POST-CONSTRUCTION BMP LIST GROWING A MILE HIGH

5-CITIES PLUS
August 8, 2018

Christopher Dent, P.E., LFUCG – Division of Water Quality
Jason Martin, LFUCG – Division of Water Quality
Patrick McFadden, LFUCG – Division of Water Quality

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WHAT IS A POST-CONSTRUCTION BMP?

- BMP - Best Management Practice
- Control Water Quantity and/or Water Quality
- Installed for Regulatory Purposes
- Examples:
  - Permeable Pavement
  - Manufactured Water Quality Units
  - Bio-Infiltration
  - Vegetated Roof
  - Rain Gardens

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AGENDA

Post-Construction BMPs

- Background
- Where did these BMPs come from?
- Climbing the mountain: Where did we stall? What peaks did we summit?
- The next mountain
- Questions

Program Details available at
www.lexingtonky.gov

BACKGROUND

- LFUCG – Lexington-Fayette Urban County Government
- 2nd largest city in Kentucky (60th in US about 325,000)
- Storm sewer is separate system from sanitary sewer
- Phase 1 MS4 Community
- Generally top of watershed(s)

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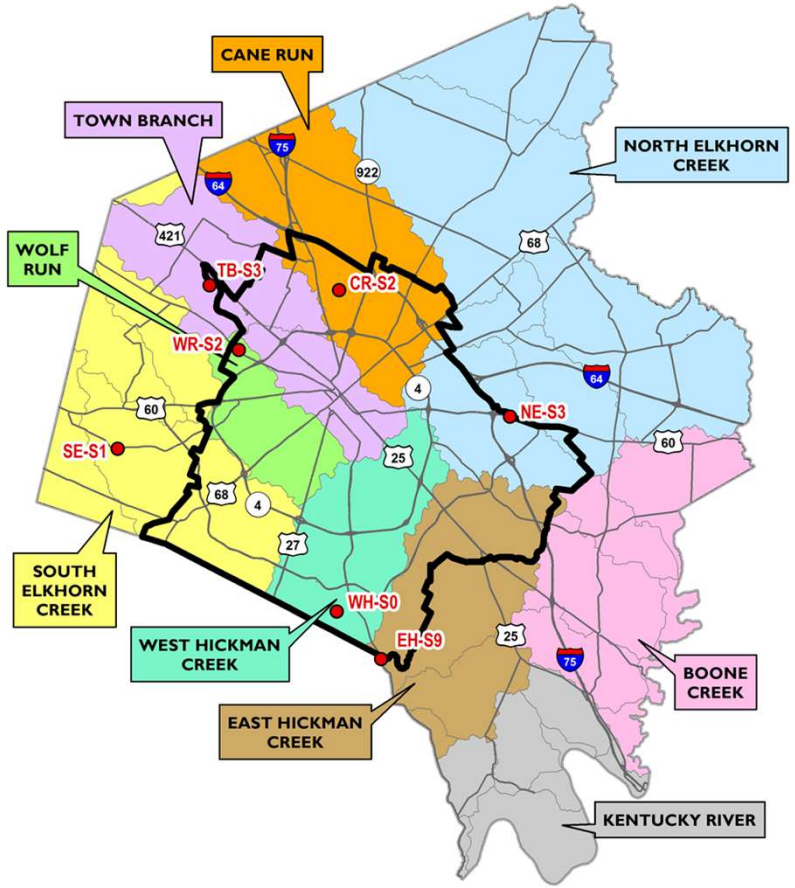
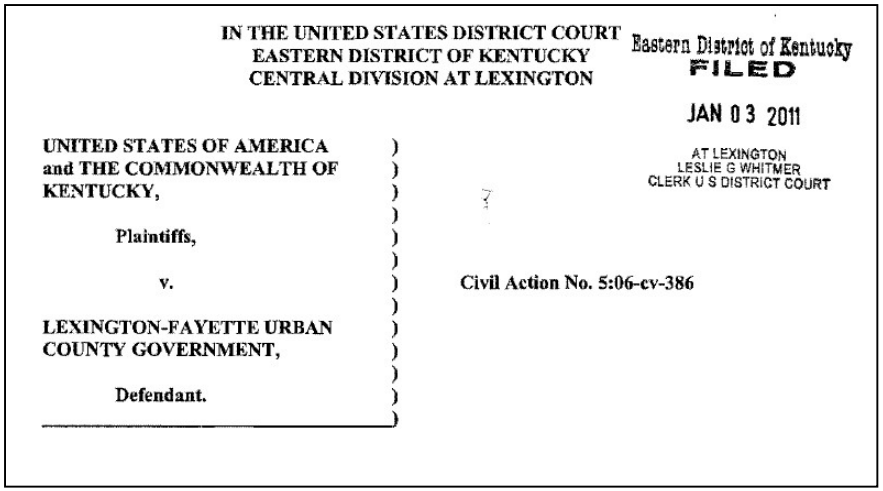
BACKGROUND

- 9 Major Watersheds
- No Major River
- Urban Service Area/
  Rural Service Area
- Other MS4s
  - University of Kentucky
  - KYTC



BACKGROUND

- EPA filed complaint in 2006, and the Consent Decree became effective January 3, 2011
- In 2009, Water Quality Management Fee passed by city council and fee was implemented January 2010
- With funds in place Lexington began to implement a Post-Construction BMP Inspection and Maintenance Program in 2010



IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF KENTUCKY
CENTRAL DIVISION AT LEXINGTON

Eastern District of Kentucky
FILED
JAN 03 2011
AT LEXINGTON
LESLIE G WHITMER
CLERK U S DISTRICT COURT

UNITED STATES OF AMERICA and THE COMMONWEALTH OF KENTUCKY,

Plaintiffs,

v.

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT,

Defendant.

Civil Action No. 5:06-cv-386

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BACKGROUND

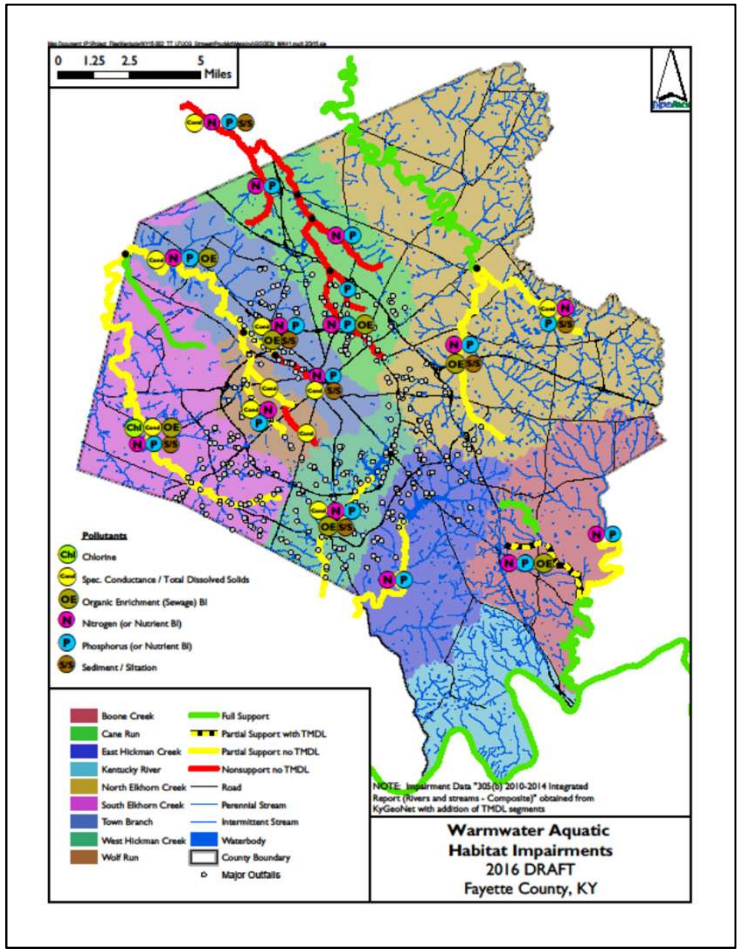
Water Quality Management Fee

- Inspection and Enforcement
- **Post-Construction BMP Program**
- System Mapping, Modeling, Master Planning
- Public Education and Outreach
- Water Quality Monitoring and Reporting
- Stormwater Infrastructure / Flooding Relief Projects
- Water Quality Capital Projects
- Incentive Grant Program

- No Credit Program

BACKGROUND

Lexington's Impaired Streams



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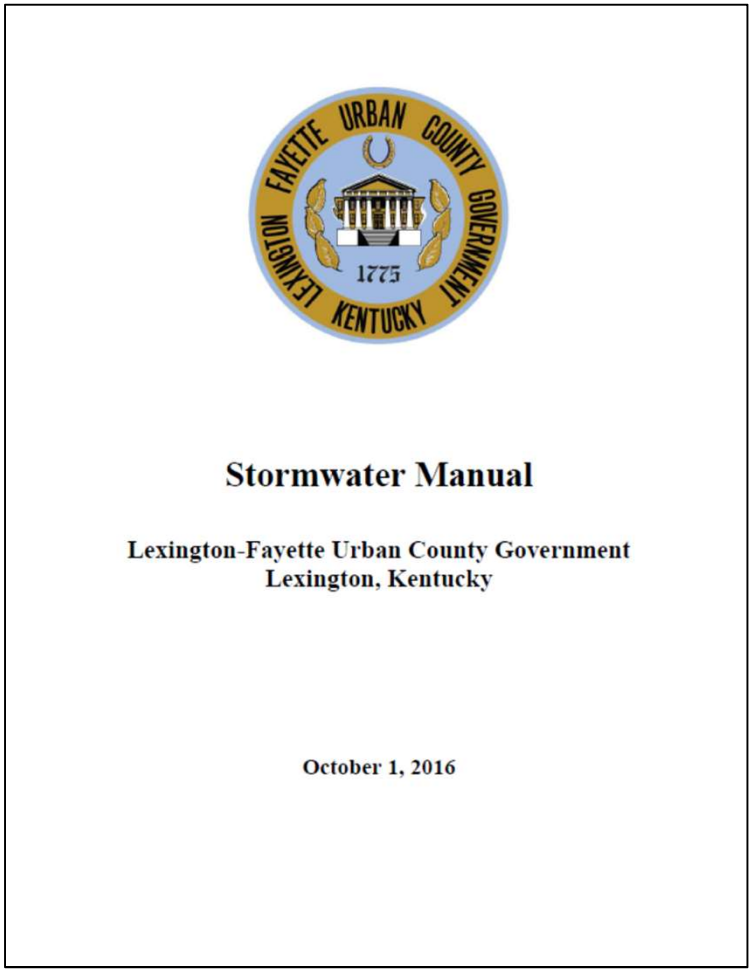
WHERE DID THESE BMPS COME FROM?

Basins & Ponds Inspection Program Already Established

WHERE DID THESE BMPS COME FROM?

LFUCG Stormwater Manual



Stormwater Manual

Lexington-Fayette Urban County Government
Lexington, Kentucky

October 1, 2016

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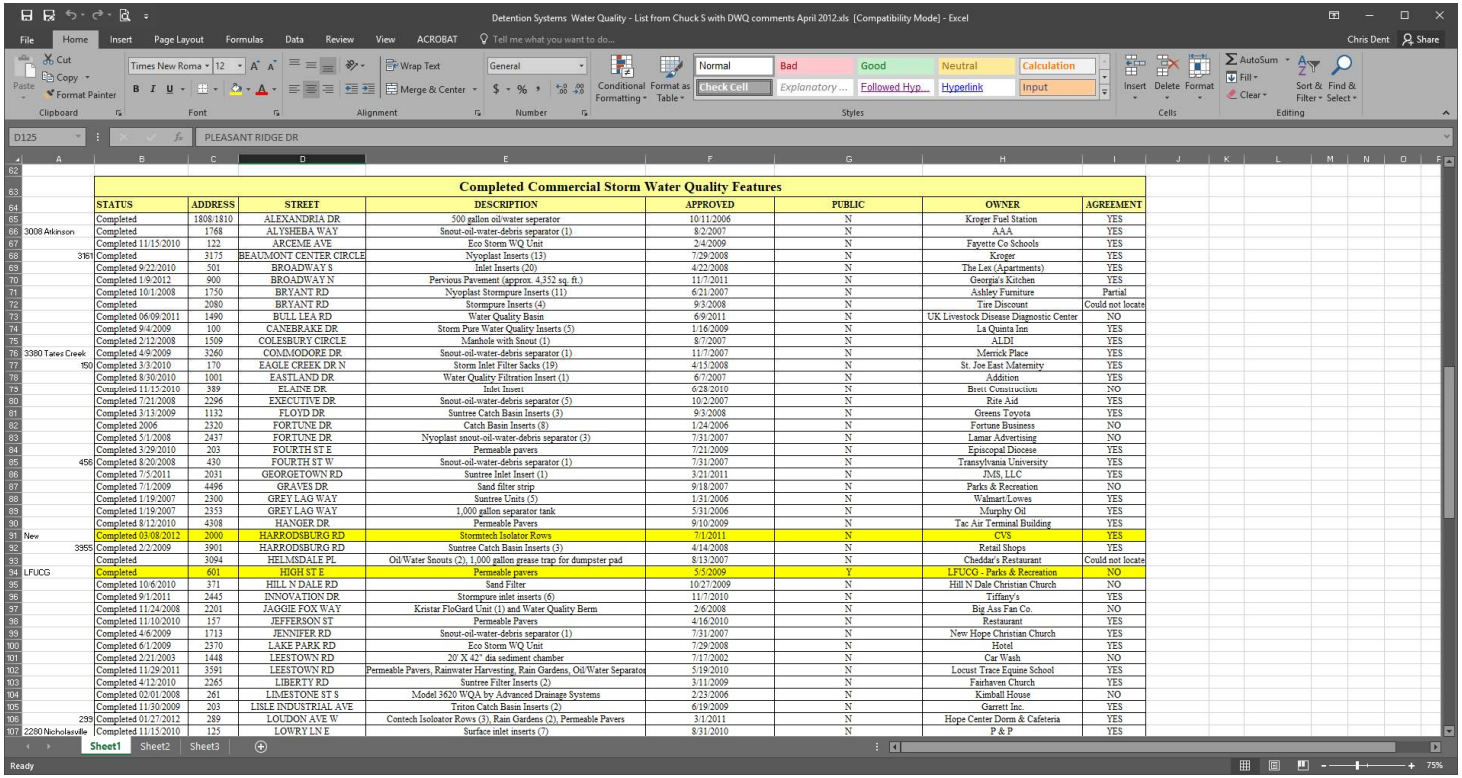
WHERE DID THESE BMPS COME FROM?

- Initial inventory provided by Division of Engineering
- By the end of 2010, 176 BMPs on the inventory



Detention Systems Water Quality - List from Chuck S with DWQ comments April 2012.xls [Compatibility Mode] - Excel

PLEASANT RIDGE DR

Completed Commercial Storm Water Quality Features

	STATUS	ADDRESS	STREET	DESCRIPTION	APPROVED	PUBLIC	OWNER	AGREEMENT
	Completed	1808/1810	ALEXANDRIA DR	500 gallon oil/water seperator	10/11/2006	N	Kroger Fuel Station	YES
3008 Atkinson	Completed	1768	ALYSHEBA WAY	Snout-oil-water-debris separator (1)	8/2/2007	N	AAA	YES
	Completed 11/15/2010	122	ARCEME AVE	Eco Storm WQ Unit	2/4/2009	N	Fayette Co Schools	YES
3161	Completed	3175	BEAUMONT CENTER CIRCLE	Nyoplast Inserts (13)	7/29/2008	N	Kroger	YES
	Completed 9/22/2010	501	BROADWAY S	Inlet Inserts (20)	4/22/2008	N	The Lex (Apartments)	YES
	Completed 1/9/2012	900	BROADWAY N	Pervious Pavement (approx. 4,352 sq. ft.)	11/7/2011	N	Georgia's Kitchen	YES
	Completed 10/1/2008	1750	BRYANT RD	Nyoplast Stormpure Inserts (11)	6/21/2007	N	Ashley Furniture	Partial
	Completed	2080	BRYANT RD	Stormpure Inserts (4)	9/3/2008	N	Tire Discount	Could not locate
	Completed 06/09/2011	1490	BULL LEA RD	Water Quality Basin	6/9/2011	N	UK Livestock Disease Diagnostic Center	NO
	Completed 9/4/2009	100	CANEBRAKE DR	Storm Pure Water Quality Inserts (5)	1/16/2009	N	La Quinta Inn	YES
	Completed 2/12/2008	1509	COLESBURY CIRCLE	Manhole with Snout (1)	8/7/2007	N	ALDI	YES
3380 Tates Creek	Completed 4/9/2009	3260	COMMODORE DR	Snout-oil-water-debris separator (1)	11/7/2007	N	Merrick Place	YES
150	Completed 3/3/2010	170	EAGLE CREEK DR N	Storm Inlet Filter Sacks (19)	4/15/2008	N	St. Joe East Maternity	YES
	Completed 8/30/2010	1001	EASTLAND DR	Water Quality Filtration Insert (1)	6/7/2007	N	Addition	YES
	Completed 11/15/2010	389	ELAINE DR	Inlet Inserts	6/28/2010	N	Brett Construction	NO
	Completed 7/21/2008	2296	EXECUTIVE DR	Snout-oil-water-debris separator (5)	10/2/2007	N	Rite Aid	YES
	Completed 3/13/2009	1132	FLOYD DR	Suntree Catch Basin Inserts (3)	9/3/2008	N	Greens Toyota	YES
	Completed 2006	2320	FORTUNE DR	Catch Basin Inserts (8)	1/24/2006	N	Fortune Business	NO
	Completed 5/1/2008	2437	FORTUNE DR	Nyoplast snout-oil-water-debris separator (3)	7/31/2007	N	Lamar Advertising	NO
	Completed 3/29/2010	203	FOURTH ST E	Permeable pavers	7/21/2009	N	Episcopal Diocese	YES
456	Completed 8/20/2008	430	FOURTH ST W	Snout-oil-water-debris separator (1)	7/31/2007	N	Transylvania University	YES
	Completed 7/5/2011	2031	GEORGETOWN RD	Suntree Inlet Insert (1)	3/21/2011	N	JMS, LLC	YES
	Completed 7/1/2009	4496	GRAVES DR	Sand filter strip	9/18/2007	N	Parks & Recreation	NO
	Completed 1/19/2007	2300	GREY LAG WAY	Suntree Units (5)	1/31/2006	N	Walmart/Lowes	YES
	Completed 1/19/2007	2353	GREY LAG WAY	1,000 gallon separator tank	5/31/2006	N	Murphy Oil	YES
	Completed 8/12/2010	4308	HANGER DR	Permeable Pavers	9/10/2009	N	Tac Air Terminal Building	YES
New	Completed 03/08/2012	2000	HARRODSBURG RD	Stormtech Isolator Rows	7/1/2011	N	CVS	YES
3955	Completed 2/2/2009	3901	HARRODSBURG RD	Suntree Catch Basin Inserts (3)	4/14/2008	N	Retail Shops	YES
	Completed	3094	HELMSDALE PL	Oil/Water Snouts (2), 1,000 gallon grease trap for dumpster pad	8/13/2007	N	Cheddar's Restaurant	Could not locate
LFUCG	Completed	601	HIGH ST E	Permeable pavers	5/5/2009	Y	LFUCG - Parks & Recreation	NO
	Completed 10/6/2010	371	HILL N DALE RD	Sand Filter	10/27/2009	N	Hill N Dale Christian Church	NO
	Completed 9/1/2011	2445	INNOVATION DR	Stormpure inlet inserts (6)	11/7/2010	N	Tiffany's	YES
	Completed 11/24/2008	2201	JAGGIE FOX WAY	Kristar FloGard Unit (1) and Water Quality Berm	2/6/2008	N	Big Ass Fan Co.	NO
	Completed 11/10/2010	157	JEFFERSON ST	Permeable Pavers	4/16/2010	N	Restaurant	YES
	Completed 4/6/2009	1713	JENNIFER RD	Snout-oil-water-debris separator (1)	7/31/2007	N	New Hope Christian Church	YES
	Completed 6/1/2009	2370	LAKE PARK RD	Eco Storm WQ Unit	7/29/2008	N	Hotel	YES
	Completed 2/21/2003	1448	LEESTOWN RD	20' X 42' dia sediment chamber	7/17/2002	N	Car Wash	NO
	Completed 11/29/2011	3591	LEESTOWN RD	Permeable Pavers, Rainwater Harvesting, Rain Gardens, Oil/Water Separator	5/19/2010	N	Locust Trace Equine School	YES
	Completed 4/12/2010	2265	LIBERTY RD	Suntree Filter Inserts (2)	3/11/2009	N	Fairhaven Church	YES
	Completed 02/01/2008	261	LIMESTONE ST S	Model 3620 WQA by Advanced Drainage Systems	2/23/2006	N	Kimball House	NO
	Completed 11/30/2009	203	LISLE INDUSTRIAL AVE	Triton Catch Basin Inserts (2)	6/19/2009	N	Garrett Inc.	YES
239	Completed 01/27/2012	289	LOUDON AVE W	Contech Isoloator Rows (3), Rain Gardens (2), Permeable Pavers	3/1/2011	N	Hope Center Dorm & Cafeteria	YES
2280 Nicholasville	Completed 11/15/2010	125	LOWRY LN E	Surface inlet inserts (7)	8/31/2010	N	P & P	YES

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WHERE DID THESE BMPS COME FROM?

Underground Detention

Images from www.ads-pipe.com and www.conteches.com

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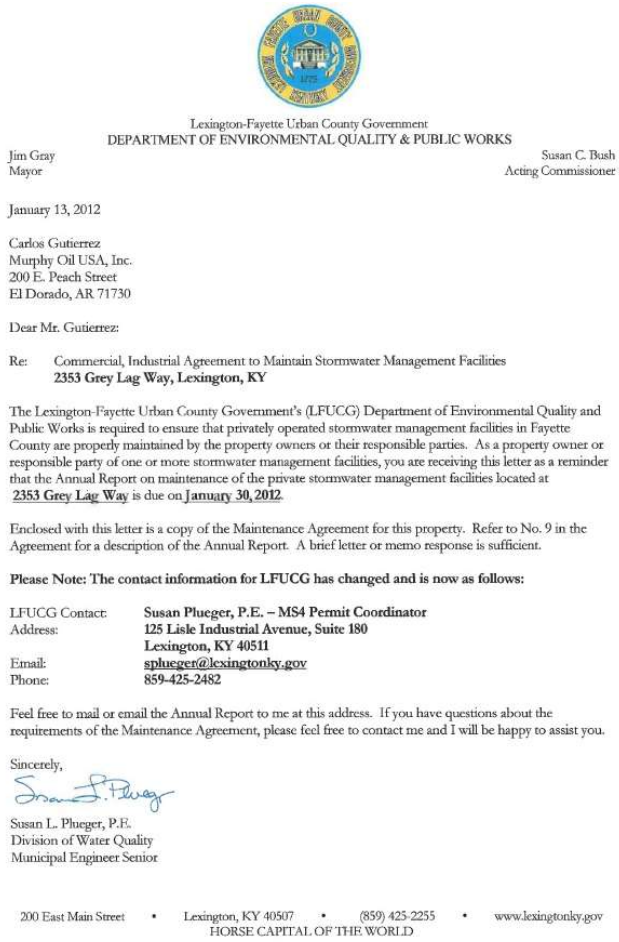
STARTING THE ASCENT

- In 2010, Program Started – Lack of Resources
- In 2011, the protocol was to send a letter to each property owner who had a BMP on their site requesting a written report of the condition.
- Letters proved to be highly unsuccessful
- General public did not have enough knowledge about BMPs and LFUCG received calls about the letters
  - Owners did not know where the BMPs were, how they functioned, or what purpose they served
- Reports received represented a fraction of the letters sent out

STARTING THE ASCENT

- The approach of requesting reports was soon abandoned
- LFUCG started performing site inspections
- The initial BMP inventory was generated
- BMPs found in the field would be inspected and researched prior to adding them to the inventory



Lexington-Fayette Urban County Government
DEPARTMENT OF ENVIRONMENTAL QUALITY & PUBLIC WORKS

Jim Gray
Mayor

Susan C. Bush
Acting Commissioner

January 13, 2012

Carlos Gutierrez
Murphy Oil USA, Inc.
200 E. Peach Street
El Dorado, AR 71730

Dear Mr. Gutierrez:

Re: Commercial, Industrial Agreement to Maintain Stormwater Management Facilities
2353 Grey Lag Way, Lexington, KY

The Lexington-Fayette Urban County Government's (LFUCG) Department of Environmental Quality and Public Works is required to ensure that privately operated stormwater management facilities in Fayette County are properly maintained by the property owners or their responsible parties. As a property owner or responsible party of one or more stormwater management facilities, you are receiving this letter as a reminder that the Annual Report on maintenance of the private stormwater management facilities located at **2353 Grey Lag Way** is due on **January 30, 2012**.

Enclosed with this letter is a copy of the Maintenance Agreement for this property. Refer to No. 9 in the Agreement for a description of the Annual Report. A brief letter or memo response is sufficient.

Please Note: The contact information for LFUCG has changed and is now as follows:

LFUCG Contact: **Susan Plueger, P.E. – MS4 Permit Coordinator**
Address: **125 Lisle Industrial Avenue, Suite 180**
Lexington, KY 40511
Email: **splueger@lexingtonky.gov**
Phone: **859-425-2482**

Feel free to mail or email the Annual Report to me at this address. If you have questions about the requirements of the Maintenance Agreement, please feel free to contact me and I will be happy to assist you.

Sincerely,

Susan L. Plueger, P.E.
Division of Water Quality
Municipal Engineer Senior

200 East Main Street • Lexington, KY 40507 • (859) 425-2255 • www.lexingtonky.gov
HORSE CAPITAL OF THE WORLD

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SIZING UP THE MOUNTAIN

- Identify problems:
  - Needed better communication between Divisions of Water Quality and Engineering
  - Technical review by Water Quality and Engineering for conflicts on proposed construction projects
  - Engineering New Development notification to Division of Water Quality when BMPs were shown on submitted plans
  - Communication between Engineering's field inspectors and Water Quality's inspectors

SIZING UP THE MOUNTAIN

- Identify problems:
  - Progress updates on construction progress
  - Maintenance agreements between LFUCG and the property owner
  - Property owner / end user education including maintenance of and purpose for BMPs

WHERE DID WE STALL?

Coordination

Inside LFUCG:

- Division of Water Quality
- Division of Engineering
- Division of Environmental Services
- Division of Planning
- LexCall (One Call Service)
- Division of Parks
- Council Members / Aides
- Mayor's Office

Outside LFUCG:

- Property Owners with Post-Construction Controls
- Kentucky Division of Water
- Developers / Engineers / Contractors
- LFUCG's Contractors

THE VIEW FROM THE SUMMIT

- Improved Communication Between Divisions of Water Quality and Engineering
  - Improved throughout the years through coordination meetings with staff from multiple divisions, including our consultant
  - Added staff has made it easier to separate some of the duties within the program
  - Everyone is talking and sharing information regularly
  - Technical review is being done between water quality, engineering, environmental services, planning, and building inspection
  - Engineering inspectors are updating Water Quality inspectors on construction progress more frequently

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THE VIEW FROM THE SUMMIT

- Providing public education on BMPs
- Meeting on site with property owners to provide training
- Making people aware of owners' responsibilities
- Routine scheduled inspections
- Good recordkeeping to track progression
- Maintaining BMPs so they function properly

AVOIDING ALTITUDE SICKNESS

Monitoring Our Progress

- Total Inventory
- Compliance
- Number of NOVs Issued
- Enforcement Referrals

- In the beginning, spreadsheet only
- Accela
- GIS
- WQ BMPs → Asset IDs / GIS → Accela
- Tiered inspections of WQ BMPs

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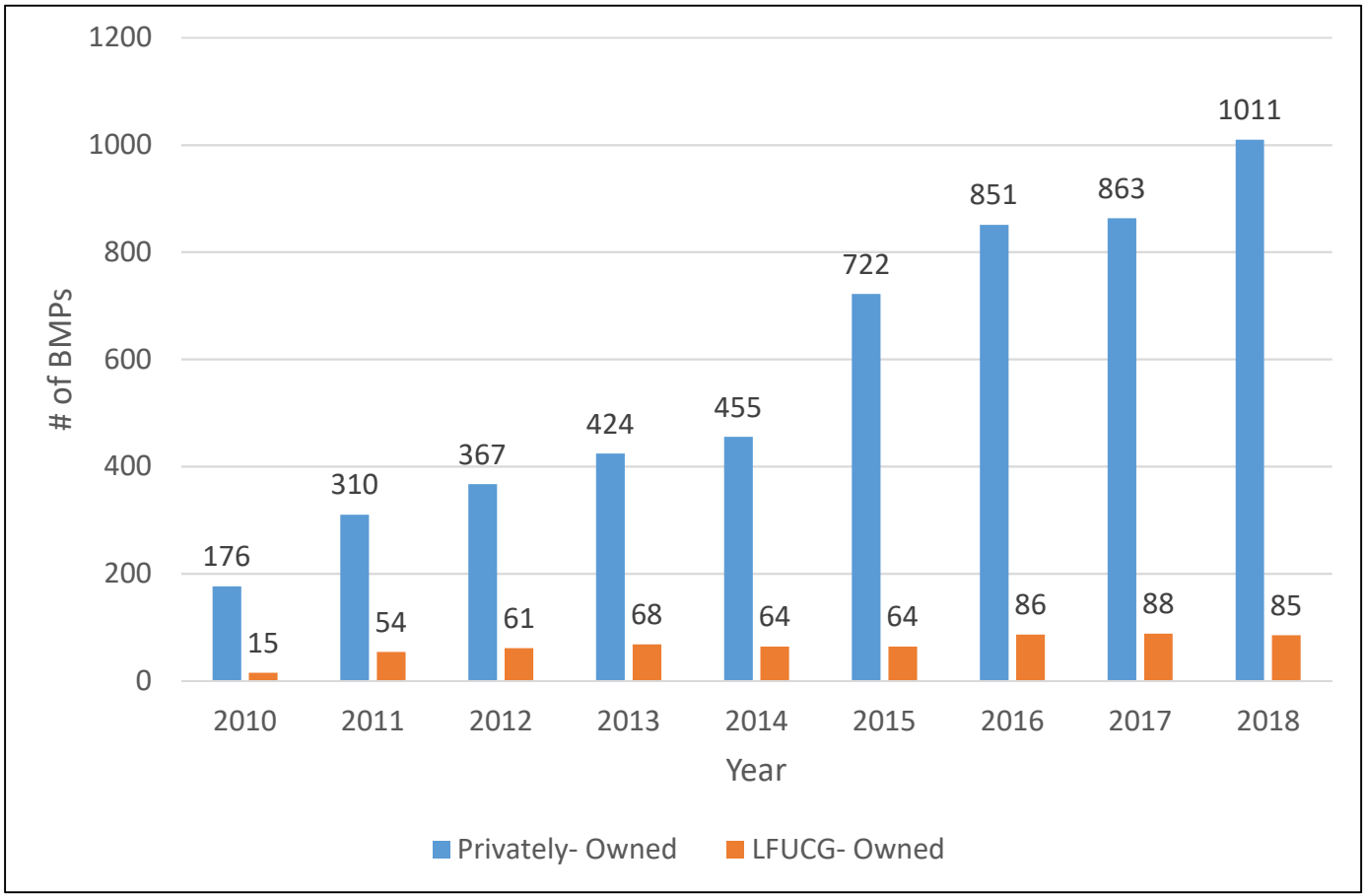
AVOIDING ALTITUDE SICKNESS

Monitoring Our Progress: Minding Our Inventory



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WHAT IS THE NEXT MOUNTAIN?

Successes

- Growing the Water Quality BMP inventory from 455 in 2015 to 1,011 in 2018
- Coordinating with the Division of Engineering during investigations of potential controls under consideration for the inventories
- Receiving monthly communication from the Division of Engineering regarding controls being proposed for sites or under construction
- Coordinating with the Division of Environmental Services on enforcement AND MAINTENANCE
- Working with property owners, property managers, contractors

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WHAT IS THE NEXT MOUNTAIN?

Continued Coordination

- Continue to coordinate with other divisions
- Staff Turnover

Image from lexingtonluxurylimo.com

WHAT IS THE NEXT MOUNTAIN?

Policies

- Strengthening then implementing new or revised ordinances / policies regarding ownership, maintenance, repair
- Stormwater Manual Updates

Image from freepik.com

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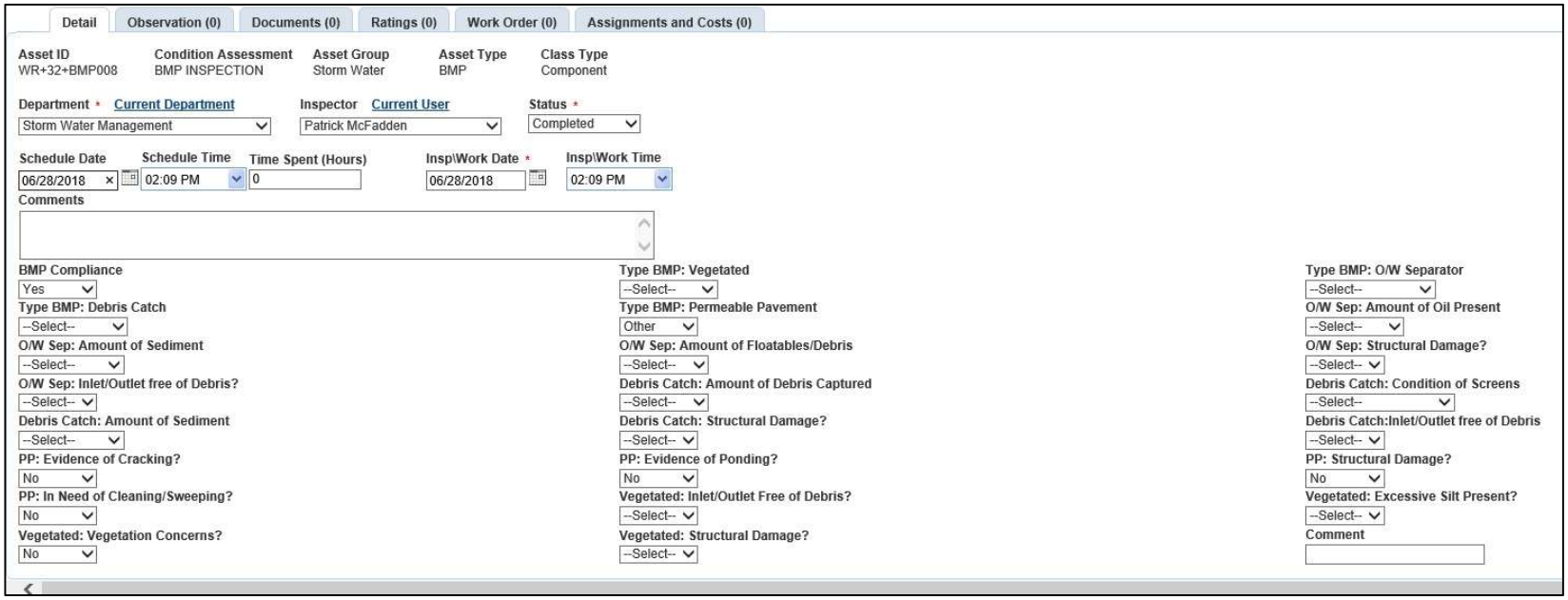
WHAT IS THE NEXT MOUNTAIN?

Tracking

- BMPs → GIS
- Accela
  - Bulky, but government-wide
  - Is there a better asset management program?
  - Reporting functions are good



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WHAT IS THE NEXT MOUNTAIN?

Other Challenges

- Finding the “sweet spot” in compliance
- Clear enforcement mechanisms

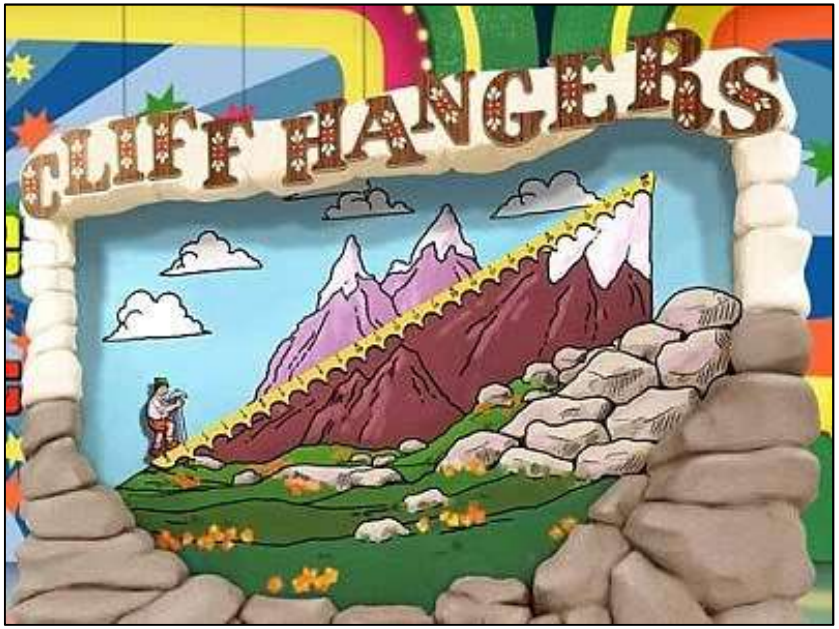

Image www.google.com/images

QUESTIONS

- FAQs & Facts
  - 176 Private Post-Construction BMPs in 2010
  - 1,011 Private Post-Construction BMPs in 2018
  - 36 Underground Detention Basins in 2011
  - 96 Underground Detention Basins in 2018
  - These numbers utilized in permit reports
  - 7 Full-time MS4 Program Staff and 2 Summer Interns
  - 834 Miles of Storm Sewer
  - 53,186 Stormwater Structures (MHs, HWs, etc.)

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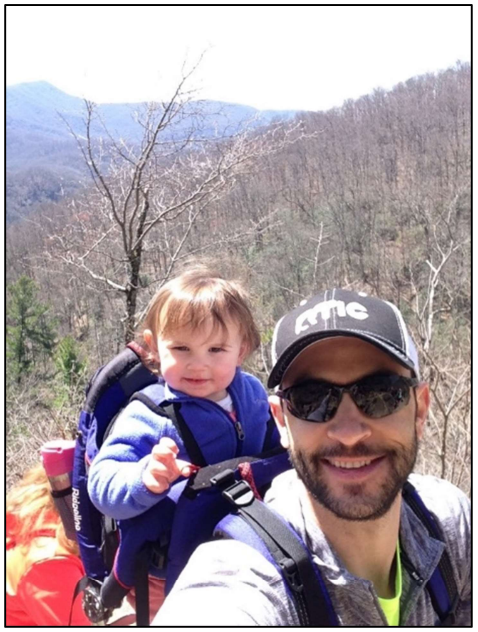
WHY DO WE DO ALL OF THIS?

QUESTIONS

What mountains are you climbing?



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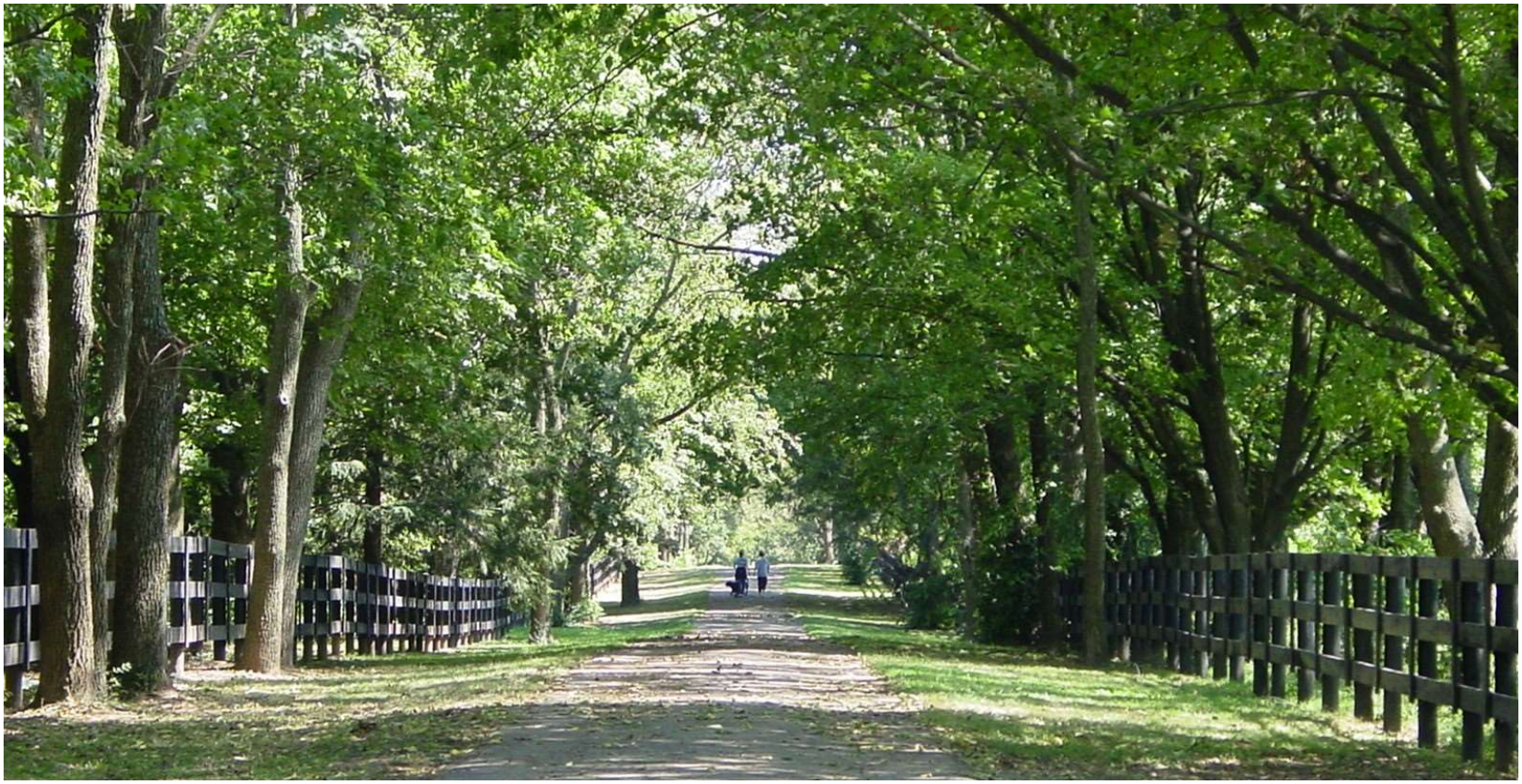
QUESTIONS



WHAT QUESTIONS DO YOU HAVE?

MS4@lexingtonky.gov
www.lexingtonky.gov