

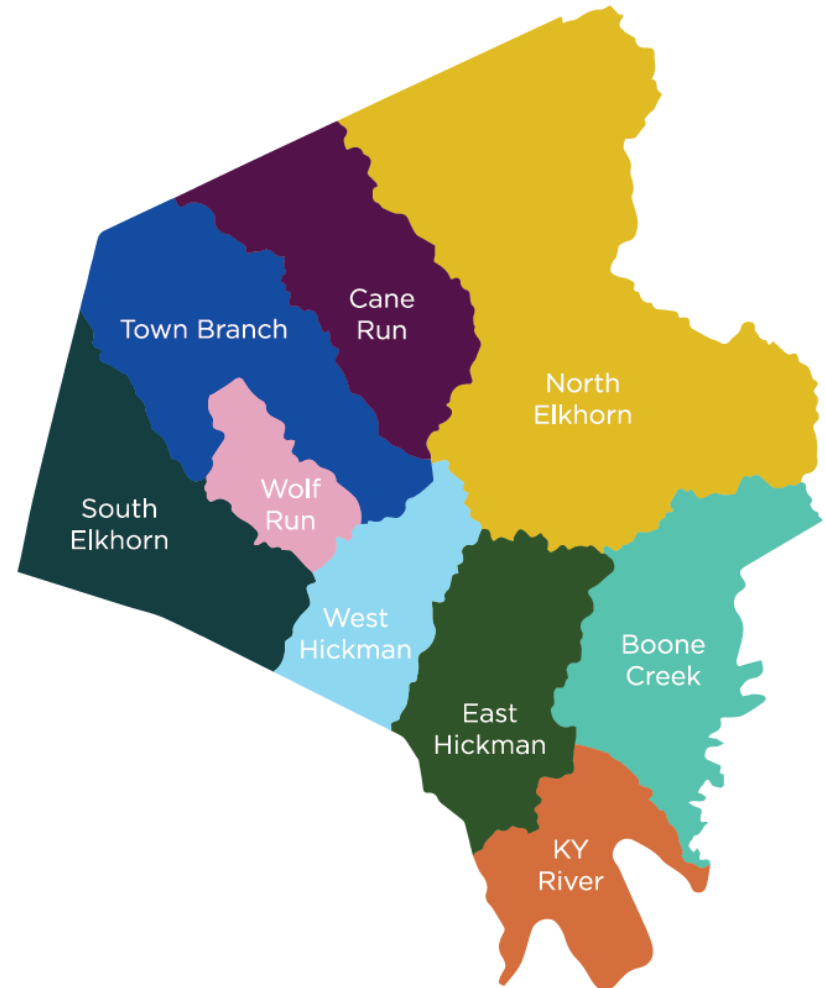
**Municipal Separate Storm Sewer System  
(MS4) Update 2022  
Lexington's Stormwater Quality Program  
Year in Review**

Environmental Quality and Public Works Committee  
November 1, 2022



# Agenda

- What is MS4 and why does it matter?
- MS4 Permit Legal Authority
- Year in Review 2021
- Moving Forward
- Questions



## **MS4 and Why it Matters**

- **Municipal Separate Storm Sewer System**
- KRS 224 authorizes a community like Lexington to discharge stormwater runoff from its MS4 into “Waters of the Commonwealth”
- Lexington is issued a stormwater discharge permit by the Kentucky Department for Environmental Protection

# MS4 and Why it Matters

- Permit requirements contained in federal law are applicable to “large MS4s” (Pop. 250,000 or greater) like Lexington
- Program intended to maintain and improve the quality of the state’s waterways *by reducing the quantity of pollutants that stormwater picks up and carries into the MS4 during storm events*



Source: [bewaterfriendly.com/our-water/watersheds/](http://bewaterfriendly.com/our-water/watersheds/)

## **Individual MS4 Permit – KYS000002**

- Five years in duration, last permit expired May 31, 2020, renewal pending
- Compliance revolves around meeting the objectives of ten (10) specific Program Elements – Narrative Best Management Practices or BMPs
- Program Element objectives further defined in the Stormwater Quality Management Program (SWQMP) documents

# MS4 Permit – Program Elements

## Public Engagement

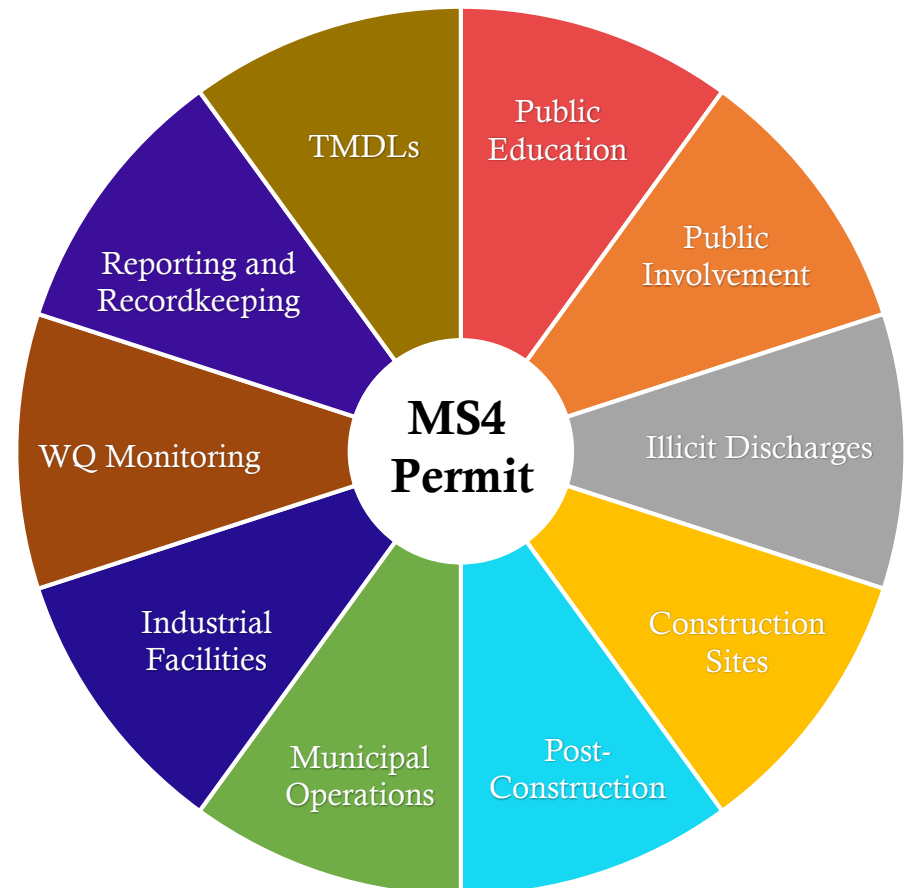
- 1 Public Education and Outreach
- 2 Public Involvement and Participation

## Pollution Prevention

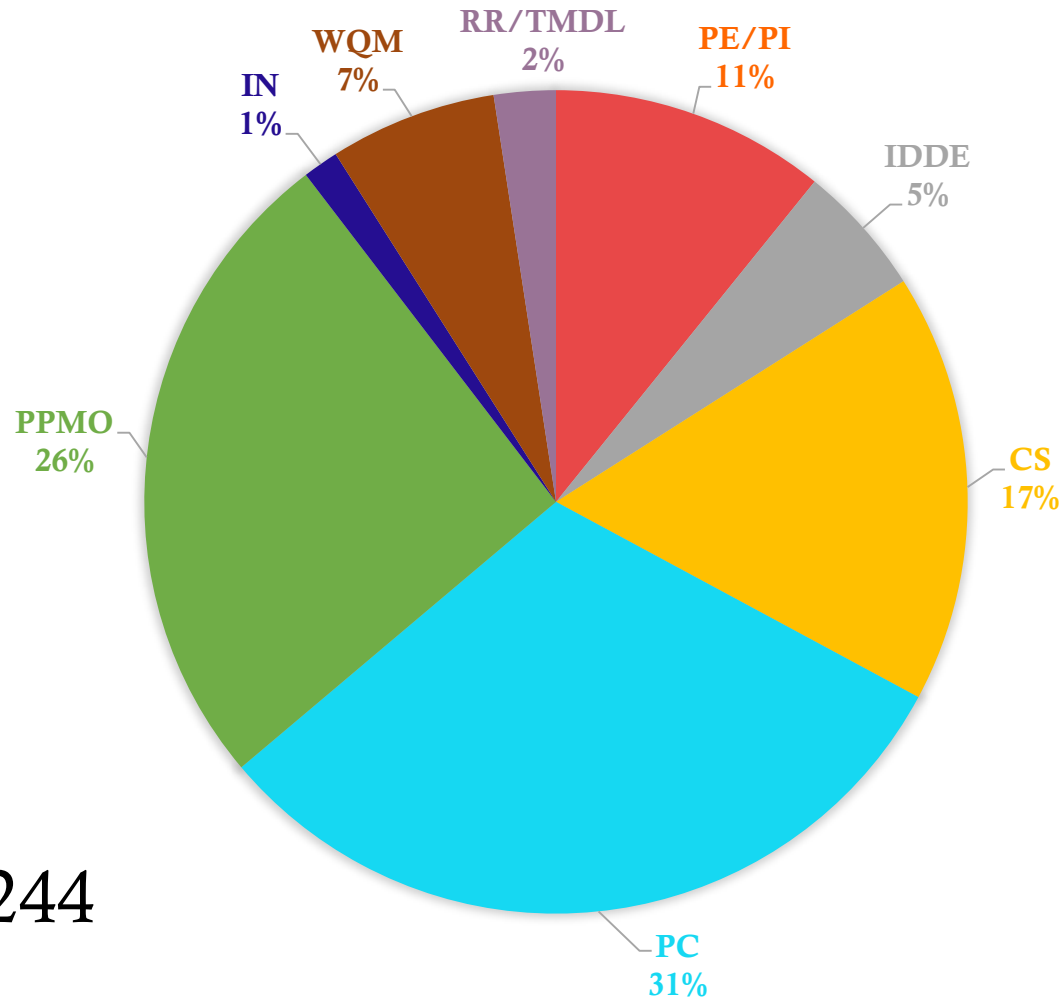
- 3 Illicit Discharge Detection and Elimination
- 4 Construction Site Stormwater Runoff Control
- 5 Post-Construction SW Management
- 6 Pollution Prevention for Municipal Operations
- 7 Industrial Facility SW Pollution Prevention

## Monitoring and Reporting

- 8 Water Quality Monitoring
- 9 Reporting and Recordkeeping
- 10 Total Maximum Daily Loads / Impaired Waters



# Funding by MS4 Program Element



FY22 =  
\$5,248,244

# LFUCG MS4 Legal Authority

The current MS4 Permit requires the permittee (LFUCG) to ensure legal authority to control discharges to and from those portions of the MS4 over which it has jurisdiction. This legal authority is given in Chapter 16, Article X of the LFUCG Code of Ordinances.

▼ ARTICLE X. - STORMWATER DISCHARGES

▼ DIVISION 1. - GENERAL

Sec. 16-84. - Purpose and intent.

Sec. 16-85. - Stormwater manual incorporated.

➤ DIVISION 2. - MAINTENANCE OF PRIVATELY OWNED STORMWATER CONTROLS

➤ DIVISION 3. - HIGH-RISK INDUSTRIAL FACILITIES AND HIGH RISK COMMERCIAL FACILITIES

➤ DIVISION 4. - ILLICIT DISCHARGES

➤ DIVISION 5. - REDUCTION OF SOIL EROSION

## **Chapter 16 of LFUCG Code of Ordinances gives legal authority to:**

1. Control the contribution of pollutants to the MS4 by stormwater discharges associated with industrial activity.
2. Prohibit illicit discharges to the MS4.
3. Control the discharge of spills and dumping or disposal of materials other than stormwater into the MS4.

## **Chapter 16 of LFUCG Code of Ordinances gives legal authority to:**

4. Require compliance with conditions in ordinances, permits, contracts, or orders.
5. Carry out all inspection, surveillance, and monitoring necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the MS4.

## Potential 2023 Revisions to Chapter 16

- The current permit requires LFUCG to review and evaluate the ordinances and propose updates to the Urban County Council once per permit cycle.
  - Required in the IDDE, CS, PC, and IN program elements
  - Pending MS4 Permit renewal may affect proposed changes
- Proposed changes are intended to clarify the meaning and intent of the ordinances and are not intended to impose burdensome new requirements.

# Potential Revisions to Chapter 16

## Section 16-1

- Replace “stormwater control device” with “stormwater control”
- Replace “high-risk industrial facilities” with “industrial facilities”

## Section 16-87

- Add language requiring access to stormwater controls for urban county employees within 30 days of a written inspection request.
- Add language that the property owner(s) is/are responsible for removing access/inspection covers weighing more than 120 lbs. when requested by LFUCG. (Also in Section 16-88).

# Potential Revisions to Chapter 16

## Section 16-90

- Add language that an industrial facility subject to KPDES permitting requirements for stormwater discharges must submit an electronic copy of the permit and current Stormwater Pollution Prevention Plan (SWPPP) to LFUCG within *90 days* of permit issuance and submit an updated copy by January 31 of each year.
- Clarify that high-risk commercial facilities are designated as such based on their potential for water quality impacts from stormwater runoff.

## Section 16-91

- Remove the word accidental regarding the requirement of protecting against the discharge of pollutants into the MS4.

## Section 16-94.1

- Add language that no person shall discharge trash, debris, pollutants, wastes, or other materials in a manner or at a location that would pollute or contaminate a watercourse, or significantly retard the flow of water through the watercourse.

# Potential Revisions to Chapter 16

## Section 16-100

- Add demolition to the scope of coverage.
- Add language that clarifies that Land Disturbance Permits can be issued to the construction site operator or owner.

## Section 16-101

- Add demolition to the scope of coverage.
- Clarify that the Erosion and Sediment Control (ESC) plan must be implemented prior to and in association with the activities conducted under the Land Disturbance Permit.
- Add language that ESCs must be removed before a Land Disturbance Permit may be terminated.

## Section 16-104


























- Specify the permitting application must include the KYR10 permit acknowledgement letter from the Kentucky Division of Water and the SWPPP.
- Add language the LFUCG Land Disturbance Permit must be posted in a conspicuous location on the site.

# **Year in Review**

## **Staff Coordination & Professional Development**

- Monthly internal meetings with program implementation staff
- Monthly coordination meetings across multiple divisions: Engineering, Environmental Services, and Water Quality
- Quarterly meetings of the Stormwater Stakeholder Advisory Committee (March, June, Sept, Dec)
- Annual training sessions on monitoring procedures, erosion and sediment control, IDDE, inspection procedures, reporting/response protocols, etc.

## Stormwater Stakeholder Advisory Committee

1  LFUCG Division of Engineering	1  Hickman Creek Conservancy
1  LFUCG Division of Environmental Services	1  Bluegrass Greensource
1  LFUCG Division of Planning	1  University of Kentucky
1  LFUCG Division of Water Quality	1  Kentucky Water Resources Research Institute
1  LFUCG Planning Commission	1  Kentucky River Watershed Watch
1  LFUCG Urban County Council	1  Kentucky Transportation District 7
1  Fayette County Public Schools	1  Kentucky American Water Company
1  Fayette Alliance	1  Building Industry Association of Central Kentucky
1  Fayette County Neighborhood Council	1  Lexington-Bluegrass Association of Realtors
1  Friends of Wolf Run	1  Federal Facilities
1  Friends of Cane Run	6  Commerce Lexington
1  Friends of McConnell Springs	9  Watershed At-large Representatives
1  Neighbors United for South Elkhorn Creek	

## Stormwater Stakeholder Advisory Committee:

- Interest Groups
- Business Community
- Other Public Agencies
- Watershed At-Large Representatives

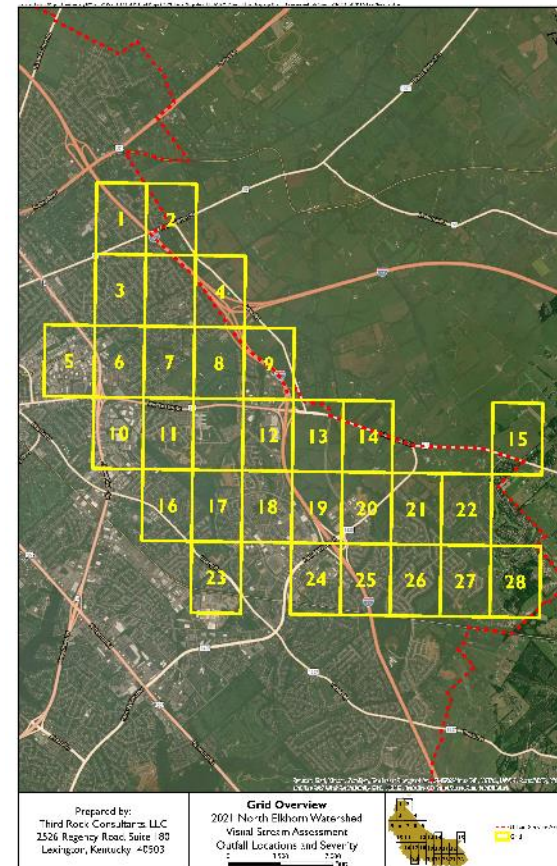
**Next Meeting Friday,  
December 2, 2022**

# 2021 Inspections – Key to Compliance

Types of inspections conducted by LFUCG staff:	Total 2021 Inspections
Active Construction Sites	5,207
Targeted Construction Sites	354
Critical Drainage Culverts	830
Stormwater Retention Ponds	1,248
Water Quality Control Devices (Inserts, filters, infiltration areas)	1,087
Water Quality Control Devices – City Owned	408
Underground Detention Facilities	121
Detention Basins Round 1 & 2	2,462
Dry Weather Screening of Stormwater Discharge Outfalls	254
Industrial and High-Risk Commercial Facilities	36
Illicit Discharge/ Spill Investigations	222
Municipal Operation Stormwater Inspections	51
<b>Total</b>	<b>12,280</b>

# Dry Weather Screening of Major Outfalls

- 254 of 428 total stormwater outfalls dry weather screened during 2021
- Outfalls inspected in these watersheds:
  - Cane Run – 54
  - East Hickman – 33
  - North Elkhorn – 24
  - South Elkhorn – 57
  - Town Branch – 20
  - West Hickman – 37
  - Wolf Run – 29
- LFUCG works to complete 100% of outfall screenings once every 2 years
- 2021 North Elkhorn Watershed Visual Stream Assessment of Outfall Locations and Severity



*2021 North Elkhorn Watershed Visual Stream Assessment – Grid Overview*



# Summary of Water Quality Conditions

**TABLE 15**  
**PERCENTAGE OF 2021 WATER QUALITY RESULTS THAT MET**  
**BENCHMARK OR REFERENCE POINT**

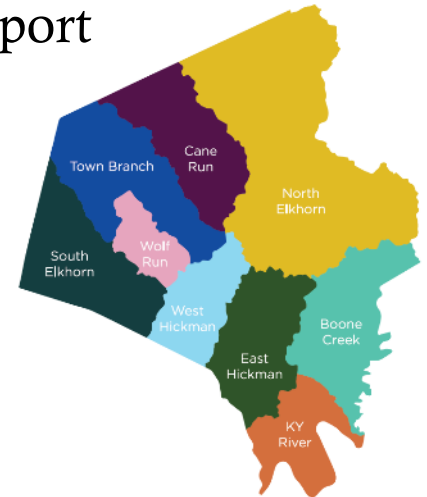
PARAMETER	UNIT	LIMIT	% MEETING BENCHMARK / REFERENCE POINT						
			CR-S2	EH-S9	NE-S3	SE-S1	TB-S3	WH-S0	WR-S2
Specific Conductance	uS/cm	500	0%	88%	13%	25%	0%	44%	33%
Dissolved Oxygen	mg/L	4	100%	100%	100%	100%	100%	100%	100%
Water Temp.	°C	31.7	100%	100%	100%	100%	100%	100%	100%
pH	SU	< 9, > 6	100%	100%	100%	100%	100%	100%	100%
Total Susp. Solids	mg/L	80	100%	100%	88%	100%	100%	100%	92%
E. coli	CFU/100mL	240	0%	63%	38%	25%	33%	22%	17%
Phosphorus, Dissolved	mg/L	0.5	100%	100%	100%	100%	0%	100%	100%
Phosphorus, Total	mg/L	0.5	90%	100%	88%	88%	0%	100%	67%
Ammonia-N	mg/L	1	100%	100%	100%	100%	78%	100%	100%
Total Kjeldahl Nitrogen-N	mg/L	2	100%	100%	100%	100%	78%	100%	83%
Nitrate-N + Nitrite-N	mg/L	2	100%	100%	100%	100%	0%	100%	100%

**TABLE 17**  
**SUMMARY OF 2021 MACROINVERTEBRATE SAMPLING RESULTS BY SITE**

METRIC	CR-S2	EH-S9	NE-S3	SE-S1	TB-S3	WH-S0	WR-S2
Date Sampled	03/08/21	07/08/21	03/08/21	07/19/21	07/07/21	07/07/21	07/08/21
MBI Score	15.7	50.5	30.8	60.5	38.6	36.6	47.6
MBI Rating <sup>2</sup>	Very Poor	Fair	Poor	Good	Poor	Poor	Fair
WAH Use Support	Non	Partial	Non	Fully	Non	Non	Partial

# Watershed-Focused Monitoring Program

- East Hickman report in 2021 MS4 Permit Annual Report
- Town Branch Monitoring Year in 2021
- North Elkhorn Phase 1 Screening Year in 2021



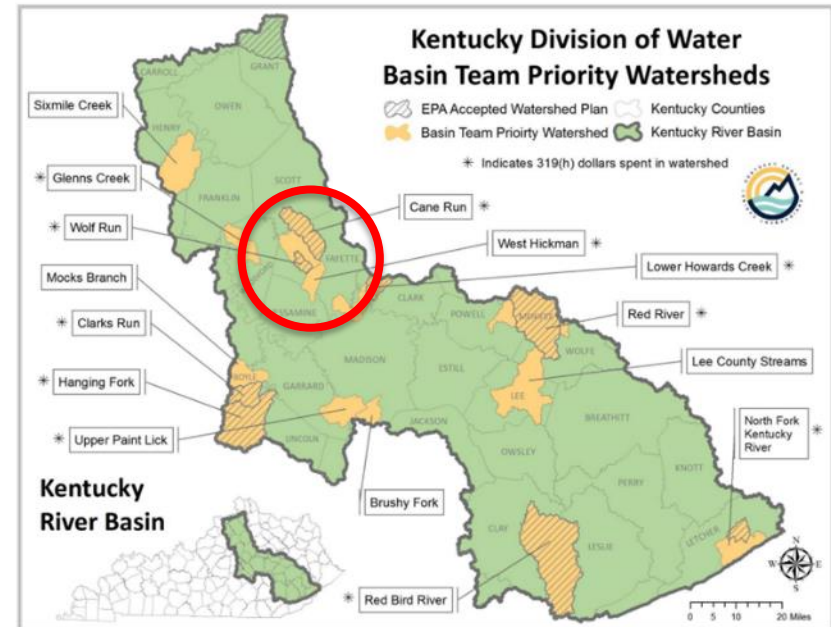
**TABLE 2 – PROJECT SCHEDULE BY WATERSHED**

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

# Watershed Planning and Implementation

Watersheds with approved Watershed Based Plans (WBPs) in Lexington:

- Cane Run 2019
- Wolf Run 2013
- West Hickman – Pending



Source: KWRRI

# Stormwater Quality Projects Incentive Grant Program

## Incentive Grants Awarded in 2021

Grant Class	Amount Awarded	Number of Projects
FY22 Class A Neighborhood Grants	\$165,271.00	4
FY22 Class B Education Grants	\$114,173.00	4
FY22 Class B Infrastructure Grants	\$1,418,008.00	6
	<b>\$1,697,452.00</b>	<b>14</b>



*FY18 UK  
Alumni Drive  
(Across from  
Arboretum)  
Stream  
Restoration, Bio-  
infiltration  
Swale Project  
Complete*



*FY20 900  
Block of North  
Limestone  
Stormwater  
Retrofit –  
Pervious  
Pavement,  
Rain Gardens,  
Bioswale,  
Water Walk  
Complete*

## Moving Forward

- Continue compliance work in all Program Element categories per MS4 Permit with the State – Released from the stormwater side of the U.S. District Court Clean Water Act Consent Decree in 2021
- Continue to promote and administer the Water Quality Management Fee incentive grant program
- Focus on methods to further transition the Watershed-Focused Monitoring Program from data collection to an action plan
- Maintain our partnerships with stormwater management stakeholders



# CLOSING & QUESTIONS

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