisions regarding storm water management, measure the success of the implementation efforts and continue to shape a cost-effective storm water management program to improve and protect the water resources in Northern Kentucky.



MAP 1: NORTHERN KENTUCKY STORM WATER SERVICE AREA

PART B: 2012 INTEGRATED WATER QUALITY REPORT LISTED WATERWAYS

KDOW is required to assess and report water quality conditions for streams, lakes and reservoirs of all major river basins of the Commonwealth every two years. This report is referred to as the Integrated Water Quality Report and contains a list of assessed waterways, their designated use support status and the suspected causes/sources, if known.

Maps 2a – 2e display the stream segments and waterbodies in Boone, Kenton and Campbell counties listed in the 2012 Integrated Report. As shown in the maps, certain segments are fully supporting of their designated use(s) while other segments may not support or only partially support their designated use(s). Table 1 includes all of the segments impaired for one or more designated use and the identified causes and sources of the impairment.

Map 2f displays the Special Use Waters within Boone, Kenton and Campbell counties. These waters are rivers, streams and lakes listed in Kentucky Administrative Regulations (KAR) that are worthy of additional protection. These special uses include cold-water aquatic habitat, exceptional waters, reference reach waters, outstanding state resource waters, outstanding national resource waters, state wild rivers and federal wild and scenic rivers.

TABLE 1: 2012 INTEGRATED WATER QUALITY REPORT LISTED WATERWAYS

	Watershed	Waterbody & Segment	County	WAH	PCR	SCR	DWS	FC	Causes	Sources
North Basin	Dry Creek	Dry Creek 0.2 to 7.0	BOONE	PS					Nutrient/Eutrophication Biological Indicators, Organic Enrichment (Sewage) BiologicalIndicators	Agriculture; Municipal Point Source Discharges; Unspecified Urban Stormwater
	Elijahs Creek	Elijahs Creek 0.0 to 5.2	BOONE	NS					Ethylene glycol	Industrial/commercial site stormwater discharge (permitted)
	Woolper Creek	Allen Fork 2.0 to 4.6	BOONE	PS					Nutrient/ Eutrophication Biological Indicators, Sedimentation/Siltation	Unspecified Urban Stormwater, Habitat Modification - Other than Hydromodification
	Woolper Creek	Woolper Creek 11.9 to 14.0	BOONE	NS	NS				Fecal Coliform , Cause Unknown, Nutrient/ Eutrophication Biological Indicators, Organic Enrichment (Sewage) Biological Indicator, TSS	Illegal Dumps or Other Inappropriate Waste Disposal; Urban Runoff/Storm Sewers
	Woolper Creek	Woolper Creek 2.8 to 7.45	BOONE	FS	NS				Fecal Coliform	Agriculture
Central Basin	Banklick Creek	Banklick Creek 0.0 to 3.45	KENTON	PS	NS				Fecal Coliform, Nutrient/ Eutrophication Biological Indicators ,Organic Enrichment (Sewage) Biological Indicators , Sedimentation/Siltation	Municipal Point Source Discharges; Unspecified Urban Stormwater,Urban Runoff/Storm Sewers , Site Clearance (Land Development or Redevelopment
	Banklick Creek	Banklick Creek 3.45 to 8.2	KENTON	NS	NS				Fecal Coliform, Nutrient/ Eutrophication Biological Indicators ,Organic Enrichment (Sewage) Biological Indicators , Sedimentation/ Siltation	Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
	Banklick Creek	Banklick Creek 8.2 to 19.2	KENTON	PS	PS				Fecal Coliform, Nutrient/ Eutrophication Biological Indicators ,Organic Enrichment (Sewage) Biological Indicators	Agriculture; On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
	Banklick Creek	Doe Run Lake	KENTON	PS					Nutrient/ Eutrophication Biological Indicators, Dissolved Oxygen	Source Unknown; Upstream Source
	Licking River	Licking River 0.0 to 4.65	CAMPBELL	FS	PS		FS		Escherichia coli	Municipal (Urbanized High Density Area); Urban Runoff/Storm Sewers
	Licking River	Licking River 4.8 to 14.9	CAMPBELL		PS				Fecal Coliform	Source Unknown
	Licking River	Phillips Creek 0.0 to 5.3	CAMPBELL		NS				Fecal Coliform	Source Unknown
	Licking River	UT of Pond Creek 0.0 to 1.15	CAMPBELL	NS					Chlorine , Nitrogen (Total)	Package Plant or Other Permitted Small Flows Discharges
	Licking River	Cruises Creek 0.0 to 8.7	KENTON	PS	FS				Cause Unknown	Source Unknown
	Threemile Creek	Threemile Creek 0.1 to 4.7	CAMPBELL	NS	NS				Fecal Coliform, Nutrient/ Eutrophication Biological Indicators	Sanitary Sewer Overflows (Collection System Failures); Source Unknown

TABLE 1 (cont.)

	Watershed	Waterbody & Segment	County	WAH	PCR	SCR	DWS	FC	Causes	Sources
West Basin	Big Bone Creek	Big South Fork 2.1 to 4.1	BOONE	PS					Nutrient/Eutrophication Biological Indicators ,Sedimentation/Siltation	Agriculture ,Silviculture Activities; Site Clearance (Land Development or Redevelopment)
	Big Bone Creek	McCoys Fork 0.0 to 2.2	BOONE	PS					Nutrient/Eutrophication Biological Indicators	Source Unknown
	Gunpowder Creek	Gunpowder Creek 0.0 to 15.0	BOONE	NS					Sedimentation/ Siltation	Site Clearance (Land Development or Redevelopment)
	Gunpowder Creek	Gunpowder Creek 15.4 to 17.1	BOONE	NS					Nutrient/Eutrophication Biological Indicators, Organic Enrichment (Sewage) Biological Indicators, Sedimentation/ Siltation	Agriculture; Site Clearance (Land Development or Redevelopment); Unspecified Urban Stormwater, Highway/Road/Bridge Runoff (Non-construction Related); Loss of Riparian Habitat; Streambank Modifications/ Destabilization
	Gunpowder Creek	Gunpowder Creek 18.9 to 21.6	BOONE	PS					Cause Unknown	Unspecified Urban Stormwater
	Gunpowder Creek	South Fork Gunpowder Creek 4.1 to 6.8	BOONE		NS				Fecal Coliform	Source Unknown
	Gunpowder Creek	South Fork Gunpowder Creek 0.0 to 2.0	BOONE	NS					Nutrient/ Eutrophication Biological Indicators, Organic Enrichment (Sewage) Biological Indicators, Sedimentation/ Siltation	Agriculture; Package Plant or Other Permitted Small Flows Discharges; Postdevelopment Erosion and
	Ohio River West	Middle Creek 0.4 to 5.6	BOONE	PS					Sedimentation/Siltation, Nutrient/Eutrophication Biological Indicators	Site clearance (land development or redevelopment), Silviculture activities
East Basin	Fourmile Creek	Fourmile Creek 0.2 to 8.5	CAMPBELL	FS	NS				Fecal Coliform	Municipal Point Source Discharges; Sanitary Sewer Overflows (Collection System Failures)
	Fourmile Creek	UT of Owl Creek 0.0 to 0.25	CAMPBELL	NS					Chlorine , Dissolved Oxygen	Package Plant or Other Permitted Small Flows Discharges
	Fourmile Creek	UT of UT of Fourmile Creek 0.0 to 0.5	CAMPBELL	NS					Chlorine	Package Plant or Other Permitted Small Flows Discharges
	Fourmile Creek	UT of UT of UT of Owl Creek 0.0 to 0.1	CAMPBELL	NS					Chlorine	Package Plant or Other Permitted Small Flows Discharges
	Fourmile Creek	Alexandria Park Lake	CAMPBELL					PS	(Methyl-) Mercury in Fish Tissue	Source unknown
	Ohio River East	Tenmile Creek 0.05 to 1.15	CAMPBELL	PS					Nutrient/ Eutrophication Biological Indicators, Sedimentation/ Siltation Siltation	Crop Production (Crop Land or Dry Land); Livestock (Grazing or Feeding Operations); Site Clearance (Land Development or Redevelopment)
	Twelvemile Creek	Brush Creek 0.0 to 2.35	CAMPBELL	FS	NS				Escherichia coli	Non-Point Source

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for Primary Contact Recreation and/or Fish Consumption.

PART C: OVERVIEW OF MONITORING EFFORTS IN THE STORM WATER SERVICE AREA

In-stream Water Quality, Aquatic Life and Habitat Monitoring

SD1 initiated a comprehensive monitoring program in 2006 including collection of in-stream water quality, aquatic habitat, fish, and macroinvertebrate data. The program includes approximately 75 sampling sites throughout sixteen watersheds, as well as 22 sites on the Ohio River. In addition to these sites, SD1 also funds thirteen continuous monitoring stations in cooperation with the United States Geological Survey (USGS) to collect 15-minute stage, flow and water quality measurements. These locations are displayed in Map 3.

The monitoring program is being implemented in a phased approach. The first phase (Watershed Characterization) spanned the period 2006-2011 and allowed for the characterization of watershed conditions during base flow and storm flow events and the establishment of baseline conditions for evaluating improvements from implementation efforts. The results of these efforts are presented in the SD1 Water Quality Report (LTI, 2012), the Summary of Biological and Habitat Survey Results for Northern Kentucky Watersheds: Kenton, Campbell, and Boone Counties (SD1, 2015) and the Watershed Characterization Reports (LTI, 2009).

The results were also used to inform the development of the Stream Condition Index (SCI) (LTI, 2013). The SCI summarizes large amounts of monitoring data into easily understood terms for reporting stream conditions to the non-technical audience and general public.

Subsequent phases of the monitoring program will be focused on sampling to identify pollutant trends and performance monitoring of implemented controls. Monitoring will be conducted on a rotating cycle for the four basins at the established sampling sites.

Hydromodification Monitoring

SD1 began a Hydromodification Monitoring Program in 2008. As part of this program, SD1 has compiled a database including surveys from approximately 60 stream sites throughout the storm water service area (Map 4). From 2008 to 2010, a detailed geomorphic study was conducted at 40 sites, which included annual geomorphic surveys at each location (Hawley *et al*., 2013b). These efforts have led to the development of a regionally-specific stream stability index which has been integrated into the SCI.

These monitoring efforts have also directed the development of regionally-calibrated storm water management approaches to address hydromodification impacts. Continued monitoring efforts are evaluating the effectiveness of these approaches in local pilot projects. This includes the monitoring of three detention basins that have different applications of retrofit techniques.

The results of this monitoring program and the storm water management approaches are summarized in SD1's Regionally-Calibrated Hydromodification Program (Sustainable Streams, 2014).

Wet Weather Outfall Monitoring

SD1 conducted wet weather outfall sampling from 2007 to 2008 at six outfalls throughout the storm water service area (Map 5). Each site was sampled multiple times for ten events. Samples were analyzed for bacteria, nutrients, CBOD5 and TSS.

SD1 also conducted wet weather outfall sampling from 2013 to 2014 at four outfalls. The outfalls drain areas with old residential (two sites), new residential (one site) and commercial/industrial (one site) land use (Map 5). Each site was sampled for bacteria, nutrients, metals, TSS, CBOD5, dissolved oxygen, pH, temperature, conductivity and flow. Visual observations were recorded for each site as well.

If conditions and time allows, three additional sites (one new residential, one old residential and one industrial) will be sampled by June 30, 2015.

Upon completion of the sampling effort, the results will be summarized. The data will be used to help characterize the MS4 in an effort to quantify pollutant loads associated with storm water runoff from these different land uses.

PART D: PERMIT COMPLIANCE MONITORING

Permit Compliance Inventory (PCI) Screening

Currently, SD1 has mapped 3,233 MS4 designated outfalls (not including outfalls owned by the Kentucky Transportation Cabinet) located within the Storm Water Service Area. Minimum Control Measure 3 of SD1's Phase II Storm Water General Permit, requires dry-weather screening of all major outfalls within the permit term. SD1 has identified these major outfalls in the Permit Compliance Inventory (PCI) which currently includes 239 outfalls (Map 6).

The dry-weather screening conducted at each PCI outfall incudes:

- A visual inspection following the procedures outlined in the IDDEP Field Reference Guide
- The collection of on-site water quality measurements and samples, if flow is present.

Any PCI outfalls with suspected illicit activity undergo further investigation (see Illicit Discharge Investigation Monitoring section below).

Each of the PCI outfalls is inspected at least two times within 60 days but during a different time period. If no illicit activity is observed during the follow up inspection, the investigation is considered complete.

All results of the PCI outfall screening are entered into Lucity, a computerized maintenance and management system.

Specific details of the outfall screening approach, standard operating procedures and resources are contained in the Appendix: Illicit Discharge Detection and Elimination Implementation Plan (SD1, 2013).

Illicit Discharge Investigation Monitoring

In addition to the PCI outfall monitoring, SD1 conducts monitoring as part of the illicit discharge investigation phase. Areas with suspected illicit activity identified during PCI outfall monitoring or reported by the public, SD1 field crews or the Northern Kentucky Heath Department, undergo further investigation. The monitoring is dependent upon the potential activity and may include:

- Water quality measurements and samples
- Dyed water testing to identify broken sanitary laterals, grey water lines or failing or modified septic systems discharging to the MS4
- Closed Circuit Television to inspect sanitary and storm sewer lines

The results of the monitoring are used to identify illicit connections. Once the illicit connection is eliminated, SD1 performs a follow up inspection to ensure the connection was properly removed.

All results of the illicit discharge investigation monitoring are entered into Lucity, a computerized maintenance and management system.

Specific details of the outfall monitoring approach, standard operating procedures and resources are contained in the Appendix: Illicit Discharge Detection and Elimination Implementation Plan (SD1, 2015).

PART E: FUTURE MONITORING

The storm water general permit for the third permit cycle is currently under development by KDOW. SD1 will comply with the monitoring requirements of the next general permit, including the dry weather screening and investigation of new major outfalls. However, updates to SD1's Storm Water Management Plan to address revised or new permit requirements may result in the need to modify current monitoring efforts.

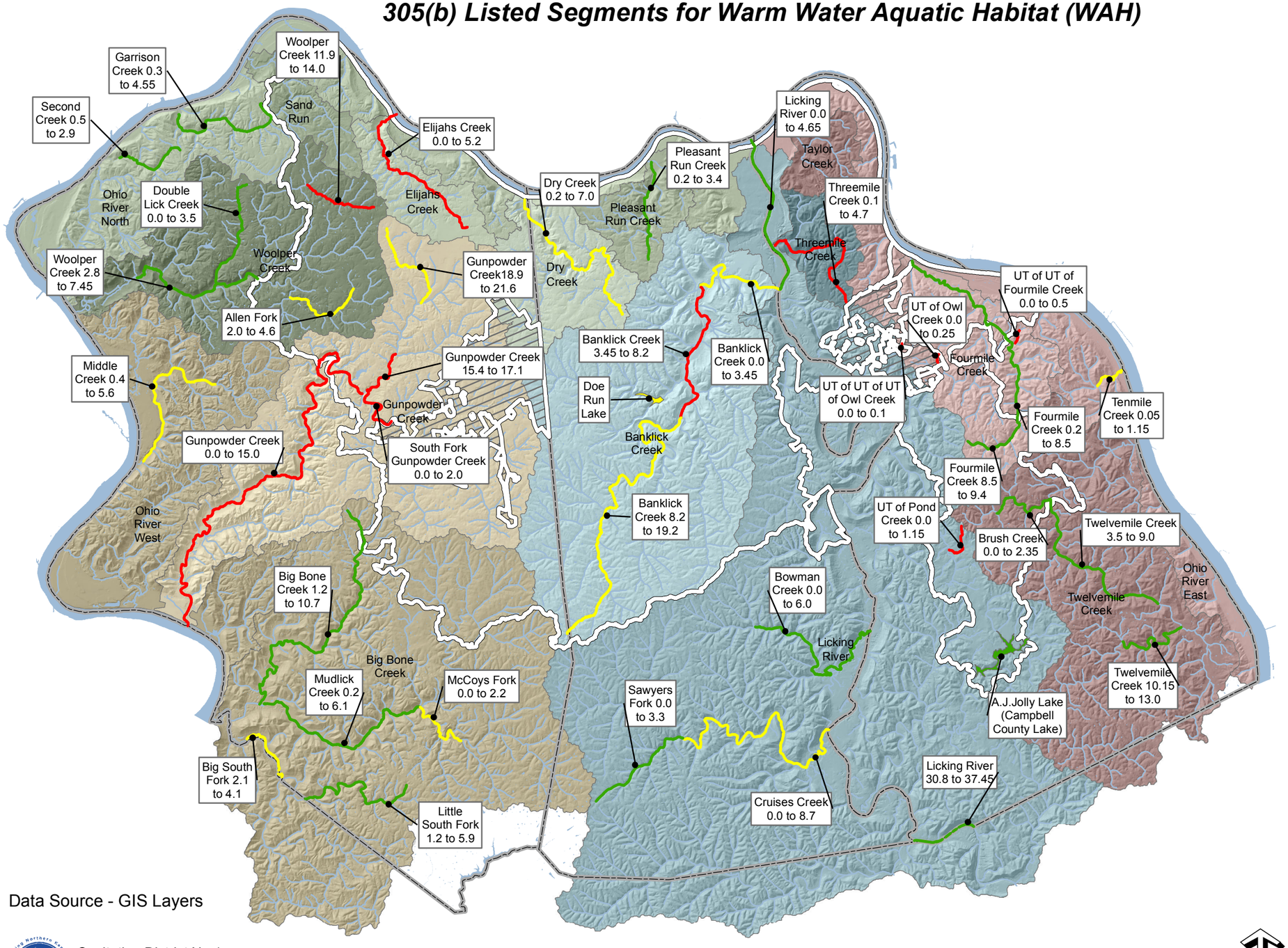
It is important that future monitoring not only provides information about the current conditions of local water resources but also evaluates the effectiveness of the storm water management program.

SD1 will submit any modifications of the current monitoring program to KDOW following the approval of the next Storm Water Management Plan.

MAPS

Northern Kentucky Regional Phase II Program

305(b) Listed Segments for Warm Water Aquatic Habitat (WAH)



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

Legend

Warm Water Aquatic Habitat (WAH)

- Nonsupport (11 segments, 37.35 miles)
- Partial Support (10 segments, 45.75 miles)
- Full Support (17 segments, 78.9 miles)

Warm Water Aquatic Habitat Lakes

- Nonsupport (not assessed)
- Partial Support (1 Lake, 49 acres)
- Full Support (1 Lake, 204 acres)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

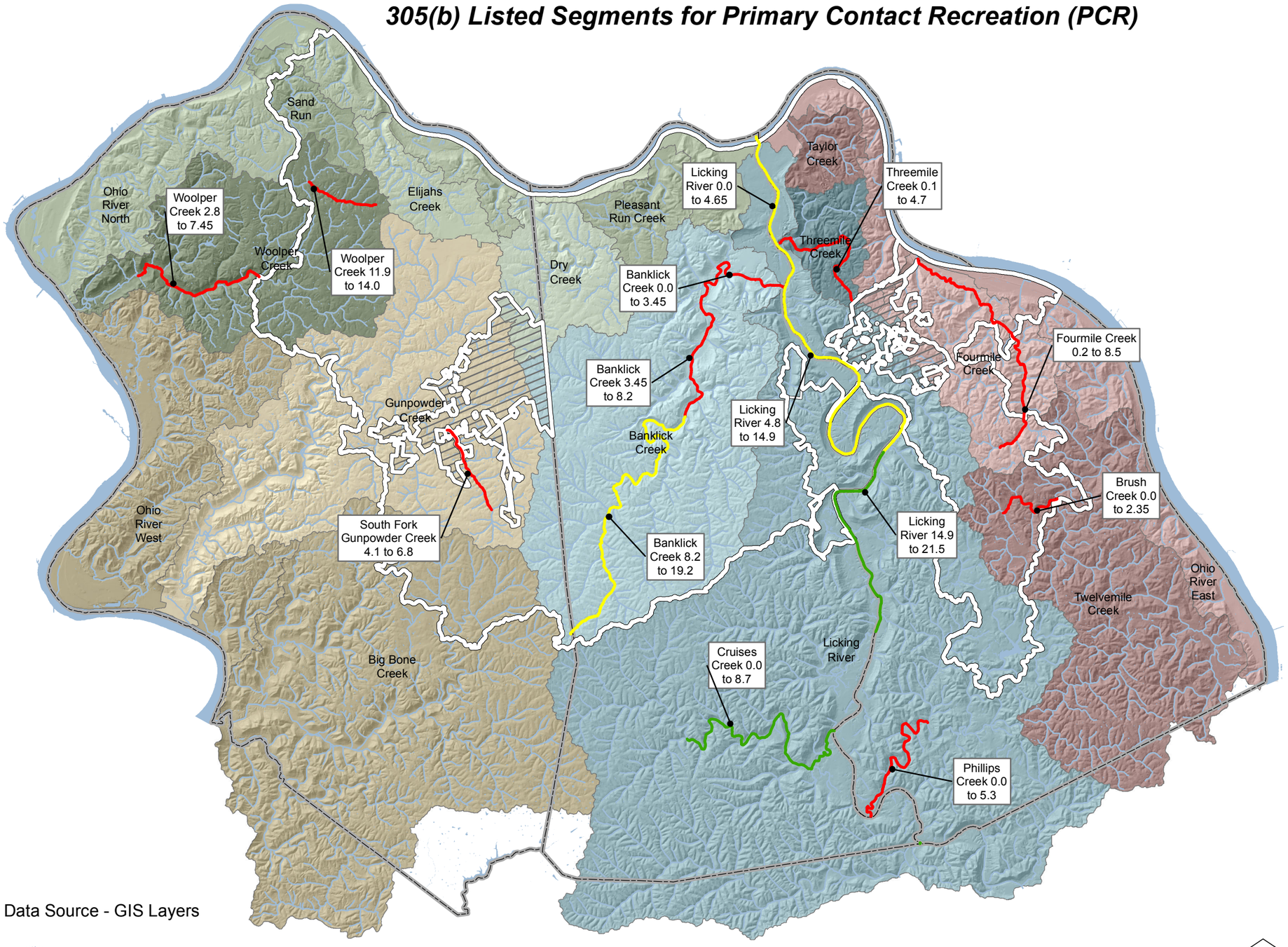
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for primary contact recreation and/or fish consumption.

MAP 2a: 2012 INTEGRATED WATER QUALITY REPORT WARM WATER AQUATIC HABITAT (WAH) LISTED WATERWAYS

Northern Kentucky Regional Phase II Program

305(b) Listed Segments for Primary Contact Recreation (PCR)



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Primary Contact Recreation (PCR)

- Nonsupport (9 segments, 38.2 miles)
- Partial Support (3 segments, 25.75 miles)
- Full Support (2 segment, 15.3 miles)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

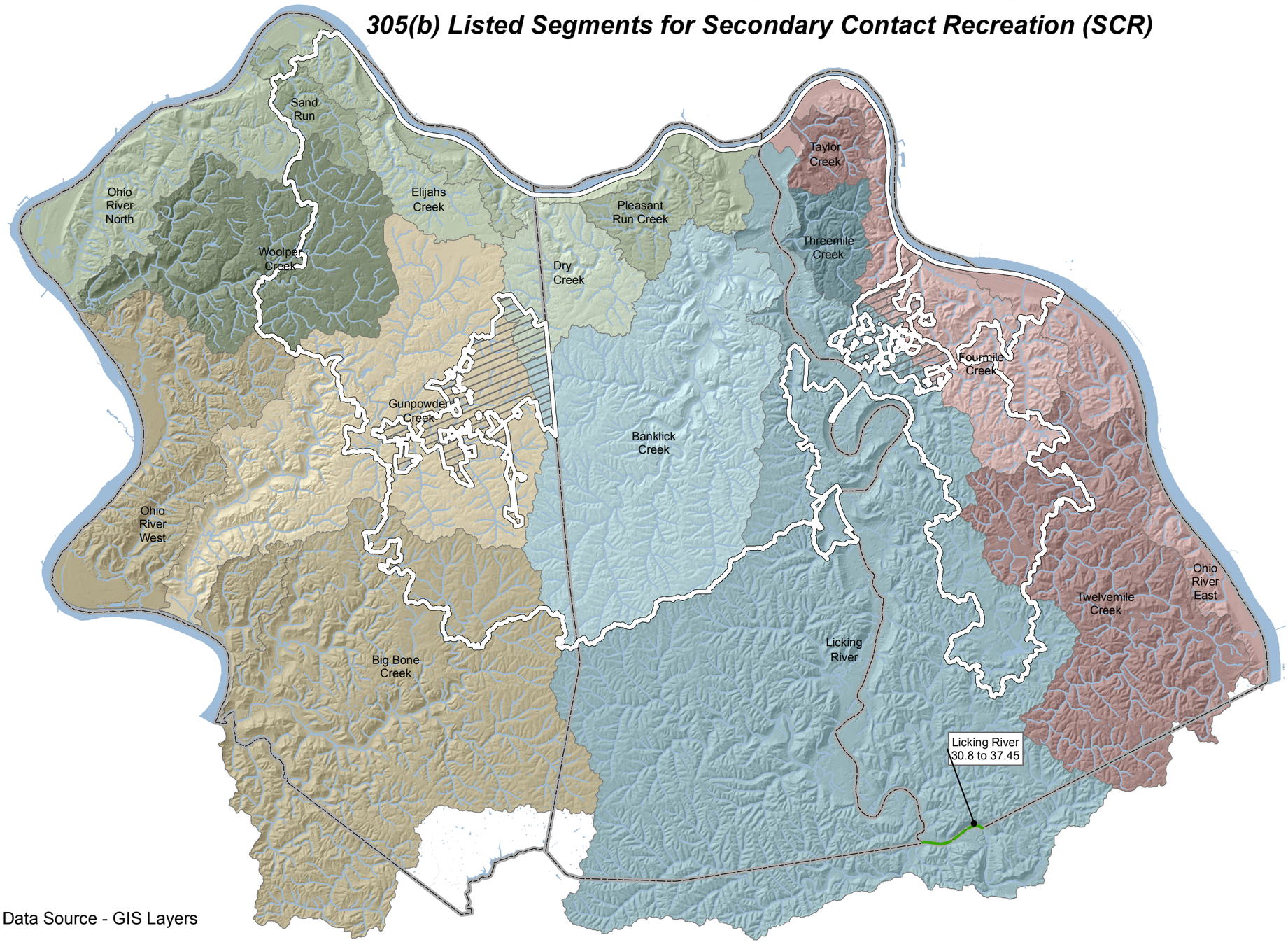
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for primary contact recreation and/or fish consumption.

MAP 2b: 2012 INTEGRATED WATER QUALITY REPORT PRIMARY CONTACT RECREATION (PCR) LISTED WATERWAYS

Northern Kentucky Regional Phase II Program

305(b) Listed Segments for Secondary Contact Recreation (SCR)



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Secondary Contact Recreation (SCR)

- Nonsupport (not assessed)
- Partial Support (not assessed)
- Full Support (1 segment, 6.65 miles)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

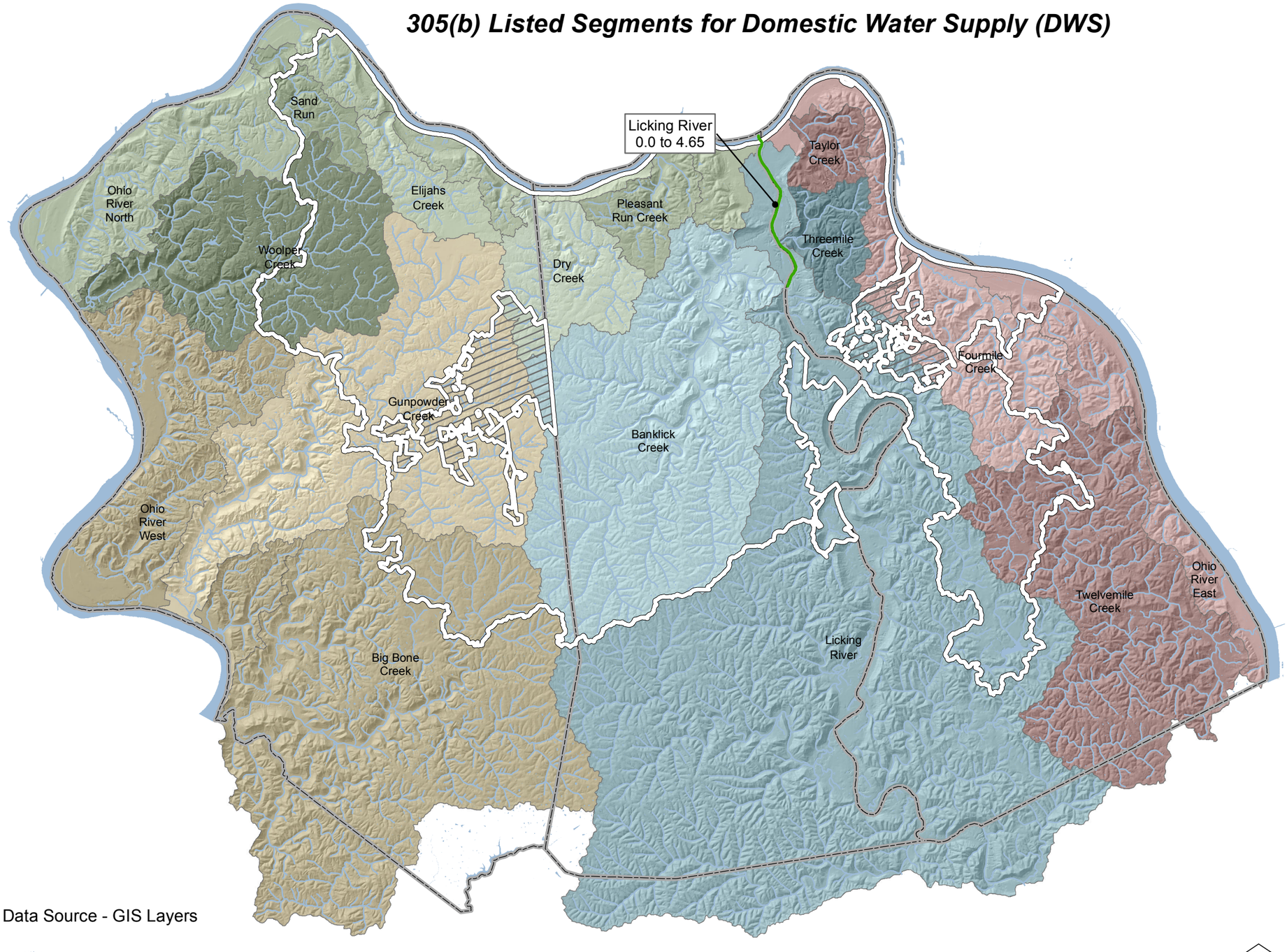
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for primary contact recreation and/or fish consumption.

MAP 2c: 2012 INTEGRATED WATER QUALITY REPORT SECONDARY CONTACT RECREATION (SCR) LISTED WATERWAYS

Northern Kentucky Regional Phase II Program

305(b) Listed Segments for Domestic Water Supply (DWS)



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Domestic Water Supply

- Nonsupport (not assessed)
- Partial Support (not assessed)
- Full Support (1 segment, 4.65 miles)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

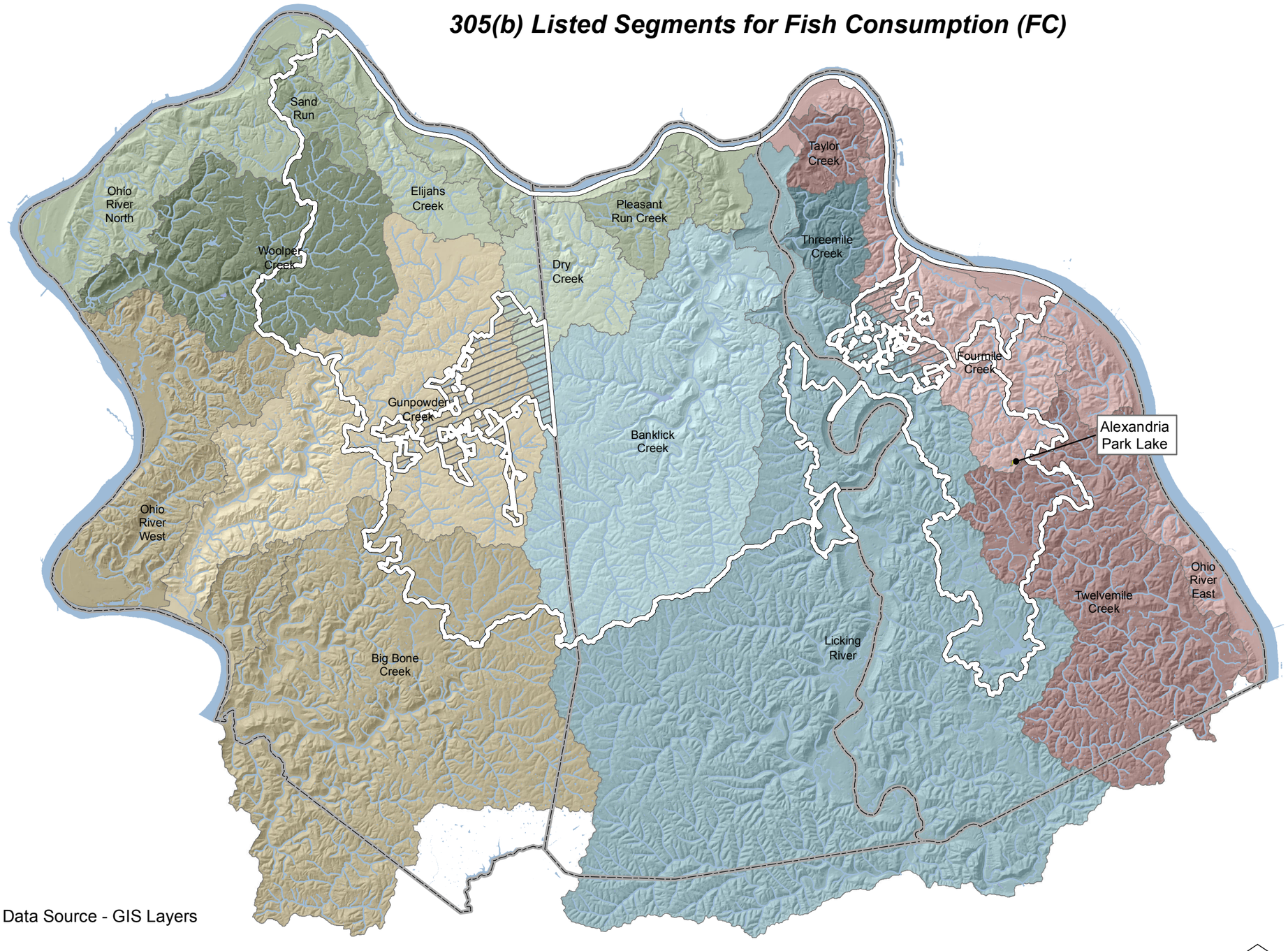
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for primary contact recreation and/or fish consumption.

MAP 2d: 2012 INTEGRATED WATER QUALITY REPORT DOMESTIC WATER SUPPLY (DWS) LISTED WATERWAYS

Northern Kentucky Regional Phase II Program

305(b) Listed Segments for Fish Consumption (FC)



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Fish Consumption (FC) Lakes

- Nonsupport (not assessed)
- Partial Support (1 Lake, 6.1 acres)
- Full Support (not assessed)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

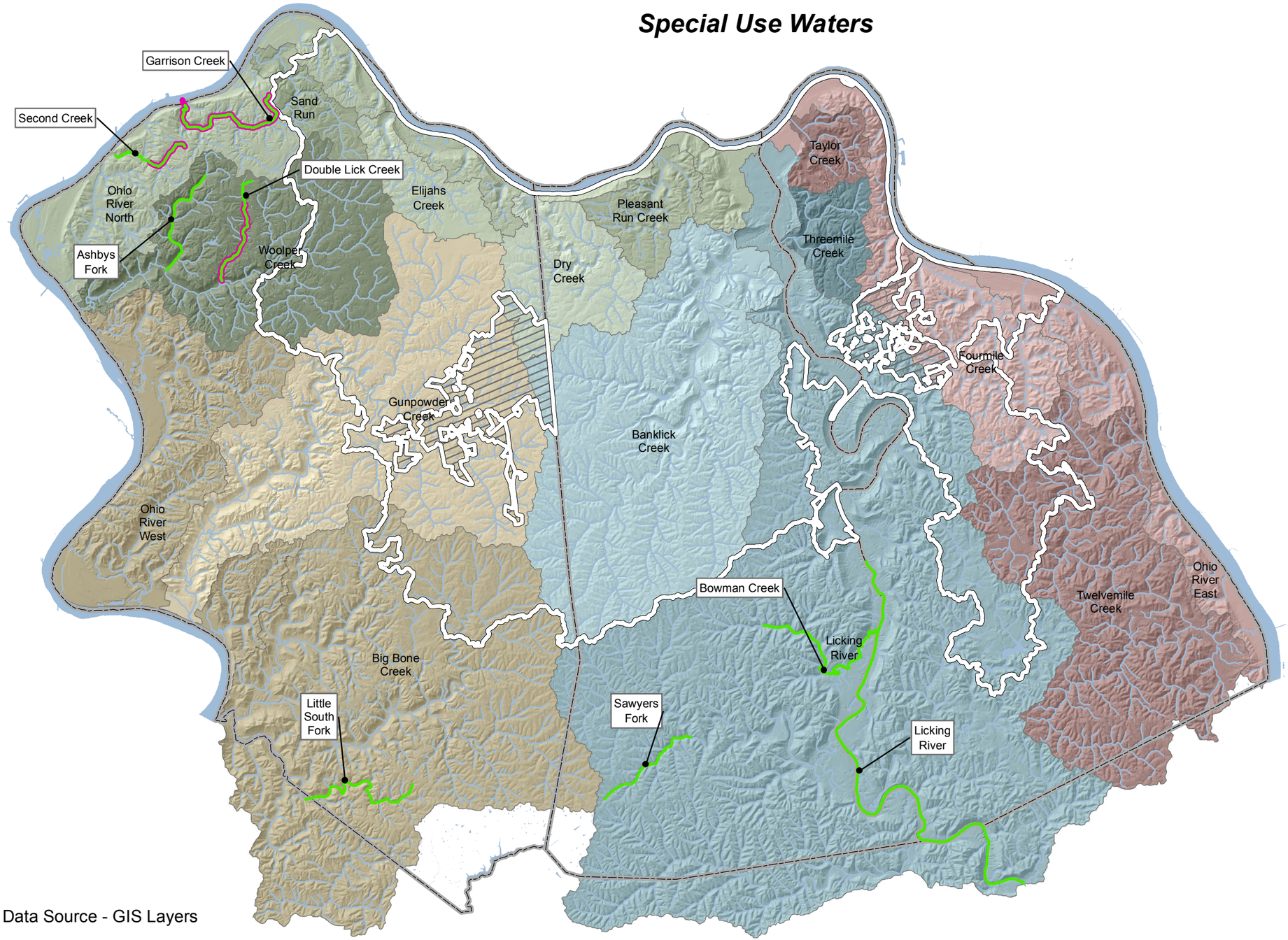
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: All segments of the Ohio River along Campbell, Kenton and Boone County borders (milepoint 464.5 - 593.4) are listed as impaired for primary contact recreation and/or fish consumption.

MAP 2e: 2012 INTEGRATED WATER QUALITY REPORT FISH CONSUMPTION (FC) LISTED WATERWAYS

Northern Kentucky Regional Phase II Program

Special Use Waters



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Special Use Waters

- Outstanding State Resource Water (8 segments, 44.8 miles)
- Reference Reach and Exceptional Water (3 segments, 10.85 miles)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

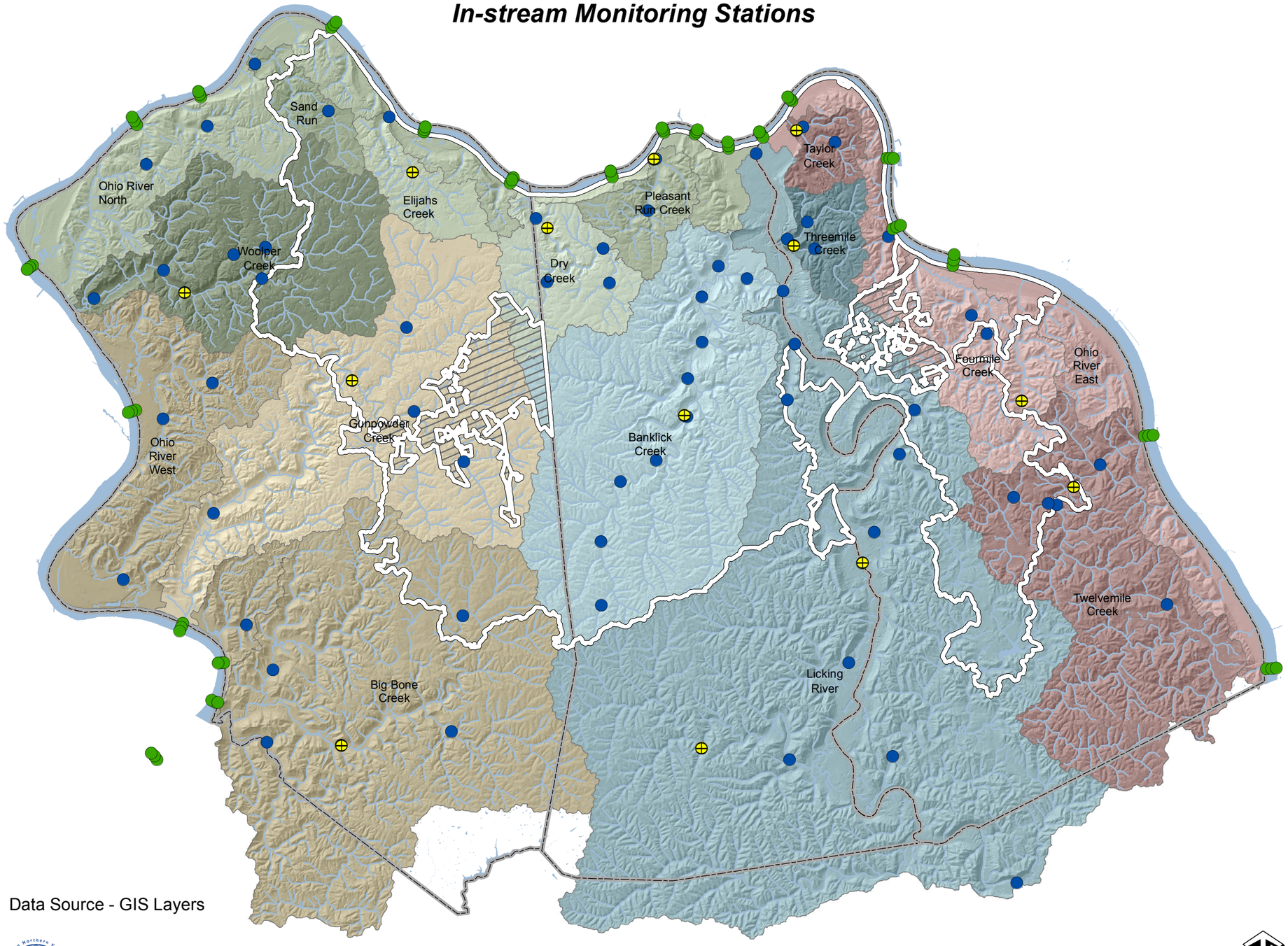
- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: Currently, there are no segments listed as Cold Water Aquatic Habitat, Outstanding National Resource Waters, State Wild Rivers or Federal Wild and Scenic Rivers within the watersheds displayed on the map.

MAP 2f: 2012 SPECIAL USE WATERWAYS

Northern Kentucky Regional Phase II Program

In-stream Monitoring Stations



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

- USGS Monitoring Stations
- SD1 Monitoring Stations (Ohio River)
- SD1 Monitoring Stations

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

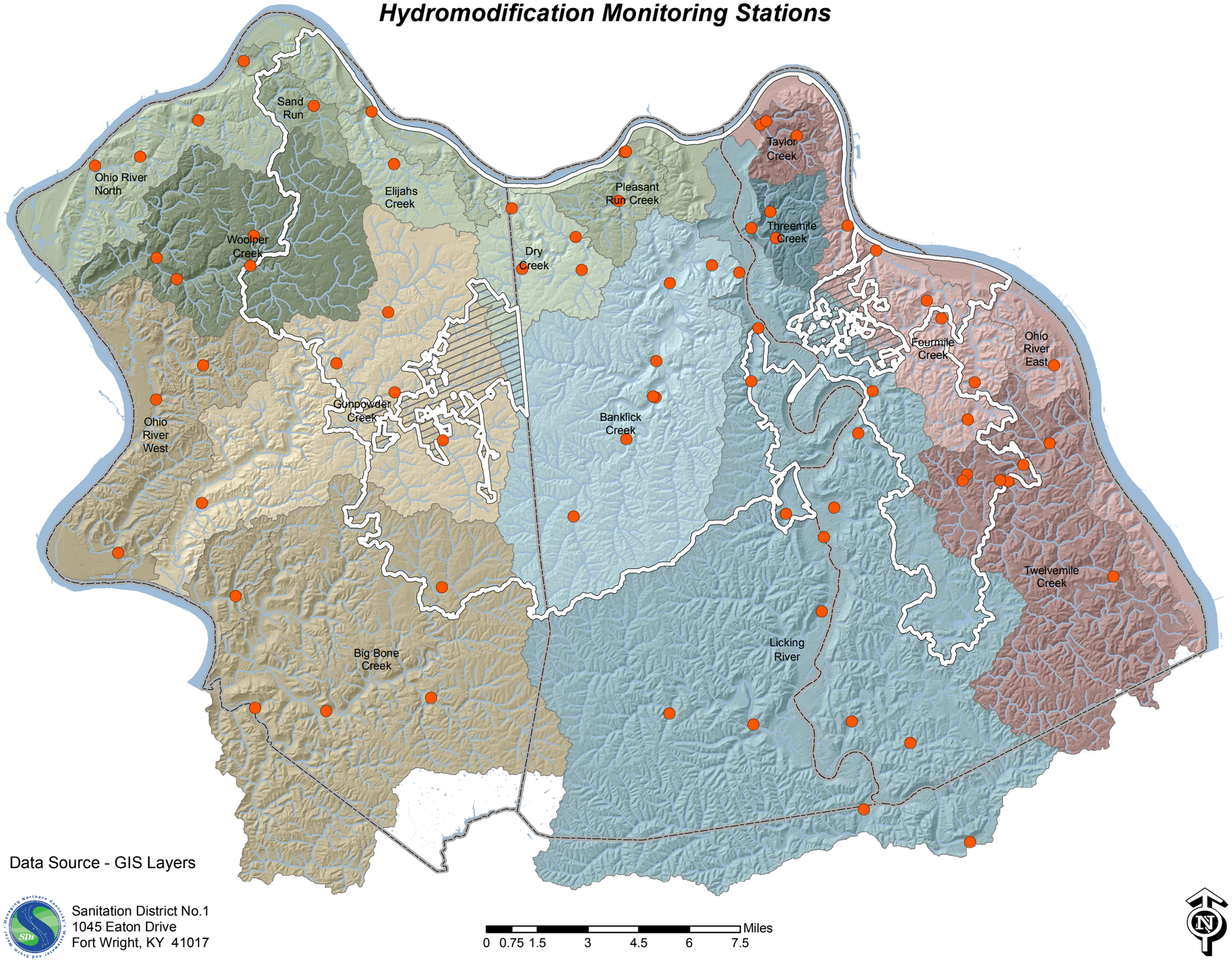
East Basin

- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

MAP 3: IN-STREAM MONITORING LOCATIONS

Northern Kentucky Regional Phase II Program

Hydromodification Monitoring Stations



Legend

- Hydromod Monitoring Stations

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

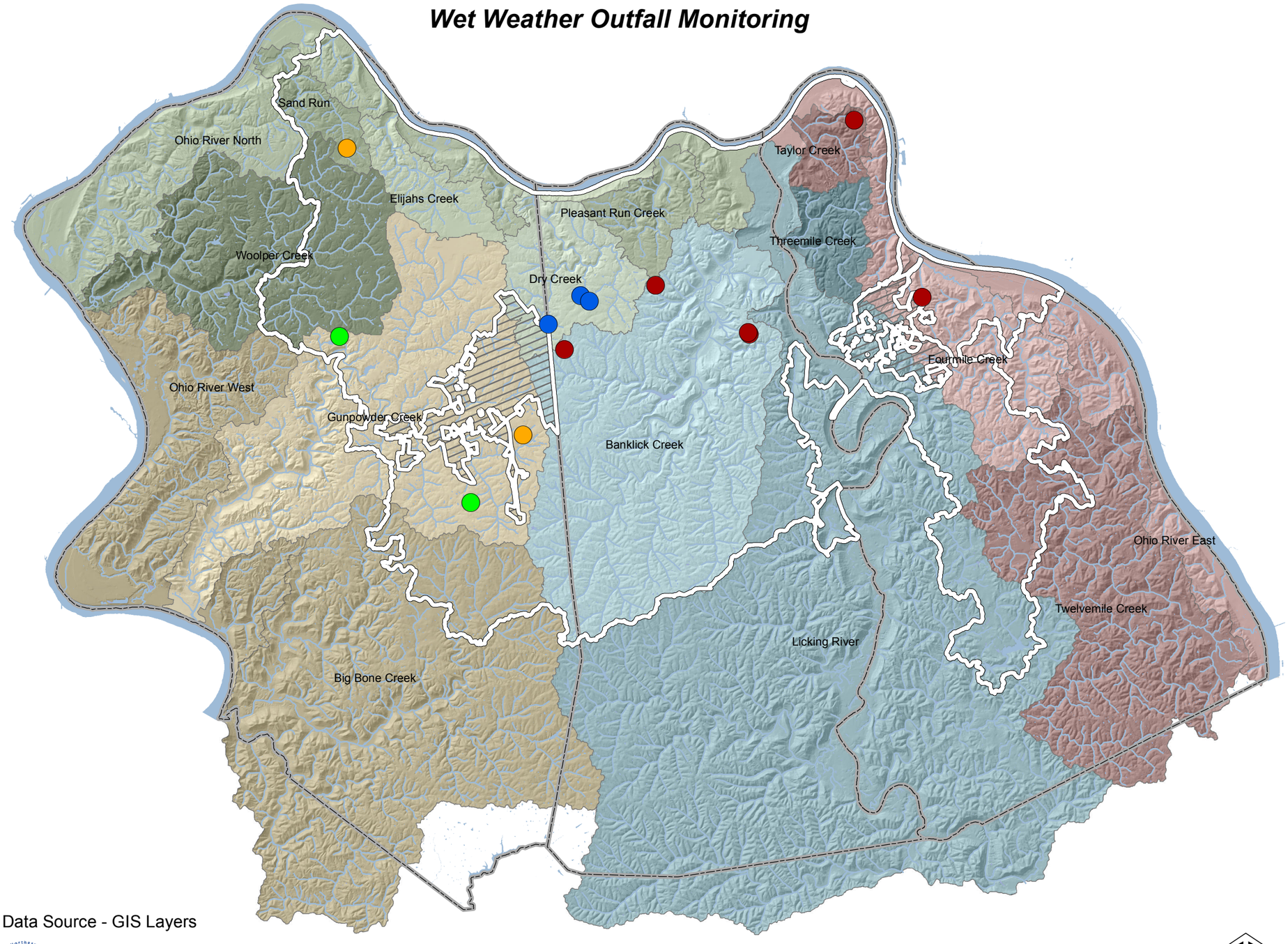
East Basin

- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

MAP 4: HYDROMODIFICATION MONITORING LOCATIONS

Northern Kentucky Regional Phase II Program

Wet Weather Outfall Monitoring



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

Wet Weather Outfall Sampling Points (2007-2008)

- Storm Water (6 sites)

Wet Weather Outfall Sampling Points (2013 -2015)

- Commercial Industrial (2 sites)
- New Residential (2 sites)
- Old Residential (3 sites)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

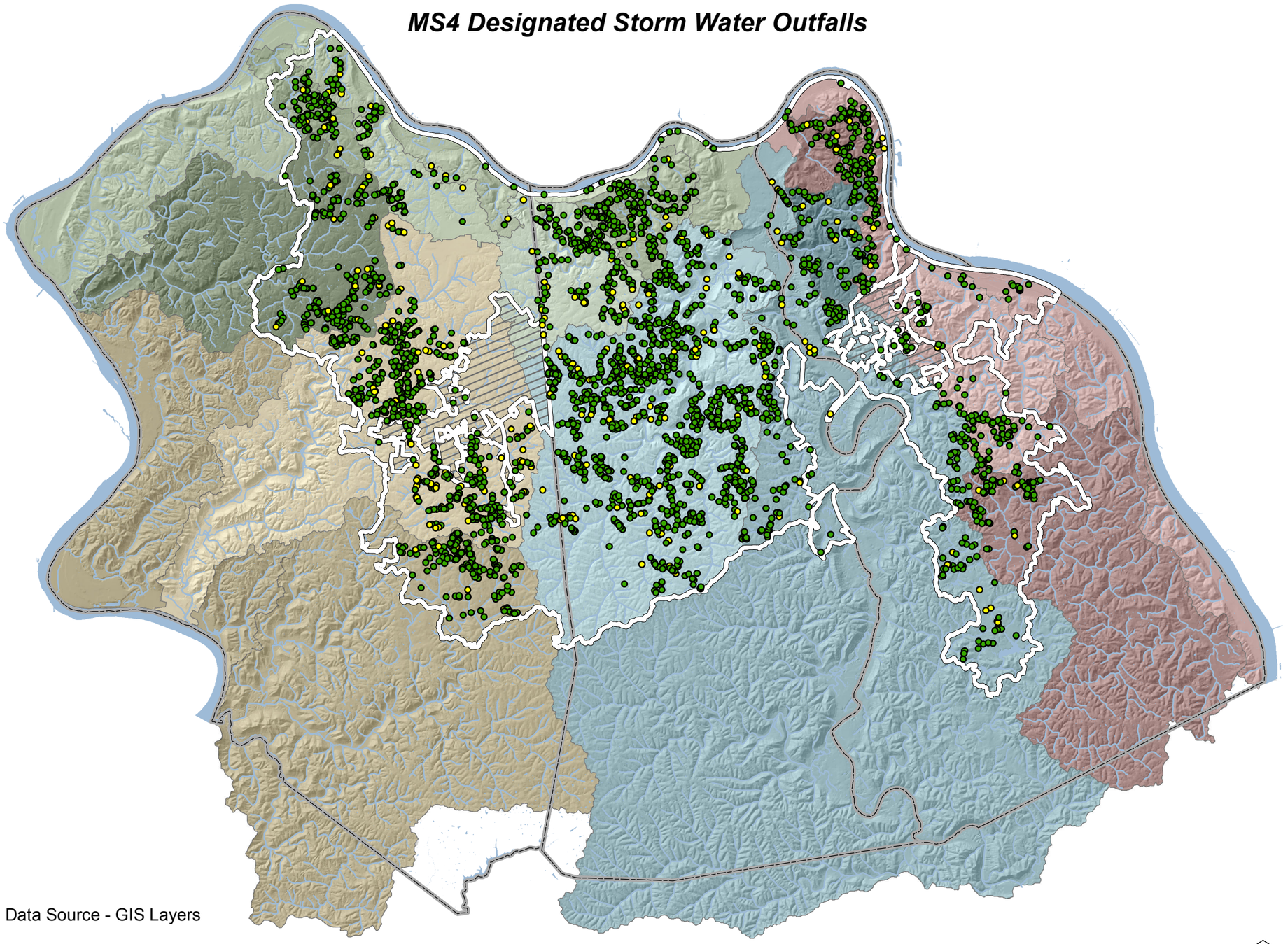
East Basin

- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

MAP 5: WET WEATHER OUTFALL MONITORING LOCATIONS

Northern Kentucky Regional Phase II Program

MS4 Designated Storm Water Outfalls



Data Source - GIS Layers

Sanitation District No.1
1045 Eaton Drive
Fort Wright, KY 41017

0 0.75 1.5 3 4.5 6 7.5 Miles

Legend

MS4 Designated Outfalls

- Major Outfalls (239)
- Minor Outfalls (2,994)

Storm Service Boundary

- SD1 SW Service Area
- Outside SD1 SW Service Area
- County Boundary
- Waterbodies

Watersheds

North Basin

- Dry Creek
- Elijahs Creek
- Ohio River North
- Pleasant Run Creek
- Sand Run
- Woolper Creek

Central Basin

- Banklick Creek
- Licking River
- Threemile Creek

West Basin

- Big Bone Creek
- Gunpowder Creek
- Ohio River West

East Basin

- Fourmile Creek
- Ohio River East
- Twelvemile Creek
- Taylor Creek

Note: The MS4 designated outfalls are open system and closed system outfalls (approximately 3,233) that discharge to "blue-line" streams. The MS4 designated outfalls do not include any KYTC, Cold Spring, Florence, or privately owned outfalls.

MAP 6: MS4 DESIGNATED STORM WATER OUTFALLS

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APPENDIX

Illicit Discharge Detection and Elimination Implementation Plan

ILLICIT DISCHARGE DETECTION AND ELIMINATION IMPLEMENTATION PLAN

July 2018

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Document History

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SECTION 1. OVERVIEW

1.1 Introduction

In 1999, Congress enacted regulations (Phase II) to expand the existing National Pollutant Discharge Elimination System (NPDES) storm water program (Phase I) to address storm water discharges from small municipal separate storm sewer systems (MS4s) (those serving less than 100,000 persons) and construction sites that disturb one to five acres. One element of the regulation was Minimum Control Measure 3 (MCM 3) – Illicit Discharge Detection and Elimination, which required permittees to develop a strategy to detect and eliminate illicit discharges into the public storm sewer system.

An illicit discharge has been defined by U.S. EPA as "any discharge into a separate storm sewer system that is not composed entirely of storm water." Typically, illicit discharges enter a storm sewer either through direct connection, such as sanitary sewer piping, or indirectly through cracked sanitary sewer conveyance systems, spills collected by storm drains or from contaminants dumped directly into a storm drain inlet. Pollutants associated with illicit discharges include heavy metals, toxics, oil and grease, solvents, nutrients and pathogens. These untreated discharges have the potential to cause significant degradation to receiving water bodies.

The first general Phase II storm water permit for Kentucky required the development of an Illicit Discharge and Elimination Plan (IDDEP). Sanitation District No.1 (SD1) developed and submitted the IDDEP to the Kentucky Division of Water (KDOW) in December 2005 (Attachment 1-1). On March 19, 2007 the IDDEP received approval and SD1 began implementing a screening level program to evaluate illicit discharges.

This document is an extension of the approved IDDEP and details SD1's plan for identifying and eliminating illicit discharges within SD1's storm water service area as defined by KDOW. A current map of the area covered by this program is provided in Attachment 1-2. These procedures associated with this program are meant to satisfy SD1's Phase II Kentucky Pollutant Discharge Elimination System (KPDES) Permit (Permit No. KYG200007), as well as provide guidance and information for the effective and efficient implementation of the IDDEP.

1.2 Background

The community leadership within Northern Kentucky determined that the most cost effective and efficient approach for addressing local storm water management issues including compliance with the federal Phase II storm water requirements was to develop and implement a regional approach under the guidance of a single entity – SD1. As an existing wastewater management agency that serves the three county area, SD1 agreed to assist these communities by serving as a regional storm water management agency. This approach was formalized through the development and adoption of the Interlocal Agreement to Provide KPDES Storm Water Discharge Permit Services and Other

Storm Water Related Services in Boone, Campbell and Kenton Counties, Kentucky ("Agreement").

This agreement established the foundation for SD1 to develop and submit the 1st permit cycles' Storm Water Management Plan (SWMP) for 36 co-permittees, covering approximately 230 square miles in Northern Kentucky. As provided in the Agreement and detailed in the SWMP, SD1 assumed primary responsibility for development and implementation of the region's storm water management program, except for the City of Florence which has an independent Phase II permit and is not included in the regional program. While the Agreements established SD1's role in administration of storm water Phase II programs, it should be noted that ownership and maintenance of the municipal separate storm sewer systems (MS4s) resided with each separate co-permittee during the 1st permit cycle while the legal and financial issues surrounding the transfer of community storm water assets were resolved.

At the onset of the 2nd permit cycle, SD1 developed and submitted an updated SWMP on behalf of 33 co-permittees, covering approximately 223 square miles. Changes in co-permittees and the service area resulted as follows:

- The city of Latonia Lakes ceased to be a city and the area is now covered as part of unincorporated Kenton County
- KDOW excluded the Cities of Fairview and Ryland Heights from the Phase II program
- KDOW issued the Kentucky Transportation Cabinet a separate Phase II permit
- As of October 1, 2013, the City of Cold Spring ceased participation in the NKY Regional Storm Water Management Program and began developing its own storm water management program under a separate Phase II permit issued by KDOW

During the 3rd permit cycle, on July 1, 2018, SD1 updated the storm water service area boundary based on KDOW approved modifications. Currently, 32 co-permittees have transferred ownership and maintenance responsibilities for a portion of their MS4's to SD1, covering approximately 183 square miles.

1.3 Legal Authority Update

On May 24, 2006, SD1 Board of Directors approved updates to the Northern Kentucky Regional Storm Water Management Program Rules and Regulations (Rules and Regulations) which added a new section titled Illicit Discharges and Connections (renumbered Section 900). The purpose of this section is to provide for public health, safety and welfare of the community served by SD1 by preventing the introduction of potentially harmful materials into the storm drainage system, receiving waterways and other waters of the Commonwealth, thus achieving compliance with the requirements of the KPDES Phase II permit.

The objectives of Section 900 are as follows:

- To prohibit non-storm water discharges to the storm drainage system and require the removal of illicit connections thereto;
- To prevent improper disposal of chemicals and other materials into the storm drainage system that degrade water quality;
- To establish inspection, sampling, and monitoring provisions to detect pollutants such as those associated with illicit discharges, improper disposal, and activities on industrial, commercial, residential, and construction sites; and
- To provide the necessary enforcement mechanisms pertaining specifically to illicit discharges, spills, and dumping into the storm drainage system.

During the last quarter of 2010, the Rules and Regulations were updated to address new permit requirements associated with MCM 3 as follows:

- Dumping

In August 2011 the Rules and Regulation were updated as follows:

- Section 1207 Watercourse Protection was change to ensure owners and lessees shall not interfere with the flow or any watercourse in the way that could affect SD1's infrastructure or operations.

SECTION 2. IMPLEMENTATION PLAN

2.1 Phased Approach

The Implementation Plan details SD1's approach to meeting requirements of Minimum Control Measure 3 (MCM 3) of the KDOW phase II permit. The plan describes specific procedures aimed at improving and maintaining water quality in the storm water service area. The plan is primarily comprised of the following that are each necessary for the success of the program:

- Phase 1: Detection – Locate areas with illicit discharges
- Phase 2: Investigation – Find illicit discharge sources
- Phase 3: Elimination – Remove/correct illicit connections

2.2 Detection

Due to the large storm water service area (183 square miles), it is important to establish areas with a high illicit discharge potential SD1 relies on several different procedures to detect the presence of illicit discharges. These techniques are instrumental in not only detecting single illicit discharges, but larger areas that may have multiple illicit discharges. These areas will be prioritized based on potential effects on water quality and schedules coordinated with ongoing sanitary sewer investigations.

2.2.1 Priority areas

Permit compliance inventory

The Permit Compliance Inventory (PCI) for the second permit cycle, was comprised of the major outfalls (open and closed systems) within the storm water collection system that need to be inspected during the 5 year permit cycle.

EPA defines an outfall as "a point source at the point where a municipal separate storm sewer discharges to waters of the United States." SD1 has made a determination of such outfalls according to a process developed during the storm water inventory. For purposes of outfall determination, the United States Geological Survey's (USGS) blue-line streams served as a demarcation for outfall identification. Using this definition, SD1 has identified the outfalls within the storm water service area. Refer to Standard Operating Procedures for Storm Water Outfall Determination Process (Attachment 2-1) for more details on this process.

The Phase II Permit defines a major closed conveyance system as "a system with a cross-sectional area equal to or greater than 7.07 square feet (e.g., a single circular pipe system, with an inside diameter of 36 inches or greater)". This definition was used to further narrow the number of outfalls to be the total major outfalls. Using this method SD1 inspected the major outfalls during the second permit cycle. The methodology behind this determination was the thought that these locations are where the public system meets the waters of the Commonwealth, and the larger diameter indicates a larger upstream drainage area with a

higher potential for illicit discharges.

Since the dry weather screening of existing major outfalls was completed during the previous permit cycle, SD1 has developed an alternative approach for the third permit cycle, which is based on Illicit Discharge Screening Factor (IDSF) criteria. This approach uses available data to determine the potential severity of illicit discharges within the storm water service area. Storm water subbasins were ranked according to a score relating to three screening factors (density of generating sites, density of outfalls and critical sewer infrastructure) and then grouped into low, medium and high priorities according to their score from the model. MS4 storm water structures within the high priority subbasins will be incorporated into the dry weather screening program during the 3rd permit cycle. A more detailed summary of this IDSF approach will be submitted with the 2018 Storm Water Quality Management Plan.

Dry Weather Screening

Dry weather screening will allow SD1 to identify areas where flow is present in the absence of wet weather flows, indicating the possible presence of an illicit discharge. In order to conduct this screening, SD1 will define dry weather as 48 hours or more after a precipitation event or snow melt. A precipitation event will be classified as >0.1" accumulation.

Public Complaints

Ongoing customer complaint notification (24-hour dispatch line, customer service email, etc.) regarding potential illicit activities, including suspicious discharges, are logged into SD1's computerized asset maintenance and management system (Lucity). Complaints regarding potential illicit connections will be considered a high priority and inspected as soon as possible. Typically, SD1 is notified when signs of contamination have already been detected in the storm water collection system. These types of inspections normally go directly to the investigation phase of the program.

To report emergency storm water quality issues, SD1 will continue to utilize the 24- hour dispatch number (859-578-7450, option 1). For emergencies, SD1 trouble-call staff will be dispatched promptly to investigate the storm water quality issue and determine appropriate next steps to remediate the problem.

Suspect Illicit Activity Locations

As part of the inventory effort, field crews were instructed to document locations with suspected illicit discharge activity, including evidence of sewage, turbidity, and surface characterization (i.e. oil sheen, soap suds or surface scum), that were encountered in the field. As a result of that process 1,249 structures were documented as suspected illicit locations in Lucity using these criteria.

These locations have been inspected using the techniques described in the investigation section of this document. In summary, 48 illicit discharges have been detected and eliminated, 3 locations were turned over to the Northern Kentucky

Independent Health Department for contamination discharging onto the ground surfaces which were not entering the MS4, and 2 discharges were turned over to KDOW for

an unpermitted discharge to Waters of the Commonwealth.

Health Department Project Areas

SD1 and the Northern Kentucky Independent District Health Department joined efforts to identify areas with septic system that are impacting water quality. Ultimately, nine areas were identified with un-repairable septic systems which were located in areas without public sanitary service. The septic systems are failing due to topography, insufficient soil conditions, or an area deficiency for leach lines. SD1 is continuing to work with the Health Department, co-permittees and local watershed groups to address these areas.

2.2.2 Outfall Screening Criteria

The objective of dry weather outfall screening is to allow SD1 to identify areas where flow is present in the absence of wet weather flows, indicating the possible presence of an illicit discharge. In order to conduct outfall screening, SD1 will define dry weather as 48 hours or more after a precipitation event or snow melt. A precipitation event will be classified as >0.1" accumulation. Precipitation data will be utilized from SD1's continuous monitoring network consisting of United States Geological Survey (USGS) monitoring stations in Northern Kentucky. All stations are solar powered and equipped with a data collection platform that sends the data via satellite transmission to a web server. The data can then be accessed real-time using the Internet. The precipitation data will be compared to Cincinnati/NKY airport as a check. The dry weather criteria will serve as the minimum requirements for initiating sampling; however, local conditions may require these criteria to be modified as the program progresses. In all cases, best professional judgment will be utilized to assess the suitability of a particular dry weather screening event.

If the outfall does not show any illicit activity during the first visit, the outfall will be scheduled for a follow-up inspection. Attempts will be made to perform the follow-up inspection within 60 days of the original inspection, but during a different time period (i.e., original inspection conducted during the morning, then the follow-up inspection will be conducted in the afternoon). If no illicit activity is observed during the follow-up inspection, the outfall will be determined to likely have no illicit activity upstream and the investigation will be considered complete. Due to the subjectivity of an inspection, SD1 has developed an IDDEP Field Reference Guide (Attachment 2-2) to help maintain data consistency and accuracy.

2.2.3 Site Observations

SD1 will conduct a visual inspection on all priority outfalls and customer complaint locations. Physical indicators can identify obvious discharges with very high turbidity and strong odors or colors. There are seven indicators that can predict an illicit discharge:

- Presence of Flow
- Odor
- Color
- Turbidity
- Floatables

- Stains/Deposits
- Vegetation

Due to the subjectivity of an inspection, SD1 has developed an IDDEP Field Reference Guide to maintain data consistency and accuracy.

It is necessary to record all the information generated during an inspection. SD1 utilizes Lucity to store the data from inspections. Additional detail regarding this computerized asset maintenance and management system is included in Section 3.

2.2.4 On-Site Water Quality Measurements

All sites will be subject to on-site measurements during sampling events. On-site measurements will include temperature, dissolved oxygen (DO), pH, and conductivity. On-site water quality instrumentation will be calibrated and maintained in accordance with Standard Operating Procedures Hydrolab Quanta Water Quality Monitoring System (Attachment 2-3).

In-stream temperature, DO, pH, and conductivity will be measured using appropriate field instruments concurrent with sample collection at each of the sampling locations.

2.2.5 Sample Collection, Handling and Transportation

Refer to *Standard Operating Procedures for the Collection of Discrete Water Samples* (Attachment 2-4) for detailed procedures. General guidelines for sample collection are as follows:

- All samples collected in intermediate sampling containers should be transferred to their appropriate laboratory sample bottle as quickly as possible.
- Sampling location codes will be used to distinguish each distinct sampling location.
- Sample labels and chains of custody must be filled out completely.

The following procedures will be followed when handling and transporting samples:

- Samples will be preserved using ice and transported in sample coolers. It should be ensured that plenty of ice is used for each sample cooler to maintain the temperatures inside the cooler at approximately $4^{o}C$.
- Laboratory chain-of-custody forms will be included with all sample submissions. Field crews will keep copies.
- Sample bottles and coolers should be handled with care to prevent breakage/spillage.
- All sample bottle labels must be properly completed and placed firmly on each bottle by the field crews.

2.2.6 Sample Labeling

All samples will be assigned a unique identification code such that all necessary information can be attained from the sample label. In addition to the label, the sample bottles will be clearly marked using waterproof ink with the following information:

- Client – SD1
- Location – Structure number
- Date – Date sample collected
- Time – Time sample collected
- Analyses – List of requested analyses to be formed from the container
- Samplers Initials – Crew identification

2.2.7 Chain of Custody

Field crews will complete chain-of-custody forms (Attachment 2-5) to document the transfer of sample custody to the designated custodian and subsequent personnel. Signatures of all personnel involved in the collection, transport, and receipt of each sample will be recorded on the chain-of-custody forms.

Use of the chain-of-custody form will terminate when laboratory personnel receive the samples and sign the form. The laboratory will open the sample coolers and carefully check the contents for evidence of leakage and to verify that samples were kept on ice. The laboratory will then verify that all information on the sample container label is correct and consistent with the chain-of-custody form. Any discrepancy between the sample bottle and the chain-of-custody form, any leaking sample containers, or any other abnormal situation will be reported to the Laboratory Manager. The Laboratory Manager will inform the Project Manager of any such problem, and corrective actions will be discussed and implemented.

2.2.8 Quality Assurance/Quality Control Program

The purpose of any quality assurance/quality control (QA/QC) program is to ensure that all sampling protocols and procedures are followed such that samples are representative of the water quality to which they are associated. The program is designed to be a systematic process, which together with the laboratory QA/QC program ensures a high degree of confidence in the data collection. The QA/QC program includes the following elements:

- Training of all field staff;
- Field quality control procedures;
- Equipment cleaning protocol;
- QA/QC samples; and,
- Equipment calibration.

2.3 Investigation

Based on the results of the inspections (outfall, complaint, etc.) performed in the detection phase, the investigation phase will attempt to identify the specific sources of illicit discharges. It may be necessary to conduct physical inspection of commercial, industrial and or residential properties to verify the exact source of the illicit discharge. If the source of an illicit connection/discharge cannot be located through physical observations, SD1 will perform sewer investigations that involve techniques such as closed circuit television and smoke and dyed water testing. These techniques will be used to isolate the exact connection of the discharge.

2.3.1 Dyed Water Testing

The purpose of dyed water testing is to identify specific sources of illicit discharges into the storm sewer system. SD1 has developed a Smoke and Dye Testing SOP (Attachment 2-6). Dye testing consists of applying dye to a sewer line and tracing its movement as it flows through the sewer system. Dye testing is used primarily to verify the following situations:

- Broken private sanitary lateral resulting in a direct or indirect illicit discharge.
- Broken private sanitary laterals discharging onto the ground.
- Grey water lines
- Failing or modified septic systems

2.3.2 Closed Circuit Television

Closed Circuit Television Video (CCTV) systems are utilized primarily for the inspection of sewer (sanitary or storm water) collection systems. SD1 has developed a Closed Circuit Television (CCTV) Inspections SOP (Attachment 2-7). This system gives the operator a versatile tool for viewing and recording sewer line inspections. CCTV can be configured to provide the information and equipment to:

- Inspect the interior of pipe mains.
- Inspect the interior of property service laterals.
- Record video observations during inspections.
- Record audio (voice) observations during inspections.
- Display footage, date, and time information on the monitor and video.

2.4 Elimination

The third phase of the plan involves the removal/correction of illicit connections. An Enforcement Response Plan (ERP) (Attachment 2-8) has been developed to ensure that violations of the Northern Kentucky Regional Storm Water Management Program Rules and Regulations are remedied promptly and consistently. The ERP addresses the following:

- Personnel designated to respond to instances of noncompliance
- Enforcement Response Guide (ERG) and usage
- Enforcement options
- Fine schedule
- Request for reconsideration
- Emergency procedures

2.4.1 Post Correction Inspections

Once notified that the illicit connection has been removed, SD1 will perform and inspection and follow-up with the owner to ensure the illicit connection/discharge was properly eliminated. Typically, a dyed water test or CCTV inspection will be conducted to ensure elimination of the illicit discharge. However, an inspection of the plumbing may also be acceptable.

SECTION 3. DOCUMENTATION

3.1 Lucity

SD1 utilizes Lucity as a computerized asset maintenance and management system. The Storm Water Phase II report submitted annually to KDOW by SD1 will be generated from Lucity to summarize the year's activities. The following SOPs have been developed to ensure an accurate and consistent method of entering data into Lucity:

- Creating Structure Identification Numbers in Lucity (Attachment 3-1)
- Entering Dye Test Information into Lucity (Attachment 3-2)
- Attaching Documents in Lucity (Attachment 3-3)
- Lucity Sampling Module (Attachment 3-4)

3.1.1 Storm Water Inventory

This module contains all information gathered during the reconnaissance inventory and attributes for any new storm water structures or conduits.

3.1.2 Storm Water Inspections

Any Information gathered during site inspections will be stored in the inspection module.

- Precipitation
- Physical Observations
- Field Data
- Lab Data
- General Comments

3.1.3 Illicit Discharge Module

The illicit discharge module was specifically designed to track and document information pertaining to illicit or contaminated discharges.

- Complaint information
- Conversations
- Enforcement
- Regulatory Agency Notification
- General Illicit Information

SECTION 4. SAFETY

4.1 Program Safety

The most critical component of a field program is crew safety. Safety is of paramount importance as field monitoring can be extremely dangerous. The element of danger is accentuated if personnel are unfamiliar with their surroundings and/or procedures, consequently staff must be properly trained in both safety and monitoring procedures, following a well thought out program.

With field monitoring, common sense is essential. Two hazards that field staff may face more often, especially if wet weather occurs during monitoring, are elevated stream flows and slippery footing. If stream conditions are deemed to be too high or too fast, under no circumstances should any field staff enter the stream or operate near its banks. When surfaces are wet and slippery, special care must be taken when walking and working around bridges.

There must be a minimum of two field staff working together during any sampling event.

General Safety Practices:

- In all situations field parties are required to leave accurate sampling schedules and expected itineraries in the office.
- Sampling must never be carried out in weather that is considered by the Field Crew to be hazardous to the well-being of the staff and/or equipment.
- First aid kits will be issued to all field crews.
- Each field crew will have a cellular phone and have been instructed on emergency procedures and numbers.
- Each field crew will report upon leaving and returning from any field work to their Field Manager.
- Each field crew will have appropriate lights, markers, etc. to be able to perform their work safely under poor visibility/nightfall.
- Each field crew will have the appropriate road safety equipment as required.

4.2 Health Hazards

Disease causing bacteria, viruses, and parasites are always present in sewers and discharge streams. They occur in both liquid sewage and dry sludge which coats pipes, and other surfaces. The serious threats are Hepatitis A (virus), Hepatitis B (virus), Tetanus (bacteria), Typhoid (bacteria), and Polio (virus). Proper hygiene methods must be followed. Wash hands before eating or smoking. Protective clothing must be laundered and equipment kept clean. Workers should avoid touching their eyes to prevent an inflammation. Cuts and abrasions of the skin should be covered by bandages or gloves to minimize the chance of infection by organisms.

SECTION 5. APPENDIX

The IDDE Implementation Plan Appendices have been omitted but can be made available upon request.

Appendix 7: Minimum Control Measures Summary (see following pages)

MCM 1 Public Education and Outreach				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.1(1) Implement and maintain a public education program that focuses on impacts from storm water and steps the public can take to reduce pollutants.	B(1)(a) Maintain an effective and successful public education program and seek opportunities to collaborate with other organizations.	All MCM 1 items	SD1	1-5
2.2.1(2) Prioritize public education and outreach efforts to focus on pollutants impairing or threatening local waterways.	B(1)(b)Continue to utilize existing education efforts (elementary program, website content, bill inserts and public service announcements) to focus on bacteria indicators, nutrients and sedimentation.	All MCM 1 items	SD1	1-5
	B(1)(b) Target future efforts on one or more of the following: Failing sanitary systems, pet waste (bacteria); Turf and landscape maintenance (nutrients); construction and post-construction impacts (sedimentation).	Number of additional education efforts focused on bacteria indicators, nutrients or sediment	SD1	1-5
2.2.1(3) Utilize the KYTC Education Toolkit or an effective equivalent.	B(1)(c) Continue to utilize components of the KYTC toolkit and/or effective equivalents.	All MCM 1 items	SD1	1-5
2.2.1(4) Demonstrate that the education and outreach efforts are targeted to appropriate audiences and balanced between policy-makers, local citizens and other stakeholders.	B(1)(d)(i) Continue to communicate with community leaders through available opportunities including local meetings, emails/letters, memos, website.	Number of meetings/presentations, emails/letters and memos directed to community leaders regarding the storm water quality management program	SD1	1-5
	B(1)(d)(ii) Continue to provide technical support and collaborate on storm water efforts with local watershed groups.	Number of meetings attended, number of collaboration efforts	SD1	1-5
	B(1)(d)(ii) Continue to attend meetings and present topics to local organizations including the Building Industry Association of Northern Kentucky and the Northern Kentucky Society of Professional Engineers.	Number of meetings attended, number of presentations	SD1	1-5
	B(1)(d)(iii) Continue to educate the general public through a variety of tools/outlets including bill inserts, brochures, PSAs on radio/TV/print/social media, participation at community events, SD1 website content, dispatch call line and info@ email, adult Public Service Park tours and use of on-demand signage.	Number and type of tools and outlets utilized to provide storm water information to the general public	SD1	1-5
	B(1)(d)(iv) Continue to work with local elementary schools to teach the storm water curriculum.	Number of schools completing the storm water curriculum	SD1 & Participating Schools	1-5
	B(1)(d)(iv) Continue to conduct Enviroscape lessons and classroom presentations for schools requesting assistance.	Number of Enviroscape lessons taught for local schools	SD1 & Participating Schools	1-5
	B(1)(d)(iv) Continue to offer Public Service Park Field Trips for local schools.	Number of Public Service Park Field Trips conducted for local schools	SD1 & Participating Schools	1-5
	B(1)(d)(iv) Continue to engage with students at higher education levels to provide academic, technical and career training.	Number of opportunities/events engaging higher education levels	SD1 & Participating Schools	1-5
2.2.1(5)(6) Measure the targeted audiences understanding of storm water impacts and adoption of targeted behaviors. Use the results to direct education and outreach.	B(1)(e)(i) Conduct surveys when possible to gage the public's knowledge of storm water and water quality.	Number of surveys conducted	SD1	1-5
	B(1)(e)(ii) Continue to issue pre and post test to local elementary schools participating in the program.	Number of pre and post tests and comparison of results	SD1	1-5
	B(1)(e)(iii) Explore opportunities to gauge understanding of higher education levels with participating schools and universities.	Number of surveys/opportunities conducted	SD1	1-5
2.2.1(7) Track activities relative to this MCM to document compliance and prepare an annual report.	B(1)(f) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5

MCM 2 Public Participation and Involvement				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.2(1) Implement a public involvement/participation program that complies with applicable Kentucky and local public notice requirements.	B(2)(a) Continue to implement a public involvement/participation program providing local citizens and the community opportunities to participate in storm water quality management activities.	All MCM 2 items	SD1	1-5
2.2.2(2) Activities may include representation on local storm water management workgroups or advisory councils, public notices, and public hearings, facilitating education volunteers, storm drain marking, riparian plating, stream clean-up events, or an effective equivalent.	B(2)(b)(i) Continue to promote and sponsor creek and river clean-ups such as the Ohio River Sweep.	Number of clean-ups promoted and/or sponsored	SD1	1-5
	B(2)(b)(ii)Promote and encourage participation in the storm drain marking program.	Number of groups participating in the storm drain marking program and number/location of drains marked	SD1	1-5
	B(2)(b)(iv) Continue to host the Storm Water Advisory Committee (SWAC) on a regular basis.	Number of SWAC meetings, number of participants and topics discussed	SD1	1-5
	B(2)(b)(v) Continue to promote involvement in the Household Hazardous Waste event.	Number of participants in the HHW event and quantification of the amount of each item collected	SD1 & County Solid Waste Depts.	1-5
	B(2)(b)(vi) Continue to implement and explore additional opportunities to promote the Disconnection, Redirection, Infiltration Program (DRIP).	Number of DRIP activities completed	SD1	1-5
	B(2)(b)(vii) Engage with community members by providing staff, displays, and information at relevant events and community programs.	Number of community events/programs with SD1 participation	SD1	1-5
	B(2)(b)(viii) Continue to utilize mascot Splash McClean at community events to promote storm water management	Number of community events/programs attended by Splash McClean	SD1	1-5
2.2.2(2)The permittee shall provide public notice of program participation opportunities by methods designed to reach the intended audience.	B(2)(c)(i) Utilize one or more mediums such as SD1's website, direct mail, radio or television spots, newspaper press releases, announcements in city newsletters, social media and email to promote events and encourage participation.	Number of opportunities/events advertised by SD1	SD1	1-5
2.2.2(3) Track activities relative to this MCM to document compliance and prepare an annual report.	B(1)(d) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5

MCM 3 Illicit Discharge Detection and Elimination (IDDE)				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.3(1) Continue to implement and enforce an ordinance or other regulatory mechanism that prohibits illicit discharges (as defined at 40 CFR 122.26 (b) (2)) to the small MS4.	B(3)(a) Continue to enforce the Rules and Regulations to prohibit illicit discharges to the MS4's located within the KPDES Storm Water Permit Compliance Area.	All MCM 3 items	SD1	1-5
2.2.3(2) The permittee shall develop and maintain a storm sewer system map showing the location of all known major outfalls, as defined herein, and the names and locations of all surface waters that receive discharges from those outfalls. The comprehensive storm sewer system map shall also include the permittee's small MS4 system (owned and/or operated by the permittee), including catch basins, pipes, ditches, flood control facilities (retention/detention ponds), post-construction water quality BMPs, and private post-construction water quality BMPs which have been approved by the MS4.	B(3)(b) Continue to update the GIS layers as new storm infrastructure is installed or changes in ownership occur.	Updates to the mapped MS4 system and the service area boundary	SD1	1-5
2.2.3(3) The permittee shall develop and implement a written plan to address illicit discharges including illegal dumping. The Illicit Discharge Detection and Elimination Plan shall include:	B(3)(c) Continue to implement and enforce the IDDE plan and update as needed.	All items identified in SWQMP section B(3)(c)below	SD1	1-5
2.2.3(3)(a) Procedures for locating priority areas likely to have illicit discharges.	B(3)(c)(1) Identify priority areas based on location of major outfalls, illicit discharge screening factors and public complaint notifications regarding potential illicit discharges.	Number of IDSF priority areas identified	SD1	1-5
2.2.3(3)(b) Procedures for field assessment activities, including dry-weather screening of representative outfalls or an alternate approach based on screening factors determined to be more applicable to the area than dry-weather screening of representative outfalls.	B(3)(c)(2) Conduct dry weather screening on established storm water structures within identified high priority subbasins.	Number of storm sewer structures investigated annually as part of the IDSF approach (compete 20% of the structures per year)	SD1	1-5
2.2.3(3)(c)(d) A mechanism and protocols in place that provide for the public reporting of spills and other discharges. Procedures to provide for the investigation of any complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping.	B(3)(c)(3) Continue to investigate any public complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping. SD1 has a 24-hour dispatch line or emergencies, and an info@sd1.org email for non-emergencies.	Number of reported suspect illicit discharges and number investigated	SD1	1-5
2.2.3(3)(e) Timeframes for the investigation and removal of illicit discharges.	B(3)(c)(4) Continue to enforce the correction of all identified illicit discharges, based on established timeframes identified in the Enforcement Response Plan.	Number of illicit discharges detected and eliminated	SD1	1-5
2.2.3(3)(f) Procedure for tracing the source of an illicit discharge; including visual inspections, and when necessary, collecting and analyzing water samples, and other detailed inspection procedures.	B(3)(c)(5) Utilize developed SOPs to trace illicit discharge sources through various methods including monitoring and sampling data, dyed water testing, CCTV activities, and post-correction inspections.	Number of illicit discharges detected and eliminated	SD1	1-5
2.2.3(3)(g) Procedures for removing the source of the discharge; including notification of appropriate authorities, notification of property owners; follow-up inspections; and enforcement if the discharge is not eliminated.	B(3)(c)(6) Continue to enforce the correction of all identified illicit discharges, based on procedures identified in the Enforcement Response Plan.	Number of illicit discharges detected and eliminated	SD1	1-5

MCM 3 Illicit Discharge Detection and Elimination (IDDE)				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.3(3)(h) Procedures for Illicit Discharge Program evaluation and assessment, including tracking the number and type of spills or illicit discharges identified, inspections made; and any feedback received from public education efforts.	B(3)(c)(7) Continue to track information associated with the IDDE program in SD1's asset management system.	Information properly entered in SD1's asset management system	SD1	1-5
2.2.3(4) The permittee shall have a mechanism and protocols in place that provide for the public reporting of spills and other discharges into the small MS4.	B(3)(d) Continue to provide a mechanism for public reporting (refer to items above) and inform public employees, businesses and the general public of the hazards associated with illegal discharges and improper disposal of waste.	Number and type of educational trainings about illicit discharges conducted each year; Number of citizens participating in and the amount of material collected from the Annual Northern Kentucky HHW Event	SD1	1-5
2.2.3(5) The permittee shall provide appropriate training for municipal field staff on the identification and reporting of illicit discharges into the MS4.	B(3)(e) Continue to provide sufficient training opportunities for field staff to ensure inspections are performed and reports are completed correctly and provide IDDE training to co-permittees at the annual pollution prevention training.	Number and type of trainings about illicit discharges conducted or attended each year	SD1	1-5
2.2.3(6) If, in the course of illicit discharge detection, it is demonstrated that a sanitary sewer line failure or defect is a source to the MS4, the permittee shall inform the responsible entity and the Division of Water's Regional Office. If the permittee is the responsible entity, the permittee shall proceed to remediate the discharge by following a corrective action plan or a Sanitary Sewer Overflow Plan on a schedule approved by the Division of Water.	B(3)(f) Utilize one of the approved programs (Continuous Sewer Assessment Program (CSAP), Sanitary Sewer Evaluation System (SSES) and Sewer Overflow Response Plan (SORP)) to remedy the illicit discharge. In areas that may not be remedied by one of these programs, SD1 will notify the Division of Water if a sanitary sewer defect or failure acts as an illicit discharge to the MS4. SD1 will prepare a stand-alone action plan and schedule to remedy the individual discharge and submit it to the Division of Water for approval.	Properly follow approved program when required	SD1	1-5
2.2.3(7) Track activities relative to this MCM to document compliance and prepare an annual report.	B(3)(g) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5

MCM 4 Construction Site Storm Water Runoff Management				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.4(1) Current small MS4's shall continue to implement and enforce an ordinance or other regulatory mechanism that reduces pollutants in any storm water runoff to the small MS4 from construction activities that disturb one acre or more, and active construction sites less than one acre in size that are part of a larger common plan of development or sale, located within the MS4 upon issuance of this permit.	B(4)(a) Continue to enforce the Rules and Regulations that establish storm water management requirements for all construction sites within the KPDES Storm Water Permit Compliance Area.	All MCM 4 items	SD1	1-5
2.2.4(2) The permittee shall develop, implement, and enforce a program to reduce pollutants in storm water runoff from active construction sites. The program to be implemented shall include, at a minimum:	B(4)(b) Continue to implement and enforce a program (sediment and erosion control BMPs) to reduce pollutants in storm water runoff from construction sites.	All items identified in SWQMP section B(4)(b)below	SD1	1-5
2.2.4(2)(a) A permitting process with plan review to affirm compliance with local ordinances, inspection, and enforcement capability for all projects subject to this program as described above.	B(4)(b)(i) Continue the permitting process established for all projects one acre or larger, as well as those less than one acre but part of a larger common plan of development or sale. Either a clearing, grading, or land disturbance permit will be issued upon plan review and compliance with Rules and Regulations, inspections and enforcement.	Number and types of permits issued	SD1	1-5
2.2.4(2)(b) Procedures for periodic inspections of all known permitted construction sites during construction to verify proper installation and maintenance of required erosion and sediment controls.	B(4)(b)(ii) Continue to conduct inspections of all permitted sites during construction to verify proper installation and maintenance of required erosion and sediment controls. SD1 will conduct a pre-construction meeting with the permittee to review the requirements and expectations. During construction, SD1 will inspect the site according to the established frequency.	Number of construction sites inspected	SD1	1-5
2.2.4(2)(c) Development and implementation of an enforcement strategy that includes escalating enforcement remedies to respond to issues of non-compliance.	B(4)(b)(iii) Continue to utilize the Enforcement Response Plan to respond to issues of non-compliance. All enforcement actions will continue to be documented by SD1.	Number and types of violations issued annually	SD1	1-5
2.2.4(2)(d) A procedure must be developed to inventory projects and prioritize sites for inspection. The inventory should track the results of inspections, enforcement procedures taken, if any. A summary of inspection and enforcement activities that have been conducted shall be included in the annual report.	B(4)(b)(iv) Continue to implement standard procedures for the inventory of projects and prioritization of sites for inspection.	Completed inventory for all projects and number of public information requests received related to construction sites	SD1	1-5
2.2.4(2)(e) A training program for MS4 staff in the fundamentals of erosion prevention and sediment control and in how to review erosion and sediment control plans or Storm Water Pollution Prevention Plans.	B(4)(b)(v) Continue to provide training for plan review and inspection staff annually regarding erosion prevention and sediment control best management practices.	Number of SD1 employees trained	SD1	1-5
2.2.4(2)(f) Procedures for providing educational and training measures for construction-site operators or, if applicable, shall adopt procedures for notifying construction-site operators of available education and training opportunities.	B(4)(b)(vi) Continue to promote and provide educational training opportunities for contractors and developers in Northern Kentucky B(4)(b)(vi)(1) Continue to provide information on existing training opportunities and utilize existing outreach tools and educational materials directed at area contractors, developers and engineers. B(4)(b)(vi)(2) Contractors will also be kept informed of any new regulatory requirements adopted by SD1. B(4)(b)(vi)(3) Continue to make available a link to the Kentucky Erosion Prevention and Sediment Control Field Guide. B(4)(b)(vii)(4) Conduct a performance-based Contractor and Developer Excellence Award program annually.	Number of contractor/developer training opportunities or notifications of training and number of recipients	SD1	1-5
2.2.4(3) Track activities relative to this MCM to document compliance and prepare an annual report.	B(3)(g) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5

MCM 5 Post-Construction Storm Water Management				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.5(1)(a) Permittees shall develop, adopt, and implement an ordinance or other regulatory mechanism that addresses post-construction storm water runoff from new and redevelopment projects that disturb at least one acre, and projects less than one acre that are part of a larger common plan of development or sale, located within the MS4.	B(5)(a) Continue to enforce, as adopted in the Rules and Regulations, post-construction storm water management regulations that require the proper design, construction and post-construction maintenance of storm water management facilities.	All MCM 5 items	SD1	1-5
	B(5)(b) Post-construction storm water requirements in the Rules and Regulations will continue to apply to private and public developments, including city and county roads, for all sites that disturb at least one acre, and those less than one acre that are part of a larger common plan of development or sale.	All MCM 5 items	SD1	1-5
2.2.5(1)(b) Current MS4 programs shall review and update, if necessary, local requirements for post construction controls for all new and redevelopment projects. The post-construction control requirements shall include an on-site storm water runoff quality treatment standard. The standard shall be based, at a minimum, on an analysis of precipitation records to determine the equivalent surface depth of runoff (e.g. 0.75 inches) produced from an eightieth (80th) percentile precipitation event. The standard shall specify design parameters (e.g. a design storm) for the sizing of post-construction controls that will require the annual runoff occurring in a typical year from the site is managed through water quality control practices. The proposed local standard will require, in combination or alone, management measures that are designed, built and maintained to treat, filter, flocculate, infiltrate, screen, evapo-transpire, harvest and reuse storm water runoff, or otherwise manage the storm water runoff quality. Additionally, the permittee's local water-quality based standard for redevelopment projects shall reflect local community issues, including water-quality impairments.	B(5)(c) Continue to enforce the quality treatment standard for all new development and redevelopment projects according to the Rules and Regulations. All new development projects are required to implement water quality controls to manage the runoff produced from the first 0.8 inches of rainfall, which is based on the region's 80th percentile precipitation event. All re-development projects are required to implement water quality controls to manage the runoff produced from the first 0.4 inches of rainfall.	Implementation and enforcement of the water quality treatment standard	SD1	1-5
2.2.5(1)(c) For those areas of development and re-development that result in a new or expanded discharge from the MS4 to high quality waters, the ordinance or other regulatory mechanism shall include standards for runoff control that are considered sufficient to protect existing in-stream water uses.	B(5)(d) To supplement the Rules and Regulations, SD1 developed a BMP Manual, which provides design guidance for post-construction storm water management. Design criteria for these BMPs take into consideration pollutants of concern for Northern Kentucky. By addressing the area's pollutants of concern, the BMPs utilized will be sufficient to protect existing in-stream water uses.	Annual review of BMP manual and update as necessary	SD1	1-5
2.2.5(1) For projects that cannot meet this water-quality treatment standard, the permittee may adopt two alternatives: off-site mitigation and payment-in-lieu.	B(5)(e) SD1 has developed an Offsite Mitigation and Payment-In-Lieu Policy, which outlines the requirements associated with these options for projects unable to meet the water quality criteria on-site.	Implementation of the policy when applicable	SD1	1-5
2.2.5(2) MS4 permittees shall review and evaluate municipal policies related to building codes, or other local regulations, with a goal of identifying regulatory and policy impediments to the installation of green infrastructure, such as green roofs, porous pavements, water harvesting devices, grassed swales instead of curb and gutter, rain barrels and cisterns, downspout disconnection, etc.	B(5)(f) Continue to work with local planning authorities to provide input on comprehensive planning documents and promote planning initiatives that have a positive impact on storm water management. This includes opportunities for innovative storm water management, such asf green infrastructure, incorporation of regionally-based Q-critical flow requirements and watershed planning.	Number of opportunities SD1 provides comments/feedback on comprehensive plans or other collaborative planning efforts to have a positive impact on storm water management	SD1	1-5

MCM 5 Post-Construction Storm Water Management				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.5(3)The permittee shall develop and implement project review, approval, and enforcement procedures for new development and redevelopment projects that disturb greater than one acre, and projects less than one acre that are part of a larger common plan of development or sale. Further requirements for project review and approval are as follows:Develop written procedures for the site-plan review and approval process and a required re-approval process when changes to storm water management measures are required. Develop written procedures for a post-construction process to demonstrate and document that post-construction storm water measures have been installed per design specifications, which includes enforceable procedures for bringing noncompliant projects into compliance.	B(5)(g) Continue to enforce previously developed project review, approval, and enforcement procedures for new development and redevelopment projects that disturb one acre or greater, and projects less than one acre that are part of a common plan of development.	Number and types of permits issued annually	SD1	1-5
2.2.5(4) The permittee shall require BMP owners of all new development and redevelopment projects to establish and enter into long-term maintenance practices. Alternatively, the permittee may establish other enforceable mechanisms for requiring long-term maintenance of structural and non structural BMPs. Such authorities shall allow the MS4, or its designee, to conduct inspections of the management practices and also account for transfer of responsibility in leases and/or deed transfers. The agreement shall also allow the MS4, or its designee, to perform necessary maintenance when the owner/operator has not performed the necessary maintenance.	B(5)(h) Continue to require all new development and redevelopment property owners to submit a standard long-term maintenance agreement to be entered into by all property owners to ensure the continuation of long-term maintenance for all storm water control measures.	Number, type and location of permitted post-construction BMPs installed within the reporting year	SD1	1-5
2.2.5(5) In order to verify all storm water management practices are operating correctly and are properly maintained, the permittee shall establish and implement written procedures for inspections of a representative number of installed BMPs annually, with the goal of completing an inspection of all BMPs within the MS4 during the permit cycle. Alternatively, the permittee may develop a program for BMP owner self-inspection documentation with oversight by the permittee(s).	B(5)(i) Continue to implement Standard Operating Procedure for the post-construction maintenance inspection of structural and non-structural storm water control measures. SD1 will inspect a representative number of BMPs annually, dependent upon the number of BMPs constructed each year, with the goal of ultimately inspecting all BMPs with long-term maintenance agreements within the permit cycle. SD1 will continue to explore the alternative of developing a program for property owners to perform self-inspection and provide appropriate documentation with oversight from SD1.	Number, type and location of post-construction BMPs inspected as part of long-term operation and maintenance inspections	SD1	1-5
2.2.5(6) The permittee shall create a program to notify the BMP owner or operator of deficiencies during a maintenance inspection. The permittee must conduct subsequent inspections to ensure completion of required repairs. If repairs are not made, the permittee shall enforce its correction orders and, if need be, perform the necessary work.	B(5)(j) Continue to implement the Standard Operating Procedure to notify the owner of deficiencies found during inspections. The notification will identify the timeframe for the owner to bring the control into compliance. SD1 will issue escalated enforcement if the site owner/operator fails to take action in the specified timeframe.	Number of long-term operation and maintenance inspections conducted, highlighting the number of BMPs requiring maintenance or repair and the number of enforcement actions taken	SD1	1-5
2.2.5(7) The permittee shall demonstrate compliance with the requirements for post-construction controls by summarizing the following in the annual report. A summary of the number and types of projects that the permittee reviewed for new and redevelopment considerations and the types of BMPs installed including green infrastructure and buffers.	See item B(5)(h) above	See item B(5)(h) above	SD1	1-5
2.2.5(7)(a) A written summary of management practice maintenance inspections conducted by the permittee(s), including a summary of the number requiring maintenance or repair, and the number of enforcement actions taken.	See item B(5)(j) above	See item B(5)(j) above	SD1	1-5
2.2.5(7)(b) A written summary of any changes to local ordinances to accommodate green infrastructure alternatives.	See item B(5)(f) above	See item B(5)(f) above	SD1	1-5
2.2.5(7)(c) A written summary of training that staff has received in longterm storm water-quality treatment management.	Continue to track and report training MS4 staff has received.	Number of SD1 staff trained	SD1	1-5
2.2.5(7)(8) Track activities relative to this MCM to document compliance and prepare an annual report.	B(5)(k) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5

MCM 6 Pollution Prevention and Good Housekeeping				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.6(1) The permittee must develop and implement a written Operation and Maintenance (O & M) plan that includes a training component for municipal staff with the goal of preventing or reducing pollutant runoff from municipal operations.	B(6)(a) Continue to update and implement an Operation and Maintenance (O&M) Program with a goal of preventing or reducing pollutant runoff from SD1 operations. SD1 recognizes the importance of an O&M Program for all of the Co-Permittees' municipal facilities; SD1 will provide appropriate resources to support the development of an O&M Program for all Co-Permittees. SD1 will continue to provide training for internal staff and will provide the Co-Permittees with the appropriate educational resources to develop and conduct training for their municipal staff.	All MCM 6 items	SD1	1-5
2.2.6(2) The O & M plan must include employee training to prevent and reduce storm water pollution resulting from activities such as parks and open space maintenance, fleet and building maintenance, new construction and land disturbances, storm water system maintenance, and green infrastructure maintenance.	B(6)(b)(i)(1) Continue to conduct new hire orientation that includes an Excal pollution prevention training video and an administered quiz after the video on pollution prevention.	Number of SD1 new hires who have completed Excal training on an annual basis and the results of the pollution prevention quiz	SD1	1-5
	B(6)(b)(i)(2) Conduct annual training to inform appropriate staff of the importance of maintaining sites properly in an effort to protect water quality.	Number of attendees at the annual training sessions for SD1 staff to address pollution prevention issues found on site	SD1	1-5
	B(6)(b)(i)(3) Maintain and update pollution prevention signs located throughout SD1 facilities that demonstrate proper pollution prevention procedures such as proper storage and disposal of facility materials.	Updated pollution prevention signage when necessary	SD1	1-5
	B(6)(b)(ii)(1) Create an updated Storm Water City and County Handbook which will provide access to key storm water resources such as a copy of the general permit, the submitted Notice of Intent (NOI) and the Storm Water Quality Management Plan.	Updated Storm Water City and County Handbook	SD1	1-2
	B(6)(b)(ii)(2) Host Co-Permittee meetings for city clerks, city/county administrators, mayors and public works directors to discuss the Co-Permittee requirements for each minimum measure and to gauge the needs of the Co-Permittees.	Number of meetings, number of participants and topics discussed	SD1	1-5
	B(6)(b)(ii)(3) Host an annual Pollution Prevention Training for Co-Permittees.	Number of Co-Permittees conducting or attending annual training sessions for municipal staff to address pollution prevention issues found on site	SD1	1-5
	B(6)(b)(ii)(4) Distribute an updated pollution prevention toolkit for Co-Permittees on the SD1 website, as a way to help municipalities understand the importance of storm water pollution prevention and good housekeeping.	Updated pollution prevention toolkit for Co-Permittees	SD1	1-5
2.2.6(3) The O & M plan shall include an inventory of municipal facilities owned and operated by the MS4 permittee, including, maintenance activities, maintenance schedules, and ongoing written inspection procedures for structural and non-structural BMPs. These BMPs shall be designed to reduce floatables and other pollutants discharged from the separate storm sewers; provide controls for reducing the discharge of pollutants from municipally-owned and operated streets, roads, highways, municipal parking lots, maintenance and storage yards with exposed bulk materials and/or fuel storage facilities that have the potential to discharge pollutants of concern to the storm sewer system, and fleet maintenance shops with outdoor storage areas. BMPs are needed to control runoff from salt/sand storage locations and snow disposal areas operated by the permittee(s), as well as waste transfer stations. The O & M plan must incorporate procedures for properly disposing of waste (such as dredge spoil, accumulated sediments, floatables, and other debris) removed from the separate storm sewers and areas listed above.	B(6)(c)(i)(1) SD1 will continue to implement O&M Plans for its administrative complex, Eastern Regional Water Reclamation Facility, Western Regional Water Reclamation Facility and Dry Creek Wastewater Treatment Plant. In addition, the plans will be revisited periodically to ensure effectiveness and will continue to be promoted to staff.	Number of O&M Plans being maintained for SD1 owned facilities	SD1	1-5
	B(6)(c)(i)(2) SD's Pollution Prevention Team will continue to conduct annual audits to ensure all SD1 facilities are properly operated and maintained. The Pollution Prevention Team will evaluate the results of each audit to determine if any updates are needed for the various O&M Plans. The audit results will be utilized to determine focus areas of training efforts for the following year.	Number of site audits conducted for SD1 owned facilities	SD1	1-5
	B(6)(c)(ii)(1) Continue to work with the Co-Permittees on any needed updates to their O&M Plans for their various facilities. In addition to the toolkit mentioned above, SD1 will continue to provide support on storm water pollution prevention topics such as, proper maintenance, storage, and recommended inspection procedures. Co-Permittees will be responsible for providing site specific information for each facility.	Number of O&M Plans being maintained for Co-permittee owned facilities	Co-Permittees & SD1	1-5

MCM 6 Pollution Prevention and Good Housekeeping				
Permit Requirement	**SWQMP Activity**	**Measure of Success**	**Responsible Party**	**Permit Year**
2.2.6(3) cont.	B(6)(c)(ii)(2) Co-Permittees will conduct and keep record of annual inspections for all municipal facilities. SD1 will send annual reminders to all Co-Permittees to conduct and document these facility inspections.	Number of site audits conducted for Co-permittee owned facilities and the number of Co-Permittees using salt and/or sand for snow and ice prevention and the amount being used	Co-Permittees & SD1	1-5
	B(6)(c)(ii)(3) Co-Permittees will conduct annual pollution prevention training (or attend SD1's training) and document the type of training and number of attendees.	Number of Co-Permittees conducting or attending annual training sessions for municipal staff to address pollution prevention issues found on site	Co-Permittees & SD1	1-5
	B(6)(c)(ii)(3) Many communities have implemented street sweeping operations. Communities that have already implemented these programs will continue them. Communities that currently do not have street sweeping programs in place will continue to investigate the feasibility of developing a street sweeping program or partnering with adjacent communities to utilize previously established programs. If street sweeping proves to be infeasible, some communities may develop alternatives (e.g. road side litter pick-up programs).	Number of Co-Permittees conducting street sweeping in cities/counties and number of Co-Permittees investigating the feasibility of implementing street sweeping in communities without existing programs or alternative	Co-Permittees & SD1	1-5
2.2.6(4) Track activities relative to this MCM to document compliance and prepare an annual report.	B(6)(d) SD1 will submit an Annual Report identifying the items above.	Submittal of Annual Report to KDOW by due date	SD1	1-5