MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

October 31, 2011

Ms. Abigail Rains
Kentucky Division of Water
Surface Water Permits Branch
200 Fair Oaks Lane, 4th Floor
Frankfort, Kentucky 40601

Subject: Annual Report Submittal for KYS000001

Dear Ms. Rains:

Enclosed is the Annual Report for the Louisville and Jefferson County Large MS4 stormwater discharge permit. The primary Permittee for this municipal stormwater discharge permit is the Louisville and Jefferson County MSD and the Co-Permitees including: Louisville Metro and Cities of Anchorage, Jeffersontown, St. Matthews, and Shively. The enclosed Annual Report documents the efforts of each of the Co-Permittees to comply with the MS4 permit by implementation of the MS4 permit elements during the period of July 1, 2010 to June 30, 2011. The required reporting period is prior to the August 1, 2011 effective date of the MS4 permit. Therefore, this report is considered a "baseline report". While it is the first annual report, it does not reflect completion requirements for the first permit year. That data will be provided in the next annual report.

MSD hereby submits the Annual Report as required by KPDES Permit KYS000001 on behalf of all the Co-Permittees. 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.

Regards

Herbert J. Sohardein
Executive Director

Municipal Separate Storm Sewer System (MS4)

ANNUAL REPORT

October 2011

KPDES Permit No. KYS000001 | AI No. 8235

Baseline Reporting Period: July 1, 2010 – June 30, 2011

MSD Metropolitan Sewer District

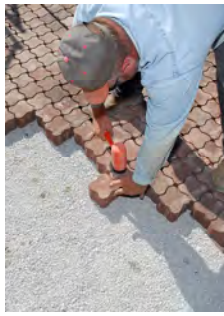
Compiled and Submitted By:
Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, KY 40203

Kentucky UNBRIDLED SPIRIT

Reporting To:
Kentucky Division of Water
Surface Water Permits Branch
200 Fair Oaks Lane, 4th Floor
Frankfort, KY 40601





Co-Permittees:
Louisville Metropolitan Government | City of Anchorage | City of Jeffersontown | City of St. Matthews | City of Shively

EXECUTIVE SUMMARY

The Mission of the Municipal Separate Storm Sewer System (MS4) Stormwater Quality Management Program is to enhance stormwater runoff quality and protect our streams and riparian habitat in order to promote public health, safety, and welfare.

Stormwater runoff quality and volume have been ongoing concerns in Louisville since its inception. The Louisville Metropolitan Sewer District (MSD) has been responsible for flood control and drainage for developed areas of Jefferson County since 1985. MSD began comprehensive water quality monitoring of local streams in collaboration with the U.S. Geological Survey (USGS) in 1988. When the Municipal Separate Storm Sewer KPDES permitting program began in the early 1990s, KYS000001 was the first Large MS4 Permit issued in our region. Each permit cycle, we enhance and improve our program planning and activities, regulatory authority, environmental education programs and leadership by example. The requirements in this permit represent the KDOW's determination of maximum extent practicable (MEP) for the Louisville MSD and Jefferson County communities covered by this permit. This permit, effective June 2011, represents a significant increase in MEP and MS4 stormwater control.

This Annual Report covers the reporting period from July 1, 2010 through June 30, 2011. The permit was released June 7, 2011, and MSD has written this annual report to correspond to new permit activities. MSD has made significant progress on permit activities ahead of schedule for Permit Year 1. This report represents the baseline permit year and next year's annual report will include progress made in Permit Year 1. Subsequent Permit Years will follow the permit reporting schedule provided in Section 2.0 MSD Activity Summary Tables.

Along with MSD, its co-permittees continually work to improve the water quality of our local streams. Louisville Metro is a co-permittee for its public works activities as are the Cities of Anchorage, Jeffersontown, St. Matthews, and Shively. This Annual Report includes documentation and reporting of co-permittee activities for the abovementioned reporting period in Chapter 3.

The Annual Report is a tool to document, report and track progress that ultimately helps protect and improve the water quality in our streams. These areas include Public Education, Outreach, Participation & Learning Experiences (PEOPLE), Illicit Discharge Detection and Elimination (IDDE), Industrial Program (IP), Construction Site Stormwater Runoff Controls (CS), Post-Construction Stormwater Runoff Controls (PC), Good Housekeeping and Pollution Prevention (GH/P2), Monitoring Programs (M), and Program Assessment and Reporting (PAR).

TABLE OF CONTENTS

CHAPTER 5 MONITORING

SUPPORTING INFORMATION

APPENDICES (Provided in Electronic Form Only)

DEFINITIONS, ACRONYMS AND UNITS

DEFINITIONS

Baseline. The existing conditions. An initial set of observations or data used as a comparison or starting point from which the magnitudes of an alternative's effects are measured.

BMPs, Best Management Practices. Management procedures, equipment or facilities that either prevents pollutants from contaminating runoff or that treat runoff before it enters a stream. BMPs may also reduce runoff velocity or volume in order to prevent stream degradation from excessive erosive forces. BMPs also include treatment requirements, operating procedures, and practice to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

BOD, Biochemical Oxygen Demand. A measurement of the amount of oxygen used by the decomposition of organic material over a specified time period (usually 5 days) in a wastewater sample. Used as a measurement of the readily decomposable organic content of water. Also referred to as BOD5, this is a measure of the amount of oxygen required by microbes to consume the pollutants in a sample of water during the five days after the sample is taken.

CFR, Code of Federal Regulations. A codification of the general and permanent rules published by the Federal Register by the executive departments and agencies of the federal government.

Clean Water Act. The MS4 permit is a result of the 1987 amendments to the Clean Water Act, where congress mandated that the EPA address non-point source pollution in stormwater runoff.

Consent Decree. A judicial decree expressing a voluntary agreement between parties to a suit, especially an agreement by a defendant to cease activities alleged by the government to be illegal in return for an end to the charges.

CPESC, Certified Professional in Erosion and Sediment Control. A CPESC is a recognized specialist in soil erosion and sediment control by EnviroCert International, Inc. CPESCs have educational training, demonstrated expertise, experience in controlling erosion and sedimentation, and meet certification standards.

CPSWQ, Certified Professional in StormWater Quality. A CPSWQ is a recognized specialist in stormwater quality by EnviroCert International, Inc. CPSWQs have educational training, demonstrated expertise, experience in managing storm water quality, and meet certification standards.

CRS, Community Rating System. The CRS was developed by the National Flood Insurance Program (NFIP) and is a voluntary incentive-based program that recognizes and encourages

community floodplain management activities that exceed the minimum NFIP requirements. Benefits of participation in the program include reduced flood insurance premium rates and reduced flood risk due to community action to meet the goals of the CRS.

CS, Construction Site stormwater management. One of the requirements under the NPDES stormwater program to address erosion prevention and sediment control issues on construction sites.

CSO, Combined Sewer Overflow. an outfall identified as a combined sewer overflow or CSO in MSD's KPDES permit for the Morris Forman WQTC from which MSD is authorized to discharge during wet weather. Dry Weather CSO - An overflow from a permitted outfall identified as a combined sewer overflow or CSO in MSD's Morris Forman WQTC KPDES permit that is not the result of a wet weather event. Wet Weather CSO - An overflow from a permitted outfall identified as a combined sewer overflow or CSO in MSD's Morris Forman WQTC KPDES permit that is the result of a wet weather event. Combined sewers carry both sanitary waste and stormwater drainage. CSOs are outlets that dump excess water from the sewers into streams and rivers, keeping the sewers from backing up into homes, businesses and streets when it rains.

CSS, Combined Sewer System. The portion of MSD's Sewer System designed to convey municipal sewage (domestic, commercial, and industrial wastewaters) and stormwater runoff through a single-pipe system to MSD's Morris Forman WQTC or CSOs. The system of drainage pipes built in the urban area of the City of Louisville after a public water supply was provided in the 1860s. The CSS conveys combined stormwater and sewage away from urbanized areas into local streams during wet weather. During dry weather sewage is channeled to the treatment plant. The MS4 does not include the CSS area.

DO, Dissolved Oxygen. A measurement of the amount of oxygen dissolved in water, typically expressed in mg/L.

DRI, Drainage Response Initiative. Project DRI is a partnership between Louisville Metro government and MSD that was created to respond to local drainage issues.

EPA, Environmental Protection Agency. The US federal agency responsible for regulating environmental hazards.

EPSC, Erosion Prevention and Sediment Control. EPSC measures and best management practices are designed to reduce sediment runoff and erosion from occurring on construction sites and other locations.

ERPI, Emergency Response Pretreatment Inspector. MSD coordinates with ERPIs to respond to spills, including HAZMAT response, to comply with illicit discharge detection and elimination components of this permit.

FEMA, Federal Emergency Management Agency. An agency of the US Department of Homeland Security that was created to coordinate response to disasters, recovery efforts, and disaster preparation and planning.

Floodplain Management Ordinance. The local ordinance enacted in 1997. The FPO has specific requirements for storage of hazardous materials in the floodplain as well as limits on development and redevelopment.

GDP, General Discharge Permit. A general discharge permit is issued to a category of dischargers and covers all projects or activities associated with their permit.

GH, Good Housekeeping. Those programs and activities performed to reduce pollution by not creating it or by not releasing it from the source at municipal facilities. Good Housekeeping goes hand in hand with Pollution Prevention (P2). GH includes materials substitution by use of less-toxic alternatives, management procedures that minimize the quantity of waste generated, housekeeping practices that reduce spillage and recover materials, reuse of materials recovered and recycling of waste.

GIS, Geographic Information System. An information system for capturing, storing, analyzing, managing and presenting data which are spatially referenced. MSD uses GIS platforms to efficiently and effectively manage and store data associated with its storm sewer system and stormwater permit. This capability includes producing maps, displaying the results of data queries, and conducting spatial analysis.

Gray Infrastructure. Constructed structures such as treatment facilities, sewer systems, stormwater systems, or storage basins. The term “gray” refers to the fact that such structures are typically made of, or involve the use of concrete.

Green Infrastructure. An adaptable term used to describe an array of materials, technologies, and practices that use natural systems—or engineered systems that mimic natural processes—to enhance overall environmental quality and provide utility services. As a general principal, green infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff. Examples of green infrastructure include green roofs, porous pavement, rain gardens, and vegetated swales. “Green” infrastructure is a combination of natural and engineered infrastructure that is designed to reduce the environmental footprint of the system. In terms of stormwater, green infrastructure can effectively manage stormwater runoff through the use of infiltration, biofiltration, detention and other stormwater management techniques.

HANSEN®. Trademark name of the database and software program used by MSD for recording, tracking, and reporting geocoded data. Hansen houses MSD sewer and drainage system asset data, the MIDAS property and permit data, the customer service request data and the pretreatment program permit and hazardous materials response program data. Hansen geocoded tables are theme layers in the LOJIC GIS.

HBAL, Homebuilders Association of Louisville. MSD coordinates with this organization to education with the development and construction community on the requirements of the stormwater quality permit.

HMO, Hazardous Materials Ordinance. First adopted in 1986, the local HMO requires HMPC plans and local HAZMAT release reporting. The amended HMO was approved July 2, 2007.

HMPC, Hazardous Materials (spill) Prevention and Control. Local facilities that store reportable quantities of hazardous materials are required to file a plan application with MSD. There are currently over 3,000 approved plans. HMPC plans include requirements for adequate secondary containment, training, release response and reporting requirements.

HSPF, Hydrological Simulation Program – FORTRAN. A comprehensive package developed by the USEPA for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants. The program incorporates hydrology and water quality to allow the integrated simulation of land and soil contaminant runoff processes with in-stream hydraulic and sediment-chemical interactions.

IDDE, Illicit Discharge Detection and Elimination. One of the requirements under the NPDES stormwater program to address non-stormwater discharges into waterways through regulatory measures, identification and removal.

IF&P, Infrastructure and Flood Protection. MSD's I&FP crews address improvements associated with the combined and storm sewer systems to improve community flood protection.

IFPD, Infrastructure and Flood Protection Division. MSD deploys crews to address improvements associated with the combined and storm sewer systems to improve community flood protection.

IWD, Industrial Waste Department. The MSD Industrial Waste Department is part of the Regulatory Services Division. It administers the WDRs through the industrial pretreatment program, the customer service request response and HAZMAT incident response program, and the HMO through the hazardous materials plan program. The motor vehicle accident (MVA) mitigation program is also administered by IWD.

JCPS, Jefferson County Public Schools. JCPS is the local county-wide public school system. MSD coordinates with JCPS on several public education, outreach and involvement initiatives associated with the stormwater permit.

KDOW, Kentucky Division of Water. (In the Department for Environmental Protection in the Environment and Public Protection Cabinet). Responsible for issuing all permits for discharges into the waters of the Commonwealth.

KEEC, Kentucky Environmental Education Council. The KEEC is a state agency within the Education Cabinet. The goal of the KEEC is to improve Kentuckians' understanding of their environment and to provide them with the knowledge they need to make their own informed decisions.

KEPSC, Kentucky Erosion Prevention and Sediment Control. A qualified inspector program in erosion prevention and sediment control. The program has introductory and qualification courses and an exam to test participants on their understanding of erosion and sediment control. The material and exam is based on the KPDES general permit for construction. Participants who have passed the exam are listed as qualified inspectors in Kentucky.

KPDES, Kentucky Pollutant Discharge Elimination System. Any National Pollutant Discharge Elimination System permit issued to MSD by the Cabinet pursuant to the authority of the Clean Water Act and Kentucky Revised Statues (KRS) Chapter 224 and the regulations promulgated thereunder. KPDES is the state regulatory permitting program through which MSD's stormwater program is directed.

KPPC, Kentucky Pollution Prevention Center. The KPPC at the University of Louisville provides pollution prevention and energy efficiency services to Kentucky's businesses, industries, state government agencies and communities. KPPC also provides free, non-regulatory waste assessments to Kentucky businesses.

KRS, Kentucky Administrative Regulations. Administrative regulations published by the Kentucky Legislative Commission. An unofficial posting of the KAR is available via the Commission's website at www.lrc.ky.gov.

KWA, Kentucky Waterways Alliance. A non-profit organization that promotes networking, communication and mutual support among groups, government agencies, and businesses working on waterway issues. MSD provides financial assistance to KWA for its volunteer stream monitoring program.

KYTC, Kentucky Transportation Cabinet. The Kentucky Transportation Cabinet operates storm sewers on their properties and state road and highway rights-of-way within the Louisville Metro MS4.

LDMD, Louisville Downtown Management District. A designated 61-block area within the Central Business District with services designed to enhance the physical environment of downtown including improvements for better security, maintenance, cleanliness and marketing.

LIMS, Laboratory Information Management System. This database houses the monitoring location and analytical results for MSD monitoring.

LLW, Living Lands and Waters. An organization that promotes the riparian restoration of watersheds and mobilizes local volunteers to participate in stream clean up, planting and invasive species removal efforts.

LMDPHW, Louisville Metro Department of Public Health and Wellness. A branch of the Louisville Metro Government operating under the direction of the Mayor and Louisville Metro Council, with the role of improving health and wellness in the Louisville Metro area.

LMEMA, Louisville Metro Emergency Management Agency. A branch of the Louisville Metro Government responsible for preparation, mitigation, response, and recovery from natural and manmade disasters.

LMFD, Louisville Metro Fire Department. A branch of the Louisville Metro Government that provides fire protection, prevention, environmental protection, education, building inspection, and fire cause determination throughout the Louisville Metro area.

LMPD, Louisville Metro Police Department. A branch of the Louisville Metro Government and built through the merger of the City of Louisville and Jefferson County governments. LMPD provides law enforcement, security, and education for the Louisville Metro area.

LNC, Louisville Nature Center. A community resource that provides nature education and recreation for community members to enjoy. Projects and resources are sponsored by community donations and supported by MSD.

Loading. Pounds of pollutants per day in running water calculated as concentration in parts per million (mg/L) multiplied by water flow in million gallons per day (MGD) multiplied by 8.34 pounds per gallon: Parts/million × million gallons/day × 8.34 pounds/gallon = pounds/day.

LOJIC, Louisville and Jefferson County Information Consortium. The local arcview GIS project founded by MSD in partnership with the Louisville Water Company, Louisville Metro Government and the Jefferson County Property Valuation Administration. LOJIC mapping capabilities include physical, commercial, socioeconomic and political geographic information. The LOJIC arcview and the Hansen data tables are linked. LOJIC mapping is available to the public at www.lojic.org.

LTMN, Long Term Monitoring Network. System of in-stream monitoring locations that have a data sonde continuously recording water quality parameters and USGS flow gages. Samples are taken and laboratory analyses performed for other pollutants of concern as described in this SWQMP. Data is available online at http://waterdata.usgs.gov/ky/nwis.

M, Stream Monitoring. One of the requirements under the NPDES stormwater program to monitor improvements to local water quality and the overall effectiveness of permit activities.

mg/L, Milligrams per Liter. Unit of concentration of pollutants in water in parts per million.

MGD, Million Gallons per Day. Unit of measure for water flow used to calculate pollutant loading.

MIDAS, Metro Information, Development and Assets System. The portion of the Hansen database used by Louisville Metro government for permit and inspection programs.

MS4, Municipal Separate Storm Sewer System. Jefferson County contains MS4s operated by MSD, Anchorage, Jeffersontown, St. Matthews, and Shively. The Kentucky Transportation Cabinet also operates storm sewers on their properties and state road and highway rights-of-way within the other Metro MS4s. Louisville Metro Government provides for stormwater conveyance in public streets and parks.

MSD, the Louisville and Jefferson County Metropolitan Sewer District. MSD is responsible for wastewater collection, conveyance and treatment, stormwater drainage and flood control within its District except for those drainage areas operated by the co-permittees and those areas located outside the boundaries of the MS4 drainage service area. MSD is also responsible for response, mitigation, notification, and reporting of overflows, including unauthorized discharges. MSD administers the Louisville Metro Erosion Prevention and Sediment Control Ordinance, the Floodplain Ordinance, the Hazardous Materials Ordinance and the Wastewater/Stormwater Discharge Regulations. www.msdlouky.org

NICET, National Institute for Certification in Engineering Technologies. NICET is an examining body whose function is to evaluate the qualifications of those who apply for certification in engineering technology fields. www.nicet.org

NOD, Notice of Deficiency. Permittees not meeting the regulatory intent of their permit may receive a NOD. A NOD includes the deficient item or items and necessary corrective actions.

NOV, Notice of Violation. Permittees not meeting the regulatory requirements of their permit may receive a NOV. A NOV may include the item or items in violation, corrective actions and fines incurred.

NPDES, National Pollutant Discharge Elimination System. NPDES is the federal regulatory permitting program through which MSD's stormwater program is directed.

NPS, Nonpoint Source. Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, and eventually deposits them into lakes, rivers, wetlands and other waterbodies. Nonpoint source pollutants often include excess fertilizers and herbicides from agricultural and residential areas, oil and grease from urban areas, sediment from improperly managed construction sites and eroding streambanks, and bacteria and nutrients from livestock and pet wastes.

OHWM, Ordinary High Water Mark. Ephemeral streams that are tributary to other waters of the U. S. are also waters of the U. S., as long as they possess an OHWM. The upstream limit of waters of the United States is the point where the OHWM is no longer perceptible (see 51FR 41217). An ephemeral stream that does not have an OHWM is not a water of the United States. The frequency and duration at which water must be present to develop an OHWM has not been established for the USACE regulatory program. District engineers use their judgment on a case-by-case basis to determine whether an OHWM is present. http://www.epa.gov/owow/wetlands/regs/nwpfinal.pdf

P2, Pollution Prevention. Those programs and activities performed to reduce pollution by not creating it or by not releasing it from the source. P2 includes materials substitution by use of less-toxic alternatives, management procedures that minimize the quantity of waste generated, housekeeping practices that reduce spillage and recover materials, reuse of materials recovered and recycling of waste.

PAR, Program Assessment and Reporting. One of the requirements under the NPDES stormwater program to evaluate the stormwater program on a regular basis to determine program improvement and progress, and to document activities for regulatory compliance.

Pathogen. An organism capable of causing disease, including disease-causing bacteria, protozoa, and viruses.

PC, Post-Construction stormwater runoff and pollutant controls. One of the requirements under the NPDES stormwater program to manage stormwater runoff and maintain stormwater best management practices in a sustainable fashion to allow effective long-term stormwater treatment.

PCR, Primary Contact Recreation. PCR is a surface water use of full-body contact recreation that includes immersion of the head and face, such as swimming.

PEOPLE, Public Education, Outreach, Participation and Learning Experiences. One of the requirements under the NPDES stormwater program to improve the knowledge of the general public and target audiences to make individual behavior changes to improve stormwater quality.

PER, Program Evaluation and Reporting. One of the requirements under the NPDES stormwater program to evaluate the stormwater program on a regular basis to determine program improvement and progress, and to document activities for regulatory compliance.

POTW, Publicly Owned Treatment Works. Wastewater collection, conveyance and treatment utility owned and operated by a public agency. MSD is a POTW.

Project XL, Project eXcellence in Leadership Program. The US EPA national pilot program designed to allow selected sewage treatment agencies to test whether better and more cost-effective methods can be used to improve water quality.

PRR, Preliminary Response Report. A report issued by IWD in response to a hazardous materials release incident call and investigation. The report is issued to the responsible party and directs them to immediate corrective actions that are required. PRRs and inspection findings are reviewed by the IWD Response Group.

PS, Point Source. Point source pollution is a single, identifiable point discharge of pollution. An example of a point source discharge would include a sewage treatment plant or an industrial discharge facility.

QA/QC, Quality Assurance/Quality Control. This is a process to check the quality of work and activities.

Regulatory Services. This division at MSD is a product of the pretreatment program and the Louisville Metro Hazardous Materials ordinance. The division administers programs in partnership with private industry and regulatory agencies.

S&F, Solids and Floatables. Materials in sewage that are large enough to be visibly recognizable. Most solids and floatables in combined sewage are comprised of street litter and debris, but some plastic and paper products flushed down toilets stay in a visibly recognizable form, and are objectionable to some people.

Sanitary Sewer. A pipe or conduit (sewer) intended to carry wastewater or water-borne wastes from homes, businesses, and industries to the publicly owned treatment works.

SCR, Secondary Contact Recreation. SCR is a surface water use for recreational contact with surface waters that does not include full-body immersion.

SEC, Specific Electrical Conductance. The measure of the electrical conductance of water normalized to a unit length and a unit cross-section at a specific temperature.

SIU, Significant Industrial User. As defined by the EPA, any industry which is designated as such by the MWRA on the basis that the industrial user has a reasonable potential for adversely affecting the operation of the collection system or treatment plant, or violating any pretreatment requirement.

SOP, Standard Operating Procedure. These procedures are defined by MSD and are followed by MSD staff and personnel.

SSO, Sanitary Sewer Overflow. Any discharge of wastewater to waters of the United States from MSD's Sewer System through a point source not authorized by a KPDES permit, as well as any release of wastewater from MSD's Sewer System to public or private property that does not reach Waters of the United States, such as a release to a land surface or structure that does not reach Waters of the United States; provided, however, that releases or wastewater backups into buildings that are caused by blockages, flow conditions, or malfunctions in a building lateral,

or in other piping or conveyance system that is not owned or operationally controlled by MSD are not SSOs.

SSS, Sanitary Sewer System**.** The portion of MSD's sewer system designed to convey only municipal sewage (domestic, commercial, and industrial wastewaters) to MSD's WQTCs.

Stream. Surface water channel having well-defined banks and bed, either constantly or intermittently flowing. "Ephemeral stream" means a watercourse which only flows in direct response to precipitation in the immediate watershed, or in response to the melting of a cover of snow and ice, and which has a channel bottom that is above the local water table. An ephemeral stream is a water of the United States, provided it has an OHWM. "Intermittent stream" means a steam or part of a stream that does not flow continuously throughout the calendar year; but that has a bed below the local water table for at least one (1) month of the calendar year during which it obtains its flow from both surface water and ground water discharge. The term does not include an ephemeral stream. "Perennial stream" means a stream or part of a stream that flows continuously during all of the calendar year as a result of ground-water discharge or surface runoff. The term does not include "intermittent stream" or "ephemeral stream".

Surface Waters. Those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface.

SWO, Stop Work Order. A permit holder or regulatory authority may issue a stop work order for permit violations within their jurisdiction.

SWPPP, Stormwater Pollution Prevention Plan. A plan for stormwater discharge that when implemented will decrease nonpoint source pollution.

SWQMP, Stormwater Quality Management Program. All activities undertaken that improve the quality of stormwater runoff into the waters of Jefferson County.

TARC, Transit Authority of River City. Louisville Metro's public transportation system.

TDS, Total Dissolved Solids. The fine particles that are suspended in water as measured by a laboratory analysis. TDS are typically small enough to pass through a sieve size of two micrometers.

TMDL, Total Maximum Daily Load. A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

TTO, Total Toxic Organics. The sum of the analytical results greater than 0.01 mg/L of a list of toxic organics as specified by EPA.

TTS, Total Suspended Solids. The fine particles suspended in water as measured by a laboratory analysis. High TSS causes adverse water quality conditions for sensitive aquatic organisms.

TVS, Total Volatile Solids. TVS includes organic compounds of animal or plant origin.

Unauthorized Discharge. (a) any discharge of wastewater to waters of the United States from MSD's Sewer System or WQTCs through a point source not authorized by a KPDES permit and (b) any Bypass at MSD's WQTCs prohibited pursuant to the provisions of 40 CFR § 122.41(m)(2) and (4) or 401 KAR 5:065, Section 1(13)(a) and (c).

USACE, U.S. Army Corps of Engineers. A branch of the US Government, made up of civilians and military members with a wide diversity of disciplines. From biologists, engineers, geologists, hydrologists, natural resource managers, to other professionals needed within this entity. The Corps plans, designs, builds, operates, and regulates water resources projects that are crucial to the citizens of the United States.

USGS, United States Geological Survey. A division of the US Government, Department of Interior. USGS is the sole science agency for the Department of Interior.

WAH, Warm Water Aquatic Habitat. "Warm Water Aquatic Habitat" or "WAH" means any surface water and associated substrate capable of supporting indigenous warm water aquatic life.

WASP, Water Quality Analysis Simulation Program. This is a model created by the EPA to model contaminant fate and transport in surface waters.

Water. From KRS 224.01 (33) "Water" or "waters of the Commonwealth" means and includes any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction; Effluent ditches and lagoons used for waste treatment which are situated on property owned, leased, or under valid easement by a KPDES-permitted discharger are not considered to be waters of the Commonwealth.

WATERS. Watershed Approach to Environmentally Responsible Stewardship. This MSD report on water quality programs and activities was published annually from 2000 through 2004.

Watershed. Land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

WDR, Jefferson County Wastewater/Stormwater Discharge Regulations. The WDR applies to all users of the sewer collection system as well as the MS4. It contains regulations that prohibit discharge of materials that could cause damage to the sewer system or the environment in WDR Section 2. WDR Section 5 prohibits discharges to stormwater conveyances. Penalties and enforcement are authorized by WDR Section 6. MSD's IWD administers the WDR.

WIN, Waterway Improvements Now. This is the brand name and logo adopted by MSD for the program to address SSOs and CSOs.

WQS, Water Quality Standards. Standards that set the goals, pollution limits, and protection requirements for each waterbody. These standards are composed of designated (beneficial) uses, numeric and narrative criteria, and antidegradation policies and procedures.

WQTC, Water Quality Treatment Center. MSD owns and operates five wastewater treatment centers in Louisville Metro. These include the Morris Forman, Derek R. Guthrie, Hite Creek, Cedar Creek and Jeffersontown WQTCs.

ACRONYMS & UNITS

BMP	Best management practice
BOD	Biochemical oxygen demand
CFR	Code of Federal Regulations
cfs	Cubic feet per second
cfu	Colony forming unit
COD	Chemical oxygen demand
CPESC	Certified Professional in Erosion and Sediment Control
CPSWQ	Certified Professional in StormWater Quality
CRS	Community Rating System
CS	Construction Site
CSO	Combined sewer overflow
CSRs	Customer Service Requests
CSS	Combined sewer system
CWA	Clean Water Act
DAG	Developers Advisory Group
DMR	Discharge monitoring report

DO	Dissolved oxygen
E. Coli	Escherichia Coli
EMS	Emergency Management Service
EPA	U.S. Environmental Protection Agency
EPSC	Erosion Prevention and Sediment Control
ERPI	Emergency Response Pretreatment Inspector
FEMA	Federal Emergency Management Agency
FOG	Fats, oils, and grease
FPO	Floodplain Management Ordinance
FY	Fiscal year
GDP	General Discharge Permit
GH	Good Housekeeping
GH/P2	Good Housekeeping/ Pollution Prevention
GIS	Geographic Information System
GPD	Gallons per day
GPP	Groundwater Protection Plan
HBAL	Home Builders Association of Louisville
HMO	Hazardous Materials Ordinance
HMPC	Hazardous Materials (spill) Prevention and Control
HRIFs	High Risk Industrial Facilities
HSPF	Hydrological Simulation Program – FORTRAN
I&FP	Infrastructure and Flood Protection
IDDE	Illicit Discharge Detection and Elimination
IFPD	Infrastructure and Flood Protection Division
IOAP	Integrated Overflow Abatement Plan
IP	Industrial Program
IP&L	Inspections, Permits and Licensing
IPCC	Intergovernmental Panel on Climate Change
IWD	Industrial Waste Department
JCPS	Jefferson County Public Schools
JTown	Jeffersontown
KAR	Kentucky Administrative Regulations

KDEP	Kentucky Department of Environmental Protection
KDOW	Kentucky Division of Water
KEEC	Kentucky Environmental Education Council
KEPSC	Kentucky Erosion Prevention and Sediment Control
KPDES	Kentucky Pollutant Discharge Elimination System
KPPC	Kentucky Pollution Prevention Center
KRS	Kentucky Revised Statute
KWA	Kentucky Waterway Alliance
KYTC	Kentucky Transportation Cabinet
LDMD	Louisville Downtown Management District
LEED	Leadership in Energy and Environmental Design
LG&E	Louisville Gas & Electric
LIMS	Laboratory Information Management System
LLW	Living Land & Water
LMDPHW	Louisville Metro Department of Public Health and Wellness
LMEMA	Louisville Metro Emergency Management Agency
LMFD	Louisville Metro Fire Department
LNC	Louisville Nature Center
LOJIC	Louisville and Jefferson County Information Consortium
LTCP	Long-Term Control Plan
LTMN	Long Term Monitoring Network
LWC	Louisville Water Company
M	Monitoring
mg/L	Milligrams per liter
MGD	Million gallons per day
MIDAS	Metro Information, Development and Assets System
MS4	Municipal Separate Storm Sewer System
MSD	Louisville and Jefferson County Metropolitan Sewer District
MVA	motor vehicle accident
NEXRAD	Next-Generation Radar
NFIP	National Flood Insurance Program
NICET	National Institute for Certification in Engineering Technologies

NMC	Nine Minimum Controls
NOAA	National Oceanographic and Atmospheric Administration
NOD	Notice of Deficiency
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NWS	National Weather Service
O&M	Operations and Maintenance
OHWM	Ordinary High Water Mark
ORSANCO	Ohio River Sanitation Commission
OSHA	Occupational Safety and Health Administration
P2	Pollution Prevention
PAR	Program Assessment and Reporting
PC	Post construction
PCR	Primary Contact Recreation
PE	Professional Engineer
PEOPLE	Public Education, Outreach, Participation and Learning Experiences
PER	Program Evaluation and Reporting
PIO	Public Information and Outreach
PM	Preventive maintenance
POTW	Publicly owned treatment works
Project DRI	Project Drainage Response Initiative
Project WIN	Project Waterway Improvements Now
Project XL	Project eXcellence in Leadership Program
PRR	Preliminary Response Report
PS	Point Source
PVA	Jefferson County Property Valuation Administrator
PVC	Polyvinyl chloride
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RBP	Stream Rapid Bioassessment Protocol
ROW	Right-of-way

RTC	Real time control
S&F	solids and floatables
SCADA	Supervisory Control and Data Acquisition
SCR	Secondary Contact Recreation
SEC	Specific Electrical Conductance
SIU	Significant Industrial User
SMMP	Stormwater Management Master Plan
SOP	Standard Operating Procedure
SORP	Sewer Overflow Response Protocol
SPCC	Spill Prevention, Control and Countermeasure
SSDP	Sanitary Sewer Discharge Plan
SSES	Sanitary Sewer Evaluation Survey
SSO	Sanitary sewer overflow
SSOP	Sanitary Sewer Overflow Plan
SSS	Sanitary sewer system
SWMM	Stormwater and Wastewater Management Model
SWO	Stop work order
SWPPP	Stormwater Pollution Prevention Plan
SWQMP	Stormwater Quality Management Plan
TARC	Transit Authority of River City
TDS	Total Dissolved Solids
TMDL	Total maximum daily load
TSS	Total suspended solids
TTO	Total Toxic Organics
TVS	Total Volatile Solids
UAA	Use Attainability Analysis
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
WAH	Warm Water Aquatic Habitat
WASP	Water Quality Analysis Simulation Program
WATERS	Watershed Approach to Environmentally Responsible Stewardship
WDR	Wastewater/Stormwater Discharge Regulations

WEF	Water Environment Federation
WERF	Water Environment Research Foundation
WLA	Waste Load Allocation
WQT	Water quality tool
WQTC	Water Quality Treatment Center
WWT	Wet Weather Team

CHAPTER 1 INTRODUCTION AND SWQMP ASSESSMENT

1.1 INTRODUCTION AND PURPOSE

The purpose of the Municipal Separate Storm Sewer System (MS4) Stormwater Quality Management Program (SWQMP) is to enhance stormwater runoff quality in Jefferson County. The purpose is also to protect and promote public health, safety, and welfare by preventing the introduction of harmful materials into the separate storm sewer systems that discharge into the streams in our watersheds. The MS4 Permit outlines the regulatory requirements for discharging municipal stormwater into local streams.

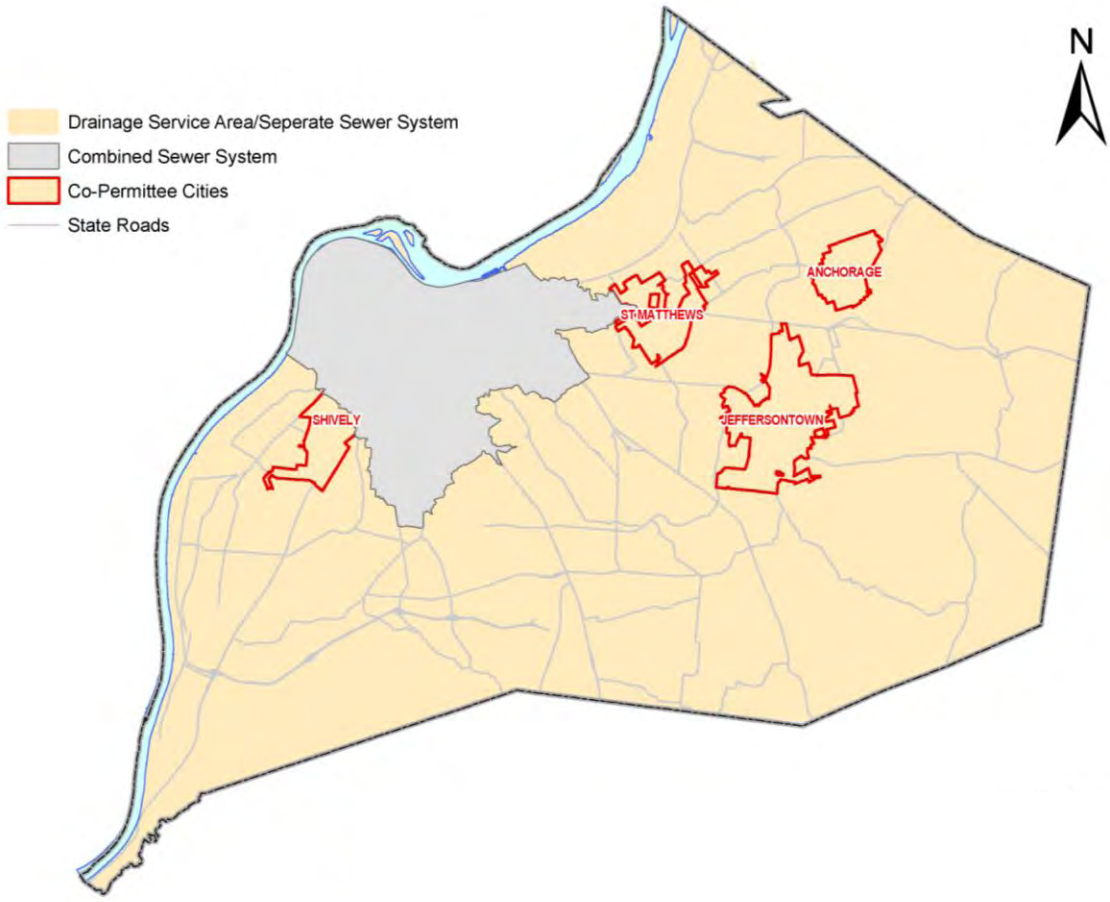
Jefferson County was one of three original counties in the Commonwealth of Kentucky. Today, Louisville Metro is a consolidated city of about 700,000 residents, qualifying it as a Large MS4 by the U.S. Environmental Protection Agency (EPA) and Kentucky Division of Water (KDOW). The KDOW issues permits that regulate activities that discharge pollutants to the Waters of the Commonwealth, including municipal stormwater runoff. KDOW issues Kentucky Pollutant Discharge Elimination System (KPDES) Permit KYS000001 for a Large MS4 to regulate the Louisville Metro SWQMP.

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is the primary co-permittee for MS4 Permit KYS000001. MSD operates the stormwater drainage utility in Jefferson County that is outside the jurisdiction of the other co-permittees, as well as the flood control system for Louisville Metro.

This document summarizes the stormwater quality activities and compliance points for the stormwater quality program in Jefferson County, Kentucky. The purpose of this Annual Report for KPDES Permit KYS000001 is to

- describe the MS4 permit requirements
- highlight SWQMP initiatives and accomplishments during the report year
- document the efforts of the permit holders to comply with the MS4 permit by implementation of the MS4 permit elements during the period of July 1, 2010 to June 30, 2011

Other co-permittees for the municipal stormwater permit include the Cities of Louisville Metro, Anchorage, Jeffersontown, St. Matthews, and Shively.



MSD and the co-permittees strive to provide the public with an understanding of complex water quality issues. Equally important is ensuring that citizens are adequately informed and comply with the regulatory programs that protect our watersheds. MSD-administered regulatory programs that are part of the SWQMP include the Erosion Prevention and Sediment Control Ordinance (EPSC) and the Floodplain Management Ordinance. The Illicit Discharge Detection and Elimination (IDDE) program is enforced through the Hazardous Materials Ordinance (HMO) and the Wastewater/Stormwater Discharge Regulations (WDR). Louisville Metro ordinances and codes deal with waste disposal as well as other environmental protection requirements, and the Cornerstone 2020 Land Development Code that was adopted in 2000 protects sensitive ecological features.

TABLE OF CONTENTS

1.2 SWQMP ASSESSMENT

This Section provides an assessment of the SWQMP for the report period. MSD and the other co-permittees utilize the SWQMP as a business plan to guide the various involved agencies and departments in how to implement the various requirements of the MS4 Permit. The SWQMP provides more detail than the MS4 Permit, and in some cases provides interim deadlines, intended to support the completion of the requirements on schedule and in a way that will satisfy the technical, administrative or other intents of the permit activities. The SWQMP will be updated overtime and provided to KDOW on an annual basis.

1.2.1 Major Findings & Accomplishments

Over time, this section will grow with each annual report. The program's history of major findings and accomplishments is encapsulated in the Overall Program Strengths and Weaknesses in the next subsection.

For this reporting period, it is important to note two significant activities over the year proceeding the effective date of this permit that showcase a major accomplishments, as follows:

- Development and Publication of Chapter 18 of the MSD Design Manual that focuses on Green Infrastructure. (See Section 2.5.10 of this report for more details.)
- Initiation of a financial incentive structure for Green Infrastructure. (See Section 2.5.14 of this report for more details.)

1.2.2 Overall Program Strengths and Weaknesses

The history of the MS4 program in Jefferson County is its greatest strength. As the City and County merged and small community co-permittees grew, the Louisville MSD has served as a steady driver to the program. Naturally, since the first MS4 permit was issued in 1994 there have been staff and organizational changes in all the involved agencies and departments Throughout, MSD and the co-permittees continued to institutionalize the program causing it to be less dependent upon any individual or department.

While staffing and budgets are a continual concern for every local government agency, MSD has demonstrated its commitment to the program through a robust and highly-qualified staff. This is particularly true of MSD's construction/development oversight and illicit discharge/industrial teams. Furthermore, Louisville Metro has a strong regulatory footing as established by the:

- EPSC Ordinance
- Hazardous Materials Ordinance
- Floodplain Management Ordinance

- MSD Stormwater and Wastewater Discharge Regulations
- Land Development Code
- Health Codes

Outreach and Involvement

In terms of outreach and involvement, MSD's culture of involvement and outreach is supported from the top down by the Executive Director's example of participation in hundreds of public and stakeholder outreach events and encouragement to staff to likewise lead and participate in community education and outreach opportunities as representatives of MSD. Through development of a social marketing campaign MSD has begun branding the efforts through Project WIN (Waterway Improvements Now). While the branded program is relatively new and developed through the wet weather program to address sewer overflows, the MS4 stormwater quality program benefits and has direct linkages to the Project WIN program.

Outreach Program Branding and Social Marketing Core

The success of MSD's program has come with its outreach challenges. The principal challenges have been coordination between departments and documentation of the many outreach and involvement activities. MSD is responsible not only for stormwater drainage, but for sanitary sewers and water quality treatment centers (WQTC), flood control and floodplain protection, the community Geographic Information System (GIS), development plan review and the EPSC program, and the hazardous materials spill prevention and control regulatory programs. Although these programs are managed by different Divisions and at different locations within MSD, the MS4 permit program includes aspects from all of these areas. Various MSD staff members in different departments have traditionally worked independently to develop and maintain education and outreach programs tailored to their regulatory sphere. Tracking and recording many disparate activities for the purposes of documenting compliance with the MS4 Permit remains a challenge.

Outreach Program Branding and Social Marketing Core

A continued challenge to the MSD Public Education, Outreach, Participation, and Learning Experiences (PEOPLE) program is the traditional reliance on the idea that if people know certain information, they will change their behavior accordingly. The education and outreach performed in the past has emphasized telling people what they should do, with little personal motivation to actually do it. Recent publications

and studies in the field of "social marketing" indicate that most people do not reliably adopt new behaviors based on information they are given unless they gain social or economic status from that behavior change.

In addition to MSD's own public outreach and educational efforts, the co-permittees also engage in PEOPLE activities. Louisville Metro Government collaborates with Jefferson County Public Schools (JCPS) and the University of Louisville in the "Partnership for a Green City" educational activities. The diffuse nature of these "internal" and "external" activities has made it difficult to produce congruent messages, estimate and report on the numbers of interactions with the public, and determine changes in behaviors that result from those efforts. New efforts to coordinate and document the PEOPLE activities are specifically addressed in the next Chapter of the annual report.

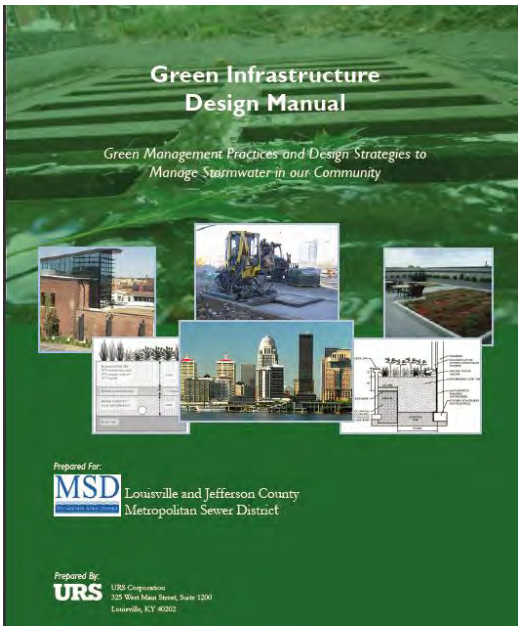
Construction / Development Oversight

A key program strength is the robust construction oversight program. MSD's approach to managing and directing construction in the service area has gradually expanded since it assumed the role of a stormwater utility in 1987. MSD has a well trained and experienced staff of over 50 plan review, inspection and enforcement professionals in the Engineering Division, supplemented with contracted staff that is very involved in the process of limiting the impacts from construction site runoff.

On November 21, 2000 the Jefferson County Fiscal Court adopted an EPSC Ordinance. This Ordinance conserves, preserves and enhances the natural resources of Jefferson County by controlling the adverse impacts and offsite degradation of soil erosion and sedimentation arising from land disturbing activities. The Ordinance evolved through a community stakeholder consensus building process. Consequently, this process brought diverse groups together to develop a comprehensive set of standards to address construction activities within the community.

Post-Construction / Long-Term Stormwater Quality

Green Infrastructure is a critical component to the long-term success of the post-construction program. The primary local construction industry guidance document, MSD Design Manual, was amended to include a new Section 18 to address green infrastructure design, long-term operation, and inspection and maintenance. Section 18 is titled the Green Infrastructure Design Manual but also is referred to as a Green Management Practices (GMP) manual. The manual includes a diverse range of design strategies intended to support decision making by both the property owners and architects. The intent is provide the designer a variety of ideas for incorporating green infrastructure that also supports aesthetic expectations for their customers and employees. The GMP manual also includes engineering design fact sheets that emphasize the process for sizing, constructing and maintaining the GMPs as well as construction details, design, and operation and maintenance checklists.



While guidance is important, the post-construction program's commitment to green infrastructure is most tangible in MSD's financial incentive program that became effective August 1, 2011. The financial incentive program encourages qualifying stormwater utility customers to participate through the option to receive in a short-term incentive, known as a stipend to offset construction costs. The incentive program also provides a long-term (10-year renewable) incentive through drainage service charge reductions for incorporating green stormwater best management practices (BMPs) on their property.

Good Housekeeping and Pollution Prevention

MSD's commitment to its good housekeeping and pollution prevention within the organization's operations and maintenance activities has expanded and broaden since it unified field services and staff at a newly acquired vacant shopping center and redeveloped it into a Central Maintenance Facility (CMF) in 2001.

MSD has a well-trained and experienced staff of more than 200 in the Infrastructure and Flood Protection (IF&P) Division, Fleet Services, Industrial Waste Department (IWD), Storeroom &

Inventory Control, and the Archives Section of Facilities Management & Engineering Field Services.

Staff perform the day-to-day repair and maintenance of thousands of miles of MSD infrastructure, manage a storeroom and inventory control, maintain a records archive, and keep a fleet of more than 600 vehicles/pieces of equipment functioning. Other activities include staff that manage the backflow prevention device installation program; sample and monitor industrial wastewater, sewage, and streams; perform field inspections of illicit discharge reports; and respond to hazmat spill incidents. MSD also administers the drainage and stormwater infrastructure maintenance program and the Industrial Waste and Hazmat permitting and compliance programs. Other employees operate and maintain five regional water quality treatment centers (WQTC), 17 small treatment plants, sanitary pump stations, and the community flood protection infrastructure system and related facilities. These employees are responsible for preventing stormwater pollution in their own activities while they perform operations and maintenance of the Flood Protection, MS4 and Publicly Owned Treatment Works (POTW) facilities for the benefit of the community.

Monitoring

The monitoring program is robust in part because of MSD's well-trained and experienced engineering field technicians as well as laboratory staff. As a team, staff performs sampling and analysis of thousands of stream and other ambient samples per year.

Over time, data management has evolved and improved significantly allowing reporting capabilities to enable comparison of stream monitoring data against the „moving targets' of hardness-based water quality standards (WQS). The historical challenge of receiving incorrect sample requests that did not specify the correct method to return an adequately low Minimum Detection Limit on analytical results has been addressed. As a result, laboratory results that have a minimum detection limit higher than the WQS will not be averaged into datasets for stream monitoring results, as if they were valid concentration data. Another improvement is a new laboratory that is being built that will be designed to eliminate the potential for samples to become contaminated by the old laboratory environment. These changes alone may confirm the removal of certain pollutants of concern in the future, such as Cadmium, from the Warm Water Aquatic Habitat (WAH) impairment listings for local streams.

Reporting and Information Infrastructure

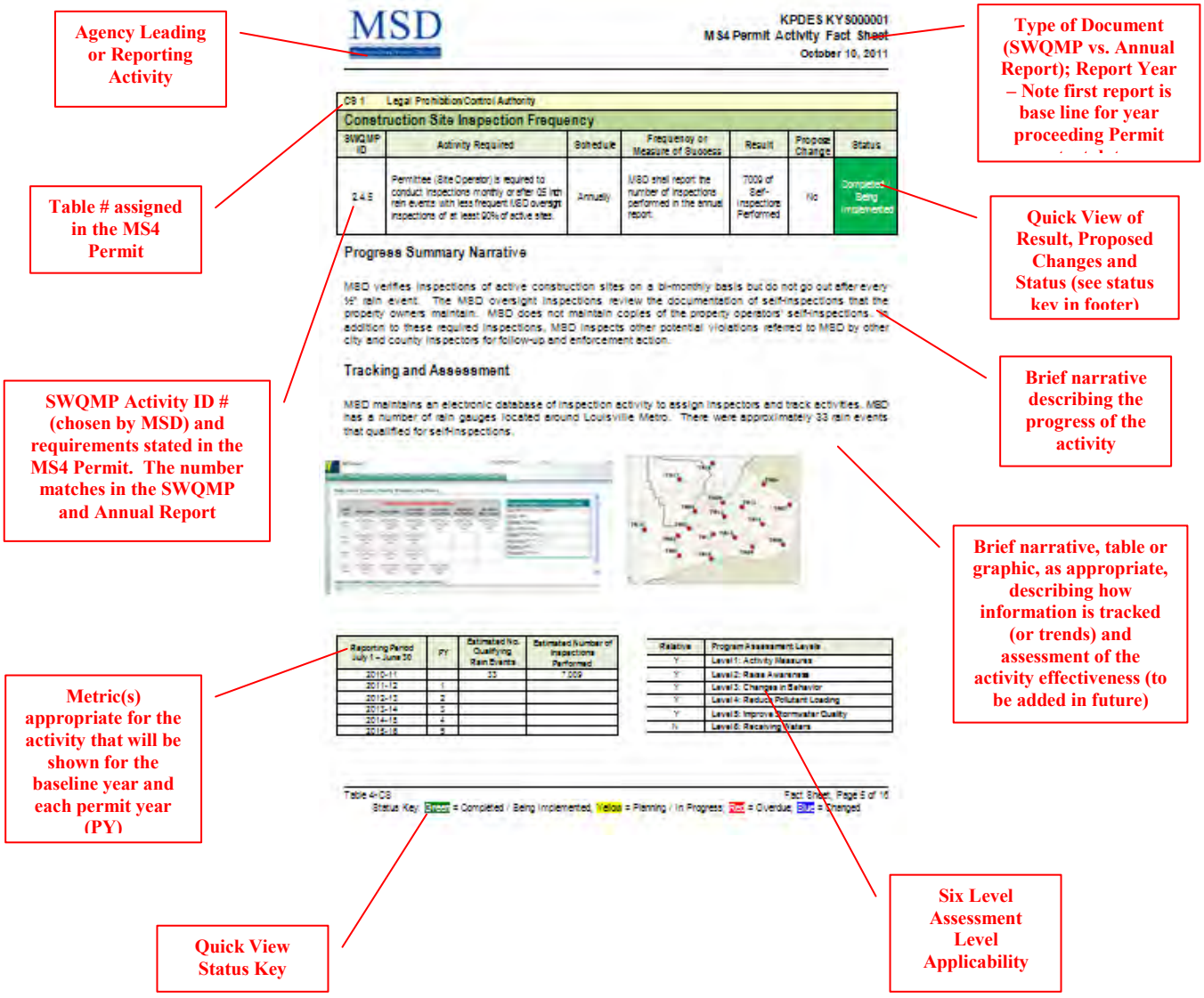
A healthy MS4 program depends on a strong and comprehensive information infrastructure. Over the years, MSD developed electronic systems of communication, documentation and reporting to support the complexities and extent of its organization, partnerships, activities and community responsibilities. These systems include a robust GIS (LOJIC) and an asset management database system (HANSEN). As a result, MSD has the capabilities to quickly compile and assess information on its business, administrative, and field activity units. Due to MSD's multiple staff focuses and various departments, it is necessary to periodically determine if documenting activities and communicating across operating units is still proving to be effective and efficient.

1.2.3 MSD Assessment and Tracking Approach

As the MS4 program requirements and expectations continue to grow, and budgets are continually strained, it is important to gauge the effectiveness of the trends and overall program and the individual activities. Each co-permittee is responsible for gauging the effectiveness of their respective activities.

MSD is tracking activities through stand alone fact sheets that can be utilized to evaluate the program; a method that is endorsed by the EPA and being utilized in other communities. MSD also has developed an approach to implement applicable portions of the six level program the EPA began advocating in 2008 to assist MS4 programs identify success and future areas of focus.

The fact sheet template allows MSD to report on every aspect of the permit activity element requirements. Below is a screenshot of a sample fact sheet with explanations of the various elements in red.



1.2.4 Water Quality Improvements

While MSD and it co-permittees anticipate water quality improvements over the course of the permit term, there are none to report at this time. MSD is in the process of gathering additional monitoring data and analyses to confirm and track improvements. The intent is to collect information that will support the case for removing reaches from the 303(d) list of impaired streams that KDOW maintains.

1.2.5 New or Expanded MS4 Discharges

As this permit was recently issued there are new or expanded MS4 discharges. When new or expanded discharges occur they will be presented.

1.2.6 Changes Reporting

There are not changes requested.

1.2.7 Future Direction of the Program

The greatest achievements in improving stormwater quality in Louisville Metro will be realized through growth of the green infrastructure initiatives. Over time, the already strong guidance materials will need to be refined and the financial incentive program refined. MSD looks forward to continued interactions with the development community regarding green infrastructure design, installation, inspection and maintenance experiences and expectations. Relationships with other agencies, co-permitees and education facilities are strong and growing and MSD expects they will continue to grow.

1.3 Financial

This Section provides a summary of the SWQMP Financing. MSD and the other co-permittees utilize the SWQMP as a business plan to guide the various agencies and departments in how they will implement the various requirements of the MS4 Permit. While there are interlocal agreements between co-permittees, including compensation for the monitoring program, finances are managed separately.

1.3.1 MSD

Historical Annual Budget ($)					
	Fiscal Year				
	2005	2006	2007	2008	2009
Total Operating Budget	75,459,400	78,564,500	85,573,900	92,273,600	98,836,900
Estimated Stormwater Related Budget*	6,549,540	7,096,526	7,491,740	7,926,080	8,634,120

* Includes operating and capital budgets for stormwater related efforts from several departments

Annual Capital Budget ($)					
	Fiscal Year				
	2010	2011	2012	2013	2014
MS4 Capital Budget	2,936,613	3,424,664	3,249,985	2,965,000	2,950,000

Historical Estimated Full Time Equivalents (FTEs)					
	Fiscal Year				
	2005	2006	2007	2008	2009
Stormwater Staff (FTE) *	85	88	76	69	91
Non-stormwater Staff (FTE)	27	27	27	29	27

* includes staff from various departments. Staff with a portion of their time related to stormwater was consolidated.

See Appendix 1.2 and 1.3.1, EPA Questionnaire, for a completed questionnaire as requested by the EPA. Section B includes several questions regarding MSD's stormwater program funding and rates system. MSD is funded through customer user fees and not through taxes. See Appendix 1.3.1, MSD Drainage Service Charges 2011, for the MSD drainage service charge policy.

1.3.2 Louisville Metro Parks

See Appendix 1.3.2, Metro Parks Budget Proposal Booklet, for details.

MSD is the primary co-permittee and has an interlocal agreement with its co-permittees; the responsibilities are divided according to the Part I-1, Section A.

TABLE 2.1. PUBLIC EDUCATION, OUTREACH, PARTICIPATION, AND LEARNING EXPERIENCES (PEOPLE)

PEOPLE General Public & Stakeholder Education Program

SWQMP ID	Element Task	Frequency or Measure of Success	Activity Required	PY 1 8/12	PY 2 8/13	PY 3 8/14	PY 4 8/15	PY 5 8/16	Legal Auth
2.1.1	General Public-Mass Media Integration/Distribution	Report the number of potential households and estimate the numbers of households were reached.	The permittee shall integrate MS4 stormwater quality topics in to existing print mass media, local government cable channel, social marketing materials, and/or new materials with the intent of affecting behavior change.	❑	❑	❑	❑	❑	na
2.1.2	General Public-Direct Interaction	Permittee shall present educational materials to the public at least six (6) event days per year; update booth material annually. Provide summary of the educational activities in annual report	The permittee shall present the "Key Messages" at community events, through the use of a display booth, "enviroscape" or other direct personal integration approaches.	❑	❑	❑	❑	❑	na
2.1.3	General Public-Meeting Topic Integration	Starting in year two (2), Permittee shall integrate water quality topics in MS4 public meetings at least six (6) events per year; provide summary of the events in the annual report	The permittee shall integrate MS4 stormwater quality topics, as feasible and appropriate into other MSD sponsored public meetings.		❑	❑	❑	❑	na
2.1.4	Volunteer Programs, Participation, Promotion or Support	Starting in Permit Year two (2), Permittee shall have direct participation in at least three (3) events per year; and promote additional two (2) events per year, provide summary of volunteer opportunities the permittee participated, facilitate, or supported in the annual report	The permittee shall participate in, facilitate, encourage or support volunteer program opportunities on a case by case basis to optimize resources and potential to affect behavioral changes through participation events.		❑	❑	❑	❑	na
2.1.5	MetroCall Hotline and MSD Customer Relations	Permittee shall provide a summary of MS4 complaints and comments received in the annual report	The permittee shall provide support to the 24-hour central reporting hotline "MetroCall" and internet communication channels for use by the public and MSD employees to report complaints, spills, and illegal dumping.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☐ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.1. PUBLIC EDUCATION, OUTREACH, PARTICIPATION, AND LEARNING EXPERIENCES (PEOPLE)									
PEOPLE General Public & Stakeholder Education Program									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.1.6	Elected Officials	Permittee shall provide a summary of its attendance of meetings at Mayors and/or Council Member's discretion in the annual report	The permittee shall attend and participate at the discretion of Mayor's office and Louisville Metro Council members to address resident's concerns and questions.	☑	❑	❑	❑	❑	na
2.1.7	Public Speakers	Permittee shall provide public speakers to various community stakeholders at least six (6) events per year	The permittee shall provide speakers to various community stakeholder groups that could benefit from environmental stormwater information.	☑	❑	❑	❑	❑	na
2.1.8	News Media-Press Releases	Permittee shall provide at least two (2) press releases per year highlighting public participation opportunities	The permittee shall provide press releases to the local news media highlighting opportunities for the public to participate in outreach and involvement events to make a positive difference through behavior change.	❑	❑	❑	❑	❑	na
2.1.9	MSD Web Site	Permittee shall report summary of updates in the annual reports of Permit Years 2 and 4	The permittee shall review and revise the website with the "Key Messages" content and other related PEOPLE plan elements.		❑		❑		na
2.1.10	Behavior Change Assessment Survey	Permittee shall provide summary in the annual report of the Baseline Survey in Permit Year one (1) and the Behavior Assessment in Permit Year four (4).	The permittee shall perform a statistical survey to gauge the population's knowledge of stormwater quality issues and establish baseline to assess the changes in behavior and outreach program effectiveness. The permittee shall utilize the survey results to refocus and reprioritize PEOPLE activities.	❑			❑		na
2.1.11	Developers Advisory Group	Permittee shall participate in at least three (3) events per year	The permittee shall participate in the Developers Advisory Group (DAG) meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklist, regulations, etc.	☑	❑	❑	❑	❑	na
2.1.12	Homebuilders Association Land Development Committee Monthly Meetings	Permittee shall participate in at least 75% of the meetings annually	The permittee shall attend Homebuilders Association land development committee meetings to address concerns and comments from the local homebuilder professional and provide information regarding changes in procedures, checklist, regulations, etc	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.1. PUBLIC EDUCATION, OUTREACH, PARTICIPATION, AND LEARNING EXPERIENCES (PEOPLE)									
PEOPLE General Public & Stakeholder Education Program									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.1.13	Greater Louisville Inc. Environmental and Water Committees	Permittee shall participate in at least three (3) events per year	The permittee shall participate in committee meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklist, regulations, etc.	❑	❑	❑	❑	❑	na
2.1.14	Construction Operators	Permittee shall evaluate educational materials and/or multimedia presentations for the construction industry related to point and non-point source pollution and stormwater pollution annually	The permittee shall make available educational materials and/or multimedia presentations for the construction industry related to point and non-point source pollution, green infrastructure and stormwater pollution prevention measures for operational procedures and erosion and sediment controls.	☑	❑	❑	❑	❑	na
2.1.15	Rain Garden Outreach	Permittee shall estimate handbook distribution and report in the annual report	The permittee shall maintain and update rain garden handbook with the intent of general public outreach. Consider expanding use to support residential, non-residential professional and non-professional audiences. The permittee shall evaluate changes and make updates at least every even numbered year.		❑		❑		na
2.1.16	Green Infrastructure Demonstration Projects	Permittee shall provide a Summary Report of Green Infrastructure demonstration projects in the annual report	The permittee shall implement series of projects aimed at demonstrating the feasibility and effectiveness of green infrastructure including, but not limited to rain gardens, green roofs, pervious pavement, bio-swales and infiltration. Prioritize, select and implement projects to support a variety of residential, non-residential, professional and non-professional audiences in MSD and co-permittee areas. Where feasible collaborate and/or cooperate with local government agencies, schools, co-permittees and/or private properties with significant use and exposure to the general public.	☑	❑	❑	❑	❑	na
2.1.17	Public Notification of Major Program Changes	Permittee shall finalize notification system within twelve (12) months of effective date of permit	The permittee shall develop a web site-based system to notify the public and affected stakeholders of proposed major program changes that will significantly impact stormwater runoff quality, negatively or positively. The public shall be given the opportunity to informally comment on proposed changes and these comments will be summarized and made available on the website.	❑					na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.1. PUBLIC EDUCATION, OUTREACH, PARTICIPATION, AND LEARNING EXPERIENCES (PEOPLE)									
PEOPLE General Public & Stakeholder Education Program									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.1.18	Jefferson County MS4 Workgroup-Communication	Permittee shall attend at least two (2) meetings per year	The permittee shall participate in the Jefferson County MS4 Co-Permittee Workgroup meetings discussing program progress, challenges, activity changes, shared activity requests communication needs and lesson learned.	☑	❑	❑	❑	❑	na
2.1.19	"Go Green Louisville" Program Assistance	Permittee shall report its activities and support of the "Go Green Louisville" initiatives in the annual report	The permittee shall continue to support Louisville Metro and the "Go Green Louisville" initiatives with development of guidance materials to be applied to new Metro Government Facilities incorporating green infrastructure.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)									
IDDE 1	**Legal Prohibition/Control Authority**								
SWQM P ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.2.1	Assess Legal Prohibition/Control Authority	Permittee shall evaluate, in the odd-numbered permit years, the proposed changes in Wastewater Stormwater Discharge Regulations (WDRs) for consideration by MSD Board	The permittee shall evaluate existing ordinance and regulations with an emphasis on Article 5 of the WDRs to determine if they are sufficient relative to MSD's ability to implement an effective IDDE program per 40 CFR. 122.26(b) (2). The permittee shall periodically update WDRs as needed to identify and eliminate risk of illicit discharges due to changes in technology, industrial management processes, regulations or program modifications. The permittee shall provide a summary of the adoption of such changes and information about implementation, and effective date in the annual report.	❑		❑		❑	☑
2.2.2	IDDE Source Investigation and Elimination Procedures	Submit to the Division of Water within six (6) months of the effective date of the permit	The permittee shall develop and implement a formal plan of illicit discharge detection including how to trace the source of an illicit discharge and procedures for removing or eliminating them once they are located or reported. The plan should also include the enforcement procedures outlined in the WDRs for illicit discharge elimination, which includes ten (10) days from the receipt of the NOV; the source of the illicit discharge shall submit a mitigation plan for removal.	❑ **6 mo**					☑
2.2.3	Public Illicit Discharge Report Investigation	Permittee shall provide in the annual report, a summary of the investigations of illicit discharges performed	The permittee shall continue to receive and investigate public reports of potential illicit discharges via customer service hotline, webpage reporting and MetroCall. The permittee shall update and perform customer service hotline staff training for receiving calls regarding potential illicit discharges and appropriate routing procedures.	☑	❑	❑	❑	❑	☑
2.2.4	Dry Weather Screening	Permittee shall provide in the annual report, a summary of the dry weather screenings performed.	The permittee shall conduct dry weather screening of representative outfalls. The recommended level of effort is twenty percent (20%) of the major outfalls per year. However, all the major outfalls shall be addressed within the permit term. The permittee shall also conduct dry-weather screenings at ninety percent (90%) of large industrial outfalls of industrial facilities once every two years.	❑	❑	❑	❑	❑	

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)									
IDDE 1	**Legal Prohibition/Control Authority**								
SWQM P ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.2.5	Screening Follow-up	Permittee shall starting in Permit Year One (1) inspect at least 25% of suspect outfalls per year	After the initial follow-up to insure the illicit discharge has been mitigated, the permittee shall re-evaluate outfalls that were previously found to have had contaminated discharges to determine the current status of those outfalls.	❑	❑	❑	❑	❑	

TABLE 2.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)									
IDDE 2	**Management Activities**								
SWQM P ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.2.6	Mapping - Stormwater Infrastructure Inventory	Permittee shall maintain a storm sewer system map.	The permittee shall continue to maintain the GIS Louisville Jefferson County Information Center (LOJIC) layers constituting its storm sewer system map, showing the location of all known major outfalls, and the names and location of all waters of the Commonwealth that receive discharges from those outfalls.	☑	❑	❑	❑	❑	na
2.2.7	Non-Industrial IDDE Program Enforcement	Permittee shall report annually, including number of investigations, enforcement actions and referrals to KDOW, and follow-up investigations.	The permittee shall continue to utilize the Wastewater/Stormwater Discharge Regulations, related checklists and procedures for investigation of potential illicit discharges and elimination of illicit discharges.	❑	❑	❑	❑	❑	☑
2.2.8	Hazmat/Spill Unified Response Program	Permittee shall report, if necessary, any changes to the policies and programs and procedures, in the annual report.	The permittee shall continue to maintain and enforce the ordinances, policies, programs and procedures for response and containing spills that may discharge into the MS4. The spill response procedures outlined in Section 95.07 of the Louisville Metro Code of Ordinances relating to hazardous materials shall continue to be implemented and enforced.	❑	❑	❑	❑	❑	☑
2.2.9	On-site SWPPP	Permittee shall document SWPPP procedures and expectations and make the procedures and expectations publicly available.	The permittee shall institute procedure for receiving Stormwater Pollution Prevention Plans (SWPPP) for qualifying construction sites within six months of the effective date of the permit.	☑					☑

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)									
IDDE 2	**Management Activities**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.2.10	MVA Mitigation Kit Program	Permittee shall report metrics for kit distribution and after-use collection in the annual report.	The permittee shall continue motor vehicle accident (MVA) mitigation kit distribution program to meet Fire Department and emergency response spill containment needs.	☑	❑	❑	❑	❑	na
2.2.11	IDDE Identification SWPPP Training Integration	Training shall occur at least once per year and the permittee shall report in the annual report the date of training and the number of staff participating in training.	The permittee shall integrate techniques and practices to assist staff identify potential illicit discharges into facility and system operations and maintenance training.	❑	❑	❑	❑	❑	na
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.2.12	KDOW Support	Permittee shall summarize and include in the annual report any assistance given to the Kentucky Division of Water (KDOW) by MSD	As KDOW requests, the permittee shall accompany KDOW on inspection of KPDES stormwater permitted facilities in Jefferson County.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.3. INDUSTRIAL PROGRAM REQUIREMENTS (IP)									
IP 1	**Legal Prohibition/Control Authority**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.3.1	Industrial IDDE Program Enforcement	Permittee shall summarize in the annual report the industrial enforcement actions and referrals to KDOW.	For industrial properties, the permittee shall continue to utilize the Wastewater/Stormwater Discharge Regulations, Hazardous Materials Ordinance and related checklists and procedures for identification of potential illicit discharges and elimination of illicit discharges/ unauthorized stormwater discharges. The permittee shall perform analysis of industry property data layer in LOJIC cross linking with properties holding a Hazardous Materials (spill) Prevention Control (HMPC) Plan to identify potential sites that should be added to the program with consideration for High Risk Industrial Facilities designation (determined in other activities).	❑	❑	❑	❑	❑	
2.3.2	Industrial IDDE Program Enforcement	Within six (6) months of the effective date of the permit the Permittee shall have established adequate legal authority to require compliance with this measure.	The permittee shall maintain adequate legal authority, per 401 KAR 5:060, Section 12(9)(b)3 and 40 CFR 122.26(b)(2), to require compliance and inspection of sites, inspection of priority industrial and commercial facilities, including establishing control measure requirements such as Hazardous Materials Management Prevention and Control (HMPC), SPCC Plan and/or the GPP for facilities that have a potential to discharge to the MS4 and enforce stormwater requirements.	❑ 6 mo					

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.3. INDUSTRIAL PROGRAM REQUIREMENTS (IP)									
IP 2	**Inventory and Inspection of Industrial Facilities**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.3.3	Industrial Facility Inventory	Permittee shall update annually and made available to the KDOW upon request.	The permittee shall maintain an inventory of all potential industrial and commercial sites/sources that could contribute substantial pollutant loads to the MS4.	❑	❑	❑	❑	❑	na
2.3.4	"High Risk" Facility Definition	Permittee shall report results by end of Permit Year one (1).	The permittee shall identify Risk Factors to define facilities as "High Risk", "Moderate Risk" and "Low Risk".	❑					
2.3.5	HRIF Inventory Update	Permittee shall summarize and report annually, the assessment and updates of any industrial facilities identified as "High", "Moderate", and "Low" risk.	A. The permittee shall compare the datasets for local Approved HMPC Plan Facilities to the publicly available Facility data from local and state environmental and emergency response agencies to address the completeness and accuracy of High Risk Industrial Facilities identification.	❑	❑	❑	❑	❑	na
			B. The permittee shall update the list of HRIFs at least twice over the permit term, to account for the most recently available North American Industry Classification System (NAICS), Standard Industrial Classification (SIC) codes, Toxic Release Inventory (TRI) data, MSD's HMPC data and MSD's pretreatment program data with the goal of establishing a tiered list of industries to support priorities in MSD's industrial facility inspection program.		❑		❑		na
2.3.6	HRIF and High-Risk HMPC Inspection	Starting in Permit Year two (2), the Permittee shall report the summary of prioritized inspections completed, and any enforcement resulting from the inspections.	Based on the results of the updated HRIF assessment, the permittee shall inspect high priority facilities at least once every three (3) years and moderate risk facilities at least once every five (5) years.		❑	❑	❑	❑	

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, □ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.3. INDUSTRIAL PROGRAM REQUIREMENTS (IP)									
IP 2	**Inventory and Inspection of Industrial Facilities**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.3.7	Industrial Facility Control Measures	Starting in Permit Year two (2), the Permittee shall report annually on control measures required of the high-risk industrial and commercial facilities to ensure compliance with this measure.	The permittee shall require the High Risk industrial and commercial facilities to select, install, implement, and maintain control measures that promote prevention and source control for discharge of applicable pollutants of concern. This requirement may be addressed through Hazardous Materials (spill) Prevention Control (HMPC) Plan and/or federal programs such as Spill Prevention, Control and Countermeasure (SPCC) Plan and/or the Groundwater Protection Plan (GPP) that are already implemented at the industrial and commercial facilities. The permittee shall require the applicable facilities to identify the specific control measures, good housekeeping and maintenance procedures, and employee training necessary.		❑	❑	❑	❑	
2.3.8	Enforcement / Inspections	Within six months of the permit issuance, the Permittee shall develop the required criteria or procedures to comply with this measure.	The permittee shall develop criteria or procedures for site inspections and enforcement including criteria to address how the MS4 will use enforcement authorities to ensure compliance with the industrial program requirements. The permittee shall enforce the procedures outlined in Section 95.11 of the Louisville Metro Code of Ordinances relating to hazardous materials.	❑ 6 mo	❑	❑	❑	❑	
2.3.9	MSD Plan Review	Permittee shall assess at least every three (3) years and report changes to process in the annual report.	The permittee shall determine if existing triggers in the new development and redevelopment plan and plumbing systems review process are sufficient to include appropriate industrial stormwater quality specialists/inspectors in the plan approval process.			❑			na
2.3.10	Industrial & Commercial Community Outreach	Starting in Permit Year two (2), the Permittee shall identify materials developed and distribution estimates and summarize in the annual report.	The permittee shall develop and distribute outreach materials (brochure, fact sheets, etc.) to HMPC Facilities and other commercial operations of concern to promote illicit discharge elimination awareness.		❑	❑	❑	❑	na
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.3.11	KDOW Support	Permittee shall summarize and include in the annual report any assistance given to the KDOW by MSD.	As KDOW requests, the permittee shall accompany KDOW on inspection of KPDES stormwater permitted facilities in Jefferson County.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ▯ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.4. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL REQUIREMENTS (CS)									
CS 1	**Legal Prohibition/Control Authority**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.4.1	Assess Legal Prohibition/Control Authority	Permittee shall summarize proposed changes enumerated by end of permit years one (1) and three (3) and report proposed changes in to Wastewater/Stormwater Discharge Regulations for consideration by MSD Board in the annual report.	The permittee shall assess existing ordinance and regulations to identify changes needed to account for changes in standard of care (as directed by KDOW General Construction Permit KYR10), changes in technology, changes to development management process and related program needs in satisfaction 40 CFR 122.26(b)(15)(i) for construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre that is part of a larger common plan of development that would disturb one acre or more.	❑		❑			
2.4.2	Implement Legal Prohibition/Control Authority	Permittee shall require routine inspections of active construction sites with reasonable potential to discharge to MS4. A summary of these inspections and any enforcement actions resulting from these inspections shall be included in the annual report	The permittee shall continue to enforce existing ordinances and regulations intended to limit construction phase stormwater quality impacts from new construction and significant redevelopment.	☑	❑	❑	❑	❑	
2.4.3	Site Plan Review	Permittee shall review plans as needed and report the number of plans reviewed in the annual report.	The permittee shall conduct site plan reviews in accordance with the procedures outlined in Section 159.02 of the Louisville/Jefferson County Erosion Prevention and Sediment Control Ordinance to assess whether the plans include measures that address potential water quality impacts from construction prior to authorization of land disturbance.	☑	❑	❑	❑	❑	na
2.4.4	Construction Site Inspection	Within 60 days of permit effective date.	The permittee shall develop and implement criteria and/or procedures for site inspection. The procedures shall include an Enforcement Response Plan outlined in Section 159.05 of the Louisville/Jefferson County Erosion Prevention and Sediment Control Ordinance.	☑ 60 days	❑	❑	❑	❑	
2.4.5	Construction Site Inspection Frequency	Permittee shall report the number of inspection performed in the annual report.	The permittee is required to conduct inspections monthly or after 0.5 inch rain events with less frequent MSD oversight inspections of at least 90% of active sites.	☑	❑	❑	❑	❑	

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.4. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL REQUIREMENTS (CS)									
CS 1	**Legal Prohibition/Control Authority**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.4.6	Construction Site Inventory	Inventory continually updated as projects are permitted and projects are completed.	The permittee shall develop and maintain an inventory of all active public and private construction sites that result in a total land disturbance of greater than or equal to one acre and less than one acre that is part of a larger common plan of development. Inventory should include the project's name, address, contact person, inspection dates, and any enforcement actions issued to the project.	☑	❑	❑	❑	❑	na

TABLE 2.4. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL REQUIREMENTS (CS)									
CS 2	**CS Management Activities**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.4.7	Construction BMP Guidance Materials	Permittee shall update the Design Manual and Standards Specifications by end of permit years one (1) and four (4) and make the updates publicly available.	As needed to account for changes in the KDOW general construction permit(s), the permittee shall update the guidance materials facilitating current technology use, local plan review/inspection requirements and related implications, Design Manual chapters and Standard Specifications sections to address EPSC and other construction phase (waste concrete, fueling and repairs operations, etc) topics including BMP selection, feasibility, design considerations, operation, maintenance, inspection checklist and related matters.	☑			❑		na
2.4.8	On-site SWPPP	Permittee shall document SWPPP procedures and expectations and make the procedures and expectations publicly available.	The permittee shall institute procedure for receiving SWPPP for qualifying construction sites within six months of the effective date of the permit.	☑					

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.4. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL REQUIREMENTS (CS)									
CS 2	**CS Management Activities**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.4.9	Construction Stormwater Runoff Control Program Inspection Refresher	Permittee shall complete refresher with Construction inspectors annually, reporting the date and the number of attendees in the annual report.	The permittee shall review inspector practices with individual MSD and contract inspectors to communicate/confirm oversight responsibilities, documentation requirements, and frequency of inspection, inspection standards and protocols. The refresher review (performed on-site) will include EPSC and non-EPSC construction stormwater control metrics, the most current KDOW General Construction Permit and the current USEPA MS4 Program Evaluation Construction Site Checklist.	☑	❑	❑	❑	❑	na
2.4.10	Construction Inspector Training	Permittee shall provide at least three (3) training opportunities annually reporting the date and the number of attendees in the annual report.	The permittee shall continue construction inspector training program placing new emphasis on delivering similar messages and understanding between MSD inspectors (regular and contracted) and qualified local contractor inspectors.	☑	❑	❑	❑	❑	na
2.4.11	Plan Preparers and Reviewers Training (MSD Facilitates)	Permittee shall offer at least two (2) events annually and starting in Permit Year two (2) report program updates in the annual report.	The permittee shall identify updates to the plan preparers training program currently administered through the JCPS System placing new emphasis on identifying sensitive features (305b listed streams, threatened or endangered species, etc.) and customizing site SWPPPs to account for the special conditions.		❑	❑	❑	❑	na
2.4.12	Local Utility Construction General Permit Entities	Permittee shall hold meetings with at least 90% of MSD's EPSC general permit holders at least every two years.	The permittee shall continue to coordinate policy level stakeholders from local utility agencies holding construction general permits from MSD to confirm inter-agency communication protocols and review changes to standard, policies, procedures, BMP operation expectations and related matters.		❑		❑		
2.4.13	MSD General Construction Permits Evaluation	Permittee shall evaluate all general permits by the end of Permit Year three (3); and report general construction permits issued by MSD in the annual report.	The permittee shall evaluate General Construction Permits issued by MSD to utilities and other entities to determine adequacy with revisions to the KDOW general construction permits, changes in permittee organization/practices, MSD standards, etc.			❑			
2.4.14	Enforcement Tracking Log/Database	Permittee shall summarize enforcement actions in the annual report. A summary of the tracked enforcement actions issued shall be included in the annual report.	The permittee shall continue to track enforcement actions issues (SWO/NOVs) to support follow-up inspections and issuance of penalties and/or Notice of Compliance.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.4. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL REQUIREMENTS (CS)									
CS 2 CS Management Activities									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.4.15	Plan Development Process Identification	Permittee shall make up-to-date guidance documents publicly available. A summary of the revised guidance materials shall be included in the annual report.	The permittee shall review and update, as needed guidance materials identifying the process that developers must follow to obtain related construction permits, including process flow charts and checklists.	☑	❑	❑	❑	❑	na
2.4.16	Metro IP & L Enforcement Coordination	Permittee shall hold at least one (1) conference every other year starting in Permit Year one (1).	The permittee shall coordinate program enforcement actions with Metro Inspections, Permits and Licensing (IP& L), as necessary, to support overall site compliance with an emphasis on Notices of Deficiency, NOV and SWOs issued by MSD and implications on land disturbance and "in building" activities.	☑		❑		❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☐ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5. POST-CONSTRUCTION (PC) STORMWATER RUNOFF CONTROL FOR NEW DEVELOPMENT AND REDEVELOPMENT										
PC 1	**Legal Prohibition/Control Authority**									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.5.1	Assess Legal Prohibition/Control Authority	Permittee shall make assessments in Permit Year one (1) and if necessary, in Permit Years two (2) and four (4) report proposed changes in the WDR for consideration by MSD Board.	The permittee shall assess existing Wastewater/Stormwater Discharge Regulations and other relevant ordinances and regulations, to identify changes needed to account for changes in standard of care, changes in technology, changes to development management process and related program needs for new development and redevelopment projects that disturb greater than or equal to one acre and construction activity disturbing less than one acre, including projects less than one acre that are part of a larger common plan of development.	❑	❑		❑		
2.5.2	Implement Legal Prohibition/Control Authority	Permittee shall summarize enforcement actions in the annual report. The permittee shall include the number of inspections and enforcement actions.	The permittee shall enforce existing ordinances and regulations intended to limit long-term stormwater quality impacts from new construction and significant redevelopment.	❑	❑	❑	❑	❑	
2.5.3	Site Plan Review	Within thirty days of permit effective date.	The permittee shall conduct site plan reviews through procedures for reviewing development plans for compliance with stormwater management requirements.	☑ 30 days	❑	❑	❑	❑	
2.5.4	Stormwater Infrastructure Inventory	Permittee shall update the GIS LOJIC System as data becomes available	The permittee shall continue to maintain the GIS-LOJIC layers incorporating system changes from new development plans, MSD projects and related system projects.	☑	❑	❑	❑	❑	na
2.5.5	Post-Construction BMP Inventory Update	Permittee shall incorporate related data on ongoing basis; Permittee shall assess data to identify and fill dataset gaps every other year.	The permittee shall develop and maintain an inventory and map of post-construction stormwater controls, including retention ponds, detention basins, and stormwater quality treatment facilities. The permittee shall update LOJIC and Hansen datasets to reflect the location, extent, and condition of post-construction stormwater quality BMPs.		❑		❑		na
2.5.6	Post-Construction Inspector Training	At least two trainings per year for the inspectors of Post-Construction BMPs. Report in the annual report, the dates of training, # of attendees, and subject matter.	The permittee shall provide training to the inspectors including internal staff that have been designated to inspect the effectiveness of the post-construction BMPs, as well as, the local residents who are required to provide operation and maintenance of privately-owned Post-Construction BMPs.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5. POST-CONSTRUCTION (PC) STORMWATER RUNOFF CONTROL FOR NEW DEVELOPMENT AND REDEVELOPMENT									
PC 2	**PC Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.5.7	Regional Flood Control BMP Retrofit Analysis	Permittee shall complete assessment report identifying with high, moderate, and low retrofit potential by the end of Permit Year three (3) and summarize in the annual report.	The permittee shall evaluate regional flood control basins to determine stormwater quality treatment incorporation/retrofit feasibility. Explore opportunities to cost-share, incentives or otherwise finance the projects.			❑			na
2.5.8	Inspect "Credit" Basins	Permittee shall perform spot check inspections for at least 50% of qualifying facilities annually starting in Permit Year two (2) and summarize for the annual report.	The permittee shall inspect private flood control basins, (retention ponds) receiving a stormwater utility user fee credit (reduction) to determine ability to fulfill original, current and projected drainage demands. Continue to enforce, per existing basin credits documentation requirements, necessary to fulfill maintenance agreements and long-term system integrity.		❑	❑	❑	❑	na
2.5.9	Inspection Plan Procedures for Treatment BMPs	Permittee shall perform spot check inspections for at least 20% of treatment BMPs annually starting in Permit Year two (2). All BMPs should be inspected by the end of the permit cycle. A summary of this activity shall be included in the annual report.	The permittee shall develop and implement inspection and oversight protocol for private stormwater quality treatment BMPs to facilitate long-term maintenance demands including requirements for qualified private inspection of private BMPs with local government oversight access inspection and controls.		❑	❑	❑	❑	na
2.5.10	Post-Construction and Green Infrastructure BMP Guidance Materials	Permittee shall update the guidance materials specifically the Design Manual chapters and Standards Specifications sections and make the document publicly available.	The permittee shall evaluate and update the guidance materials facilitating current technology use and to reflect local plan review, construction site inspection and post-construction inspection requirements. Design Manual chapters and Standard Specifications sections to address long-term BMP operation, inspection and maintenance including checklists. "Green Infrastructure" is a combination of natural and engineered infrastructure that is designed to reduce the environmental footprint of the system. In terms of stormwater, green infrastructure can effectively manage stormwater runoff through the use of infiltration, biofiltration, detention, and other stormwater management techniques.	☑					na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☐ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5. POST-CONSTRUCTION (PC) STORMWATER RUNOFF CONTROL FOR NEW DEVELOPMENT AND REDEVELOPMENT									
PC 2	**PC Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.5.11	Plan Preparers & Reviewers Training (MSD Facilitates)	Permittee shall continue to offer at least two (2) events annually. A summary of workshops topics and attendance shall be submitted in the annual report.	The permittee shall provide available content, such as EPA web casts, through periodic training classes, workshops and meetings for designers, planners, and developers including emphasis on green infrastructure, post-construction planning, and design procedures for structural and non-structural BMPs, pollutant removal and inspection.	❑	❑	❑	❑	❑	na
2.5.12	Plan Preparers & Reviewers Training	Permittee shall summarize in the annual report, training updates and offer at least three (3) training opportunities annually.	The permittee shall update, as necessary, content to the existing training program currently administered by JCPS System or to a new program to address green infrastructure, post-construction stormwater quality BMP issues.	❑	❑	❑	❑	❑	na
2.5.13	Project DRI	Permittee shall provide program progress summarizing cost, number and type of projects in the annual report.	The permittee shall continue to implement Drainage Response Initiative (DRI) program aimed at identifying and solving the local drainage problems in Jefferson County.	☑	❑	❑	❑	❑	na
2.5.14	User Fee Credits (Green Infrastructure Incentives) Program Planning	Permittee shall provide assessment and planning results by the end of Permit Year two (2) in the annual report.	The permittee shall assess the feasibility of implementing a utility user fee credits program for green infrastructure and post-construction BMPs. The permittee shall perform a feasibility assessment to include considerations for financial sustainability, billing system administration, utilization potential, credit longevity, oversight inspections and related matters. Develop a schedule, that addresses feasibility study issues, to setup a program to promote stormwater utility user fee credits opportunities for properties implementing stormwater quality BMPs beyond minimum requirements with the intent of encouraging flood control pond retrofit, redevelopment GI BMP incorporation and new development GI BMP implementation. This program may offer incentives for developers to use cost-effective, eco-friendly solutions.		❑				
2.5.15	Stream Restoration Inspection and Maintenance	Permittee shall provide in the annual report, summarized stream reaches and maintenance performed to be started in Permit Year two (2).	The permittee shall identify restored stream reaches that MSD has maintenance responsibilities. The permittee shall also determine status of restored reaches and identify, prioritize/schedule and implement maintenance needs.		❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5. POST-CONSTRUCTION (PC) STORMWATER RUNOFF CONTROL FOR NEW DEVELOPMENT AND REDEVELOPMENT									
PC 2	**PC Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.5.16	Certified/qualified Construction BMP Inspector Program	Permittee shall by the end of Permit Year two (2), summarize the feasibility report study result and schedule of action items and include summary in the annual report.	The permittee shall outline and determine the feasibility of a program to identify and hold accountable third party private BMP inspectors (such as home inspectors) to facilitate periodic operation and maintenance of private facilities resulting from the credits program, regulations changes and demonstration projects. If results warrant, develop schedule to implement requirements for private BMP inspections and resulting training/testing program.		❑				
2.5.17	Stormwater runoff quality treatment standard for all new development and redevelopment projects	Within 60 days of effective permit date, permittee shall submit a local treatment standard for addressing stormwater runoff quality.	The permittee shall develop an on-site stormwater runoff quality treatment standard, to be adopted by ordinance or other regulatory mechanism for all new development and redevelopment projects. The proposed local standard will require, in combination or alone, management measures that are designed, built and maintained to infiltrate, evapo-transpire, harvest and reuse stormwater runoff, or otherwise manage the stormwater runoff quality. 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 80th percentile precipitation event.	☑ 60 days					na
2.5.18	Private BMP Maintenance Agreement Assessment/Long Term O & M	Within 12 months from the effective date of the permit all new development and redevelopment projects shall be required to have this agreement.	The permittee shall require all new development or redevelopment to establish and enter into a long-term maintenance agreement and maintenance plan approved management practices for property owners. 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 MS4s, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and authority to recover costs from the property owner/operator when the owner/operator has not performed the necessary maintenance.	❑	❑	❑	❑	❑	

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5. POST-CONSTRUCTION (PC) STORMWATER RUNOFF CONTROL FOR NEW DEVELOPMENT AND REDEVELOPMENT									
PC 2	**PC Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.5.19	Green Infrastructure Demonstration Site(s)	Permittee shall report its role and activities, lessons learned, and overall project progress and summarize for the annual report.	The permittee shall continue, in cooperation with Louisville Metro Mayor's administration, University of Louisville and other local agencies, to pursue development of stormwater quality and green infrastructure interpretative center(s) at strategic location(s) around Jefferson County with the intent of providing a positive highly visible platform to promote the viability and desirability of green infrastructure BMPs. Where feasible explore the opportunity for BMP evaluation and pre-/post-monitoring.	☑	❑	❑	❑	❑	na
2.5.20	Rain Barrels and Louisville Nature Center	Permittee shall report its role, lessons learned and overall programs progress and summarize for the annual report.	The permittee shall explore the opportunity for MSD to continue program with Louisville Nature Center that provided public guidance to construct and maintain rain barrels.	❑	❑	❑	❑	❑	na
2.5.21	Pond Creek and Mill Creek Recreational Planning	Permittee shall report its role, lessons learned and overall programs progress and summarize for the annual report.	The permittee shall continue to collaborate with the US Army Corps of Engineers in their efforts to develop a trail system integrating community assets and environmental resources.	❑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.6. GOOD HOUSEKEEPING/POLLUTION PREVENTION (GH/P2) PROGRAMS FOR MUNICIPAL FACILITIES									
GH/P2	**Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.6.1	Stormwater Pollution Prevention Plans for MSD Operations	Permittee shall assess plans within six (6) months of major facility changes or at least once every two years by the facility superintendents and operation managers who makeup the SWP3 Committee.	The permittee shall periodically update and implement SWPPPs (also known as BMP Plans or Stormwater Plans) to control the discharge of pollutants from POTWs and other applicable MSD-owned facilities as defined in 40 CFR 122.26 including wastewater treatment plants and major operating facilities. SWPPPs will include provisions for maintenance activities on facility grounds, materials and equipment storage, security, preventative maintenance, risk identification and assessment, materials inventory, floor drain protection/controls, inspections and records.	❑		❑		❑	na
2.6.2	Training on MSD Facility SWPPPs	Permittee shall starting in Permit Year two (2) address at least three (3) SWPPP issues annually and summarize training and attendance for the annual report.	The permittee shall utilize the facility SWPPP Committees to perform routine training of key SWPPP issues		❑	❑	❑	❑	na
2.6.3	Maintenance Staff Training on Pollution Prevention	Permittee shall report the number of staff attending related training and include in the annual report.	The permittee shall provide training to key maintenance staff on good housekeeping activities related to stormwater quality in MSD operations including but not limited to: green infrastructure operation and maintenance, fleet and building maintenance, and stormwater conveyance/drainage system maintenance.	☑	❑	❑	❑	❑	na
2.6.4	Pesticides Management	Permittee shall track employees with related state certifications.	The permittee shall utilize Commonwealth of Kentucky pesticide management registration and certifications to qualify MSD employees applying pesticides. The permittee shall develop and maintain a list of pesticides used and stored, including storage locations.	☑	❑	❑	❑	❑	na
2.6.5	Incident Response Staff Training	Permittee shall report incident response staff training participation starting in Permit Year two (2).	The permittee shall provide training to unified incident response staff on related stormwater issues including good housekeeping, IDDE, construction, post-construction BMP/controls and program management.		❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.6. GOOD HOUSEKEEPING/POLLUTION PREVENTION (GH/P2) PROGRAMS FOR MUNICIPAL FACILITIES									
GH/P2	**Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.6.6	MSD Capital Project Control	Permittee shall summarize changes to MSD Capital Project requirements starting in Permit Year two (2).	The permittee shall, for MSD directed capital, rehabilitation and reconstruction projects, disturbing more than one acre, performed by a contractor, ensure the contract documents/agreements/work orders will include stipulations that require the work be designed/performed/implemented/constructed under the same standards for construction and post-construction stormwater quality that MSD requires of private development it regulates.		❑	❑	❑	❑	na
2.6.7	MSD Stormwater Quality BMP Data	Permittee shall every other year assess datasets for completeness and ability to support staff scheduling stormwater-quality BMPs MSD is responsible for maintaining starting in Permit Year two (2).	The permittee shall update LOJIC and Hansen datasets to identify stormwater-quality BMPs located on MSD properties, rights-of-way and easements that MSD is responsible for operating and/or maintaining. The datasets will be updated in a manner to support ongoing prioritization and tracking of operation and maintenance.		❑		❑		na
2.6.8	Catch Basin and Storm Sewer Cleaning	Permittee shall summarize and include in the annual report.	The permittee shall continue to clean catch basins and sewers (closed pipe systems) to prevent debris from entering receiving streams and address drainage/flooding issues in MSD area based on known priorities and information gathered from the customer hotline.	☑	❑	❑	❑	❑	na
Cooperative Efforts (MSD provides supportive or other non-lead role)									
2.6.9	Channel Maintenance	Permittee shall summarize and include in the annual report.	The permittee shall continue to maintain open channel system in MSD area based on priorities and information from the customer hotline including ditch cleanings, ditch regrading, drainage obstruction removals, erosion repairs, floodwall levee maintenance, headwall install/repair, concrete channel installation, tree removal, driveway apron restoration, routine mowing and closed pipe installations.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.6. GOOD HOUSEKEEPING/POLLUTION PREVENTION (GH/P2) PROGRAMS FOR MUNICIPAL FACILITIES									
GH/P2	**Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.6.10	Stormwater Pollution Prevention Plans for Co-Permittee Operations	Permittee shall assist in the review of at least one (1) facility annually if requested by co-permittees.	As co-permittees make request, the permittee shall provide periodic 3rd-party technical assistance and/or review of the facility stormwater pollution prevention plans (SWPPPs, BMP plans, or Stormwater Plans and BMPs) and/or site visit/walkthrough to help identify opportunities to improve the effectiveness of the plans and their implementation.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.7. MONITORING (M)									
M	**Monitoring Plan Maintenance and Update**								
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.7.1	Long-Term Monitoring Network (LTMN)	Permittee shall provide datasets electronically with annual report.	The permittee shall continue the existing program of the collection of long-term data on stream quality and habitat for at least 25 LTMN locations selected to support the various types of data collected. This program includes: · **Continuous** – pH, conductivity, temperature, dissolved oxygen, percent dissolved oxygen and stream flow. · **Once Every Two Years** – Biological sampling and/or evaluation rotating to include: algae, fish and benthic macro invertebrates. · **Quarterly** – Ambient monitoring for Total Suspended Solids (TSS); Total Dissolved Solids (TDS); Fecal Coliform; E. coli; Oil and Grease; Biochemical Oxygen Demand (BOD5); Chemical Oxygen Demand (COD); Lead, Total Recoverable; Cadmium, Total Recoverable; Copper, Total Recoverable; Zinc, Total Recoverable; Dissolved Phosphorus; Total Phosphorus; Total Ammonia Nitrogen (as N); Total Kjeldahl Nitrogen (as N); Nitrate plus Nitrite Nitrogen (as N); and pH · **5/month (May-October)** - Recreational monitoring for fecal Coliform. · **1/month (May-October)** – Recreational monitoring for E. coli.	☑	❑	❑	❑	❑	na
2.7.2	Monitoring Summary	Permittee shall summarize and include in annual report.	The permittee shall provide a summary of monitoring collection efforts and results in the annual report.	☑	❑	❑	❑	❑	na
2.7.3	Trend Analysis	Permittee shall, at least once per permit cycle, provide synthesis report.	The permittee shall perform trend analysis to support long-term assessments of local waterways and program performance. Report analysis through the "Synthesis Reports" at least once every permit cycle.					❑	na
2.7.4	Flow Estimate to Support Quarterly Ambient Monitoring	Permittee shall provide available data and include in annual reports.	The permittee shall utilize total precipitation estimates over the previous twenty-four (24) hour period to estimate flow. When flow is measured with in stream gauging equipment, that data will be utilized rather than precipitation based estimates.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.7. MONITORING (M)									
M	Monitoring Plan Maintenance and Update								
SWQMP ID	Element Task	Frequency or Measure of Success	Activity Required	PY 1 8/12	PY 2 8/13	PY 3 8/14	PY 4 8/15	PY 5 8/16	Legal Auth
2.7.5	Monitoring Location Maintenance	Permittee shall summarize activities and include in annual reports.	The permittee shall continue its collaboration with United States Geological Survey (USGS) on flow gauges and monitoring locations maintenance and data management.	☑	❑	❑	❑	❑	na
2.7.6	Precipitation Estimate	Permittee shall continue to make rain gauge network data available on-line.	The permittee shall continue to maintain the continuous rain gauge network and on-line public access to that data.	☑	❑	❑	❑	❑	na
2.7.7	Water Quality Standards	Permittee shall apply the most stringent standard.	The permittee shall compare stream monitoring analytical results to the applicable water quality standards for each parameter of the monitoring program. The most stringent applicable standard shall be used for comparison. Constituents that exceed applicable Water Quality Standards shall be highlighted. The permittee shall include a discussion of possible pollutant sources through the annual report.	❑	❑	❑	❑	❑	na
2.7.8	Location Mapping	Permittee shall maintain the monitoring stations reflected in mapping system.	The permittee shall maintain the geo-coded monitoring station locations and descriptions through related geographic datasets and databases.	☑	❑	❑	❑	❑	na
2.7.9	Sampling Methodology and Test Procedures	Permittee shall perform the sampling methodology to insure compliance with 40 CFR 122.26 and 136.	The permittee shall perform the sampling methodology according to the EPA stormwater application regulations at 40 CFR 122.26. The permittee shall perform the analyses according to the procedures approved under 40 CFR Part 136, unless other test procedures have been specified.	☑	❑	❑	❑	❑	na
2.7.10	Annual Data Summary	Permittee shall provide a summary electronically with the annual report.	The permittee shall submit a stormwater monitoring report annually. The monitoring reports shall include: status of implementation of the monitoring program, methods of evaluating data, graphical summaries of the data, and an explanation/discussion of the data for each component of the monitoring program. The monitoring data/results obtained each year will be submitted electronically with the annual report. A narrative data analysis shall be submitted annually within the annual report.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.8. PERFORMANCE ASSESSMENT AND REPORTING (PAR)									
PAR									
SWQMP ID	**Element Task**	**Frequency or Measure of Success**	**Activity Required**	**PY 1 8/12**	**PY 2 8/13**	**PY 3 8/14**	**PY 4 8/15**	**PY 5 8/16**	**Legal Auth**
2.8.1	Activity Measures `Reporting	Permittee shall develop and retain annual reports for three years beyond permit term.	As described in the specific activity listings, the permittee shall compile information necessary to provide in an annual compliance report. The metrics defined by "Measure of Success" shall be reported and kept for program assessment purposes. The permittee shall track the appropriate metrics through existing databases/spreadsheets to support staff assignments and budget development.	☑	❑	❑	❑	❑	na
2.8.2	PEOPLE	Permittee shall, by the end of Permit Year two (2), summarize tracking procedures and results and include with annual report.	The permittee shall develop and implement an activity tracking procedure to support consistent coordination and integrated reporting in a way that enables the variety of MSD staff to report their individual activities, target audiences, and related metric.		❑	❑	❑	❑	na
2.8.3	Illicit Discharge Trend Analysis	Permittee shall provide, during Permit Year Five (5) a report of trends and potential implications of IDDE investigations.	The permittee shall perform a trend analysis of illicit discharge investigations and enforcement actions over the term of the permit.					❑	na
2.8.4	Industrial/IDDE Compliance Actions Portal	Permittee shall, by the end of Permit Year three (3), report progress summarized in annual compliance demonstration report.	The permittee shall develop strategies and establish a schedule to initiate a Compliance Actions Web Portal supplementing existing databases for functionality for internal use to expedite follow-up inspections of HRIFs.			❑			na
2.8.5	Post-Construction Inspection Portal	Permittee, shall, by the end of Permit Year three (3), report progress summarized in annual compliance demonstration report.	The permittee shall develop strategies and establish a schedule to initiate a Compliance Actions Web Portal for internal use to expedite follow-up inspections of private post-construction BMPs.			❑			na
2.8.6	Six-Level Program Assessment Methodology	Permittee shall develop approaches enumerated by the end of Permit Year two (2) and implemented by the end of Permit Year four (4).	The permittee shall develop an approach to implement application portions of the six-level program EPA began advocating in 2008 to assist MS4 programs in identifying success and future areas of focus.		❑		❑		na
2.8.7	Cooperative annual report	Permittee shall prepare and submit annual report in a timely manner.	The permittee shall coordinate and cooperate with co-permittees in compilation of the annual compliance demonstration reports.	☑	❑	❑	❑	❑	na

Schedule / Status Key: ❑ = Due in Permit Year (PY): 08/ 2012 - 16, ☑ and Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

2.1 PEOPLE FACT SHEET

TABLE 2.1 - PEOPLE	
SWQMP ID	**PEOPLE General Public & Stakeholder Education Program**
2.1.1	General Public-Mass Media Integration/Distribution
2.1.2	General Public-Direct Interaction
2.1.3	General Public-Meeting Topic Integration
2.1.4	Volunteer Programs, Participation, Promotion or Support
2.1.5	MetroCall Hotline and MSD Customer Relations
2.1.6	Elected Officials
2.1.7	Public Speakers
2.1.8	News Media-Press Releases
2.1.9	MSD Web Site
2.1.10	Behavior Change Assessment Survey
2.1.11	Developers Advisory Group
2.1.12	Homebuilders Association Land Development Committee Monthly Meetings
2.1.13	Greater Louisville Inc. Environmental and Water Committees
2.1.14	Construction Operators
2.1.15	Rain Garden Outreach
2.1.16	Green Infrastructure Demonstration Projects
2.1.17	Public Notification of Major Program Changes
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.1.18	Jefferson County MS4 Workgroup-Communication
2.1.19	"Go Green Louisville" Program Assistance

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

General Public – Mass Media Integration / Distribution						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.1	The permittee shall integrate MS4 stormwater quality topics in to existing print mass media, local government cable channel, social marketing materials, and/or new materials with the intent of affecting behavior change.	Annually	Report the number of potential households and estimate the numbers of households were reached.	Materials Integrated into 6 Media Forums	No	Completed / Being Implemented

Progress Summary Narrative

Public education through mass media message integration and distribution continues using the key messages for stormwater quality as the primary focus. Venues include Metro TV (Insight Cable Channel 25), radio, website postings, locally-focused magazine articles and/or advertisements, newspaper inserts, advertisements and/or articles, posters, billboards and flyers.

- **The Louisville Courier-Journal Newspaper** advertisement messages include: Flooding, the FOG (cooking fats, oils and greases) program, sewer overflow safety, pet waste pickup, and conscientious use of washing machines and dishwashers during wet weather. MSD also provides press releases and online listservs that the Courier-Journal environmental reporter frequently posts to the "Watchdog Earth" blog at http://blogs.courier-journal.com/watchdogearth/.
- **Metro TV** (Channel 25) the Project WIN 2008 video series – a series of seven videos to inform the public about MSD, the Amended Consent Decree and Project WIN. The video was shown 91 times between July 1, 2010, to September 30, 2010.
- **Local Publication Advertisements** were placed in *Business First, Today's Woman,* and *Louisville Magazine* to inform the public on Project WIN topics that include sewer overflow reduction, pet waste and similar messages.
- **Movie Theatre Advertisements** were placed in two theatres. Messages included pet waste pickup and proper swimming pool opening and closing procedures. These advertisements ran through May 2011.
- **Direct Mail -** Mailed 48 FOG residential public outreach letters to areas that had FOG issues during this reporting period. Other direct mail includes biennial letters to all property owners within 500 feet of streams, and "Pardon Our Dust" letters to property owners affected by Project DRI construction projects.
- **MSD Publications:**
  - **Update** - 12 issues, available on website <http://www.msdlouky.org/aboutmsd/updatenews.htm>
  - **Crosscurrents** - 2 issues, available on website <http://www.msdlouky.org/aboutmsd/crosscurrents.htm>
  - **MSD Annual Report** - available on website http://www.msdlouky.org/aboutmsd/annual.htm

Tracking and Assessment

Reporting Period July 1 – June 30	PY	"Update" Number of Households Reached	"Crosscurrents" Number of Households Reached	"MSD Annual Report" Number of Households Reached	Courier-Journal Number of Households Reached
2010-11		155	~9,000 (+ 200 internal)	~6,000	~700,000
2011-12	1				
2012-13	2				
2013-14	3				
2014-15	4				
2015-16	5				

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

General Public – Direct Interaction						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.2	The permittee shall present the "Key Messages" at community events, through the use of a display booth, "enviroscape" or other direct personal integration approaches.	Six event days per year	Permittee shall present educational materials to the public at least six event days per year; update booth material annually. Provide summary of the educational activities in annual report	Key Messages Presented at 8 event days	No	Completed / Being Implemented

Progress Summary Narrative

General public education through direct interaction at community events continues to be conducted using the key messages for stormwater quality as the primary focus.

- **Louisville Metro's Brightside "Green Mile" Program**: MSD maintains two miles of Southwestern Parkway and Algonquin Parkway as a contribution to Louisville Metro's Brightside "Green Mile" Program. Quarterly, MSD employees clean litter and debris along Olmstead Parkways from Broadway to the overpass of I-264.
- **Earth Day at the Zoo**: The annual community-wide Louisville Zoo "Party for the Planet" Earth Day festivities attract thousands of families every year. MSD's booth handed out materials regarding rain gardens, sewer overflow prevention, etc. and presented a new game: "Do the Doo" to demonstrate correct pickup of dog waste (2 MSD staff manned booth; attendance was less than normal years due to inclement weather and flooding). – Game results in behavior change!
- **Beargrass Creek Festival** (1 day): (1 MSD staff) booth and presentation SW pollution prevention sponsored by KWA. MSD donated a rain barrel to KWA to give away to one new member. Approx 50 members of the public attended.
- **KY Construction Career Day** (1 day) – MSD presented (green house, booth materials on multiple MSD departments). 20-30 MSD staff involved and several hundreds of high school students to showcase construction careers.
- **KAMM/KSA Conference Booth** (3 days) – MSD displayed educational and programmatic materials to the audience of MS4 permittee communities throughout Kentucky as well as the floodplain and emergency mitigation managers from those communities. Approx 150 attended the conference at Lake Barkley.
- **UPS Earth Day** (1 day) – MSD provided materials to a rain barrel vendor and arranged for them to take MSD's booth space. Approx 500 UPS employees attended.

Tracking and Assessment

A baseline has been established. As more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked.

Reporting Period July 1 – June 30	PY	Number Event Days
2010-11		8
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

General Public – Meeting Topic Integration						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.3	Starting in year two (2), Permittee shall integrate water quality topics in MS4 public meetings at least six (6) events per year; provide summary of the events in the annual report	Begin in PY 2, six events per year	The permittee shall integrate MS4 stormwater quality topics, as feasible and appropriate into other MSD sponsored public meetings.	TBD	No	Planning/In Progress

Progress Summary Narrative

MSD facilitates and sponsors public meetings and events throughout the year to meet, interact and educate the public on a variety of topics and/or projects related to the "Pardon Our Dust" outreach program. Where feasible and appropriate, MSD will incorporate stormwater quality and MS4 topics or educational materials into MSD-sponsored public meetings and events held for other programs.

Tracking and Assessment

This activity requirement is not yet in effect for the permit year. The schedule for this activity starts in permit year 2.

Reporting Period July 1 – June 30	PY	Number of Public Meetings w/ MS4 integrated
2010-11		NA
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Volunteer Programs Participation, Promotion or Support						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.4	Starting in PY two (2), Permittee shall have direct participation in at least three (3) events per year; and promote additional two (2) events per year, provide summary of volunteer opportunities the permittee participated, facilitate, or supported in the annual report.	Begin in PY 2, three events per year and promote two events	The permittee shall participate in, facilitate, encourage or support volunteer program opportunities on a case by case basis to optimize resources and potential to affect behavioral changes through participation events.	More than 3 events promoted / participated	No	Completed / Being Implemented

Progress Summary Narrative

MSD promotes and facilitates local volunteer networking in the community to encourage volunteer program participation. MSD continues to make channels of communication open and available for volunteers to participate in community watershed related events and speak with environmentally related staff. Volunteer organizations and events continue to be determined on a case-by-case basis, but routinely include the Louisville Nature Center, Jefferson Forest Interpretive Center, Watershed Watch, Louisville Zoo environmental programs, Living Lands and Waters and other activities. MSD collaborates with Operation Brightside in litter control and environmental education efforts. Brightside partners with citizens to help keep Louisville Metro clean, green and environmentally aware.

MSD sponsors and/or its employees organize, support or participate in clean sweeps such as the Ohio River Sweep, Beargrass Creek Sweep, Floyd Forks Creek Sweep, Pre-Derby Clean-up and the Community-Wide Cleanups held in spring and fall. Other efforts include,

- Catch Basin Marking thru JCPS
- Mayor's Hike, Bike and Paddle
- Jefferson Forest
- Continued support Salt River Watershed Watch and attended the Annual Meeting.
- MSD became a sponsoring member of the Clean Water Alliance www.cleanwateramericaalliance.org

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Households Reached
2010-11		>3
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

MetroCall Hotline and MSD Customer Relations						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.5	Permittee shall provide a summary of MS4 complaints and comments received in the annual report	Annually	The permittee shall provide support to the 24-hour central reporting hotline "Metro Call" and internet communication channels for use by the public and MSD employees to report complaints, spills, and illegal dumping.	Database Maintained	No	Completed / Being Implemented

Progress Summary Narrative

Louisville Metro government and MSD combined resources to provide online services for those customers who wish to submit service requests to MetroCall or MSD's Customer Service Department over the Internet. In addition to entering a service request, customers can follow the status and progress of their request online. The MetroCall phone number at 311 or 574-5000 as well as the MSD Customer Relations phone number at 587-0603 is answered 24 hours per day by staff instead of an answering machine. Calls to the Louisville Metro line are routed to and managed by MSD Customer Relations staff during Metro Government's non-business hours. Both telephone and internet communication modes allow the public and employees to report drainage system complaints, spills and illegal dumping. All incoming inquiries are recorded and coded in a central database and routed to the appropriate staff for follow-up, which is also recorded in the database. Citizens can contact MetroCall by phone, On Line Customer Service or Live Chat; or coming soon - the new Mobile 311 App! During MetroCall 311's first full year of service, service representatives answered over 83,000 calls. In 2010 MetroCall answered close to 283,000 for a total of over 4 million calls since 1989. MetroCall also answered close to 80,000 emails and conduced almost 7,200 live chat sessions.

Tracking and Assessment

A summary of MS4 customer service request reports are found in Appendices 2.1.5 & 2.2.3, Customer Call Counts Summary.

The HANSEN/MIDAS database is used by both Louisville Metro and MSD to record inquiries and track response activity. The database format enables robust data analysis.

Reporting Period July 1 – June 30	PY	Estimated Number of Related Calls
2010-11		260 (IWD Customer Service Calls)
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Elected Officials						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.6	Permittee shall provide a summary of its attendance of meetings at Mayors and/or Council Member's discretion in the annual report	Report annually	The permittee shall attend and participate at the discretion of Mayor's office and Louisville Metro Council members to address resident's concerns and questions.	Meeting attendance to be tracked	No	Completed / Being Implemented

Progress Summary Narrative

The Mayor's Office: "Talk to Greg". The Department of the Mayor's Office facilitates "Talk to Greg" conversational public meetings held every other month on the second Monday of the month at various locations throughout Louisville Metro. The format allows a wide range of concerns to be brought forth by Louisville residents and they can email suggested discussion topics and questions to Mayor Fischer prior to the public forum. These public events are aired on Louisville Metro TV Channel 25. The MSD Executive Director continues to attend and participate in the Talk to Greg public meetings at the discretion of the Mayor's office to address residents' concerns and questions pertaining to sewers, drainage, flood control, water quality, and the MS4 program.

Of 71 customer service requests made at the Talk to Greg Meetings during the report year, four of them were requests for MSD drainage service.

Metro Council District Meetings. The Louisville Metro Council is comprised of 26 districts representing all of Jefferson County. Council meetings are held bi-monthly and are shown on Louisville Metro Channel 25. Metro Council District Meetings are open and available to the public to attend. The MSD Executive Director continues to attend and participate in Metro Council District Meetings at the discretion of the Metro Council Members to address council members' concerns and questions pertaining to stormwater quality and the MS4 program.

Tracking and Assessment

The attendance of MSD executive staff at the Mayor's Office events is tracked by the Mayor's Office. MSD will in the future seek better documentation of the number of these events in order to facilitate tracking and reporting.

Reporting Period July 1 – June 30	PY	Estimated Number of MSD CSRs at Mayor's Meetings
2010-11		4
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Public Speakers						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.7	Permittee shall provide public speakers to various community stakeholders at least six (6) events per year	Six events per year	The permittee shall provide speakers to various community stakeholder groups that could benefit from environmental stormwater information.	>6 presentations made	No	Completed / Being Implemented

Progress Summary Narrative

MSD provides speakers to various community, special interest and civic groups upon request to promote community awareness and involvement in stormwater quality topics and activities. The MSD staff continues to attend and participate in community group meetings to educate and promote involvement of stakeholders in stormwater quality activities. Community groups to be addressed are determined on a case-by-case basis, but routinely include the Master Gardener's Program, Home Builders and Contractors Associations, outdoor classrooms, PTA, school audiences, industrial community associations, planning agencies, watershed agencies, neighborhood associations, community clubs, boy/girl scouts, service organizations and others. Some of the presentations include:

- WWT Stakeholder Group
  - November 30, 2010: meeting included an MSD update on capital projects, green initiatives, and public outreach
  - June 20, 2011: meeting included an MSD update on capital projects, green initiatives, and public outreach
- Presentation to Metro IPL regarding the inspection of installed sustainable features on July 28, 2010
- Presented MSD's green program to the Kentucky Watershed Watch on August 13, 2010
- Presentation about rain gardens, bioswales, and other sustainable BMPs on August 23, 2010
- Presented to the Kentucky/Indiana Master Gardeners final class at the Louisville Nature Center on October 19, 2010
- Presented on rain barrels, rain gardens and urban reforestation to the Rose Hill Neighborhood Association on November 9, 2010
- Presented to the Park Terrace Neighborhood Association at 1611 Spring Street on November 17, 2010
- Presented Green Infrastructure Financial Incentive Program to Contec Development Community May 11, 2011; HBAL August 10, 2011; Luckett and Farley Development Community meeting October 5, 2011

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of Speaking Events
2010-11		>10
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

News Media – Press Releases						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.8	Permittee shall provide at least two (2) press releases per year highlighting public participation opportunities	Two per year	The permittee shall provide press releases to the local news media highlighting opportunities for the public to participate in outreach and involvement events to make a positive difference through behavior change.	>2 News Releases	No	Completed / Being Implemented

Progress Summary Narrative

Press releases promote the dispersion of stormwater quality educational and involvement messages to promote behavior changes that impacts water quality. MSD continues to provide press releases to the local news media highlighting new activities and opportunities for the public to participate in outreach and involvement events to encourage positive behavior modifications. News releases are housed on the website @ http://www.msdlouky.org/aboutmsd/newsrelease.html. A Calendar of Events is announced at http://www.msdlouky.org/aboutmsd/cust_calendar_list.cfm.

Press releases continue to be provided to the local news media by the Project WIN outreach administrator to highlight the progress of the stormwater program and future challenges and opportunities for residents to make a positive difference through behavior change. Two examples include:

- June 17, 2011, The 22nd annual Ohio River Sweep is set for Saturday, June 18, from 9:00 A.M. to 12:00 Noon. More than 15,000 volunteers from Pittsburgh to Cairo, Illinois will pick up trash and debris along 1,800 miles of riverbank. Six states and 72 counties are represented.
- September 23, 2011, MSD invites you to participate in a sewer overflow abatement project review and input meeting on Tuesday, September 27, 2011.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of MS4 Related Press Releases
2010-11		>2
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

MSD Website						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.9	Permittee shall report summary of updates in the annual reports of PYs 2 and 4.	PYs 2 & 4	The permittee shall review and revise the website with the "Key Messages" content and other related PEOPLE plan elements.	TBD	No	Planning/In Progress

Progress Summary Narrative

The MSD website www.msdlouky.org has information regarding the various aspects of the stormwater program, including but not limited to real-time rain gage readings, water quality, erosion prevention and sediment control, hazardous materials management and flooding and drainage programs. The website also contains information regarding permitting, reporting, MSD initiatives, current issues, rain garden and rain barrel information, and other green solutions.

MSD has made progress toward a major update of its website. It is anticipated that MS4 and related green infrastructure content will be integrated into the new web site after content related to the Integrated Overflow Abatement Program (IOAP).

Tracking and Assessment

Not applicable.

Reporting Period July 1 – June 30	PY	Web Site Updates Made
2010-11		Minor Content Updates
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Behavior Change Assessment Survey						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.10	Permittee shall provide summary in the annual report of the Baseline Survey in PY one (1) and the Behavior Assessment in PY four (4).	PYs 1 & 4	The permittee shall perform a statistical survey to gauge the population's knowledge of stormwater quality issues and establish baseline to assess the changes in behavior and outreach program effectiveness. The permittee shall utilize the survey results to refocus and reprioritize PEOPLE activities.	Survey completed in 2009 and underway in 2011	No	Completed / Being Implemented

Progress Summary Narrative

MSD contracted a professional marketing research firm to perform a statistically-valid telephone survey of Louisville Metro residents. The objective of the survey was to determine a baseline of both knowledge and self-reported behavior for wet-weather pollution prevention. For the survey, 1,200 Louisville Metro telephone interviews were conducted with a random selection of adult residents. The interviews averaged 12 minutes in length and were conducted November 30, 2009 through December 7, 2009.

The survey topics included general stormwater pollution awareness; pet waste knowledge and practices; lawn chemicals; car washing and maintenance; wet weather laundry practices; and stormwater capture awareness. In general, about one-third to one-half of respondents either did not know or gave incorrect answers to most questions. In addition to serving as a baseline for the success of the initiatives, the results of the market survey also provided a frame of reference as to what the general population did and did not know to direct future marketing efforts for the third permit cycle. The survey results were used to determine a ranking of MS4 / stormwater concepts that were not understood or were misunderstood by the representation of the general public measured. This survey will be repeated every two years with an overall Behavior Assessment performed in PY 4 to assess changes in behavior and outreach program effectiveness will be used to reprioritize and refocus the PEOPLE program.

Trends and Assessment

The 2011 survey will be used to begin trend analysis. The baseline survey was conducted in 2009.

Reporting Period July 1 – June 30	PY	Estimated Number of Households Reached
2010-11		
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Developers Advisory Group (DAG)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.11	Permittee shall participate in at least three (3) events per year	Three events per year	The permittee shall participate in the DAG meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklist, regulations, etc.	Attendance at meetings	No	Completed / Being Implemented

Progress Summary Narrative

MSD participates in DAG meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklist, regulations, etc. The DAG is a local informal audience targeting the development community, including members of HBAL, local contractors, developers, engineers and contractors.

Two DAG meetings were held during the permit year: August 31, 2010 and February 17, 2011. The meetings allow MSD to answer questions and work with stakeholders to develop policy solutions that meet water quality regulatory needs. MSD provides information to the group regarding changes in post-construction policy, procedures, checklist, regulations and others as available, to inform and educate group participants.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of DAG Meetings
2010-11		2
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Homebuilders Association Land Development Committee Monthly Meetings						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.12	Permittee shall participate in at least 75% of the meetings annually	75% of meetings annually	The permittee shall attend Homebuilders Association land development committee meetings to address concerns and comments from the local homebuilder professional and provide information regarding changes in procedures, checklist, regulations, etc	>75% attended	No	Completed / Being Implemented

Progress Summary Narrative

MSD attends Homebuilders Association of Louisville (HBAL) land development committee meetings to address concerns and comments from the local homebuilder professional and provide information regarding changes in procedures, checklist, regulations, etc. MSD participates in these meetings regularly and anticipates that the venue will continue to play an important role in receiving information from the development community about their challenges to implement MSD's expectations.

HBAL meetings are held the first Wednesday of every month and MSD staff attends all of them. The Homebuilders Association Land Development committee did skip a meeting in July 2011.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of HBAL Meetings
2010-11		11
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Greater Louisville Inc. Environmental & Water Committees						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.13	Permittee shall participate in at least three (3) events per year	Three events per year	The permittee shall participate in committee meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklist, regulations, etc.	Participated in 11 Events	No	Completed / Being Implemented

Progress Summary Narrative

MSD participates in committee meetings to address concerns and comments from key local development professionals and provide information regarding changes in construction procedures, checklists, regulations, etc. MSD participates in these meetings regularly, typically at least three annually, and anticipates that the venue will continue to play an important role in receiving information from the industrial, commercial and development communities about their challenges to implement MSD's expectations.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of Meetings Attended
2010-11		11
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Construction Operators						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.14	Permittee shall evaluate educational materials and/or multimedia presentations for the construction industry related to point and non-point source pollution and stormwater pollution annually.	Annually	The permittee shall make available educational materials and/or multimedia presentations for the construction industry related to point and non-point source pollution, green infrastructure and stormwater pollution prevention measures for operational procedures and erosion and sediment controls.	Materials updated and available	No	Completed / Being Implemented

Progress Summary Narrative

MSD routinely evaluates and updates its educational materials and presentations related to point and non-point source pollution, green infrastructure and stormwater pollution geared toward the construction industry on an annual basis. MSD updated the Design Manual in 2009 including topics on EPSC.

MSD completed the Green Infrastructure (Section 18) Design Manual in June 2011.

The Green Infrastructure Design Manual can be found at

http://www.msdlouky.org/insidemsd/pdfs/2009_DM_SD_SPECS/GreenInfrastructureManualChapter18_2011-09-14.pdf

Minimization of site disturbance as well as preservation and conservation of natural site design features are included in Chapter 18 of the Design Manual.

Construction Guidance is available to the public through the web at:
http://www.msdlouky.org/insidemsd/standard-drawings.htm

Tracking and Assessment

Not Applicable

Reporting Period July 1 – June 30	PY	Updates Made
2010-11		
2011-12	1	GMP Manual
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Rain Garden Outreach						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.15	Permittee shall estimate handbook distribution and report in the annual report	Annually report; updates at least every even numbered year	The permittee shall maintain and update rain garden handbook with the intent of general public outreach. Consider expanding use to support residential, non-residential professional and non-professional audiences. The permittee shall evaluate changes and make updates at least every even numbered year.	Numerous handbooks distributed	No	Completed / Being Implemented

Progress Summary Narrative

MSD maintains and updates a rain garden handbook with the intent of general public outreach. In the even numbered years MSD will consider expanding its use to support residential, non-residential professional and non-professional audiences. The second version of the handbook released in August 2008 is available at http://www.msdlouky.org/pdfs/RainGardenManual.pdf. The 2nd edition includes an expanded plant list and more information about understanding urban stormwater and the role rain gardens play with infiltrating runoff.

On-site BMP retrofits for private residential properties including the installation of rain gardens continue to be encouraged through educational campaigns, demonstration projects and incentives to residents. These post-construction programs provide on-site treatment to improve stormwater quality. MSD is also exploring ways to identify private rain gardens in the community. Through its many interactions with public groups, such as neighborhood associations, MSD is seeking permission from private rain garden owners to make their information public.

Tracking and Assessment

MSD purchased prints of the handbook by the thousands. To this point it has not made an effort track the number distributed annually or at which events. In the future, MSD will endeavor to do so.

Reporting Period July 1 – June 30	PY	Estimated Number of Handbooks Distributed
2010-11		unknown
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Green Infrastructure Demonstration Sites						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.1.16	Permittee shall provide a Summary Report of Green Infrastructure demonstration projects in the annual report	Annually	The permittee shall implement series of projects aimed at demonstrating the feasibility and effectiveness of green infrastructure including, but not limited to rain gardens, green roofs, pervious pavement, bio-swales and infiltration. Prioritize, select and implement projects to support a variety of residential, non-residential, professional and non-professional audiences in MSD and co-permittee areas. Where feasible collaborate and/or cooperate with local government agencies, schools, co-permittees and/or private properties with significant use and exposure to the general public.	7 MS4 Area projects completed or underway	No	Completed / Being Implemented

Progress Summary Narrative

MSD has implemented several projects demonstrating the feasibility and effectiveness of green infrastructure. These projects include rain gardens, bio-swales and pervious pavement techniques. In addition, MSD partnered with private entities to provide site feasibility assessment for incorporation of green technologies and is currently offering incentives to promote green infrastructure such as rain gardens, bioretention, pervious pavements and green roofs on commercial development and re-development projects. Through its green infrastructure program MSD will wherever feasible partner with local governmental agencies, schools, co-permitees and/or private properties which have significant use and exposure to the general public.

- Installed interpretive signage for the Main Office Rain Garden prior to September 30, 2010
- Installed a rain garden at 2817 Brownsboro Road on October 18, 2010
- Planted 100 trees at Slaughter Elementary at 3805 Fern Valley Road on November 20, 2010
- Shakes Run Residential Green Infrastructure Project (incentive) approved August 2011
- Jefferson Development Commercial Green Infrastructure Project (incentive) approved August 2011
- Ford Louisville Assembly Plant Green Infrastructure Project (incentive) startup November 2011
- Rose Farm Park Project Green Infrastructure Project (incentive) approved October 2011

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Projects
2010-11		~7
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
Y	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Public Notification of Major Program Changes						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.17	Permittee shall finalize notification system within twelve (12) months of effective date of permit.	Within 12 months of permit	The permittee shall develop a web site-based system to notify the public and affected stakeholders of proposed major program changes that will significantly impact stormwater runoff quality, negatively or positively. The public shall be given the opportunity to informally comment on proposed changes and these comments will be summarized and made available on the website.	TBD	No	Planning/In Progress

Progress Summary Narrative

MSD currently provides notification to the public and affected stakeholder regarding proposed program changes that will significantly impact stormwater quality negatively or positively through its existing website. As a publically available document, the public is given the opportunity to comment.

MSD will also develop a notification system to disseminate information in the most efficient manner. For public distribution, a press release will be generated and distributed via the media contact list developed as part of the News Media Press Release section of the permit.

Tracking and Assessment

Not Applicable.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Cooperative Efforts (MSD provides supportive or other non-lead role)						
Jefferson County MS4 Workgroup – Communication						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.18	Permittee shall attend at least two (2) meetings per year	Two events per year	The permittee shall participate in the Jefferson County MS4 Co-Permittee Workgroup meetings discussing program progress, challenges, activity changes, shared activity requests communication needs and lesson learned.	3 Meetings	No	Completed / Being Implemented

Progress Summary Narrative

The Jefferson County MS4 Workgroup is comprised of Jefferson County MS4 communities that are co-permitted with MSD. The meetings promote discussion among co-permitted communities on program progress, challenges, activity changes, shared activity requests, communication needs and lessons learned. MSD continues to lead and facilitate the Jefferson County MS4 Workgroup meetings at least twice per permit year.

Tracking and Assessment

Meeting attendance sheets are maintained. Meetings included:

- August 16, 2010
- January 5, 2011
- June 22, 2011

Reporting Period July 1 – June 30	PY	Number of Workgroup Meetings
2010-11		3
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Cooperative Efforts (MSD provides supportive or other non-lead role)						
"Go Green Louisville" Program Assistance						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.1.19	Permittee shall report its activities and support of the "Go Green Louisville" initiatives in the annual report	Annually	The permittee shall continue to support Louisville Metro and the "Go Green Louisville" initiatives with development of guidance materials to be applied to new Metro Government Facilities incorporating green infrastructure.	Over 8 projects completed	No	Completed / Being Implemented

Progress Summary Narrative

The "Go Green Louisville" is a program promoted by Louisville Metro Government that promotes both Louisville Metro Government initiatives and actions that the public can take to improve the environment. In doing its own part, Louisville Metro Government pledged to reduce gas consumption in Government vehicles, decrease energy usage in Government buildings, increase community recycling rates, and expand green spaces. In addition, there is a link on the Louisville Metro Government website that promotes the "Go Green Louisville" initiative and the actions citizens can take to improve our environment <http://www.louisvilleky.gov/gogreen>.

As a part of MSD's effort to "go green" with Metro Louisville several green alleys have been constructed including:

- 300 W. Lee/W. Bloom (UL)
- Billy Goat Strut
- Warren
- Congress
- Forrest
- 17th & Hill
- Kehlert/Lentz
- Third and Ormsby Rain Garden

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

TABLE 2.2 IDDE

TABLE 2.2 - IDDE	
SWQMP ID	**IDDE 1 Legal Prohibition/ Control Authority**
2.2.1	Assess Legal Prohibition/ Control Authority
2.2.2	IDDE Source Investigation and Elimination Procedures
2.2.3	Public Illicit Discharge Report Investigation
2.2.4	Dry Weather Screening
2.2.5	Screening Follow-up
2.2.6	Mapping - Stormwater Infrastructure Inventory
2.2.7	Non-industrial IDDE Program Enforcement
2.2.8	Hazmat/Spill Unified Response Program
2.2.9	On-site SWPPP
2.2.10	MVA Mitigation Kit Program
2.2.11	IDDE Identification SWPPP Training Integration
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.2.12	KDOW Support

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 1 Legal Prohibition/Control Authority						
Assess Legal Prohibition/Control Authority						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.1	The permittee shall evaluate existing ordinance and regulations with an emphasis on Article 5 of the WDRs to determine if they are sufficient relative to MSD's ability to implement an effective IDDE program per 40 CFR. 122.26(b) (2). The permittee shall periodically update WDRs as needed to identify and eliminate risk of illicit discharges due to changes in technology, industrial management processes, regulations or program modifications. The permittee shall provide a summary of the adoption of such changes and information about implementation, and effective date in the annual report.	Annually	Permittee shall evaluate, in the odd-numbered PYs, the proposed changes in WDRs for consideration by MSD Board	Evaluations underway	No	In Progress

Progress Summary Narrative

The HMO and the Louisville Metro Integrated Emergency Incident Response program includes procedures to prevent, contain, and respond to spills that may discharge into a waterway or the municipal separate storm sewer. The Louisville Metro Emergency Management Agency (LMEMA), Public Health & Wellness Department (LMPHW), Fire Departments, Police, EMS, Coast Guard, EPA, USACE, and MSD Responders are on-call for hazardous materials discharge incident response.

MSD began evaluating existing ordinances and regulations with an emphasis on Article 5 of the WDRs to determine if they are sufficient relative to MSD's ability to implement an effective IDDE program in 2010. MSD continues to pinpoint updates needed to identify and eliminate risk of illicit discharges due to changes in technology, industrial management processes, regulations or program modifications. It is anticipated that modifications will occur in Permit Year One.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 1 Legal Prohibition/Control Authority						
IDDE Source Investigation and Elimination Procedures						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.2	The permittee shall develop and implement a formal plan of illicit discharge detection including how to trace the source of an illicit discharge and procedures for removing or eliminating them once they are located or reported. The plan should also include the enforcement procedures outlined in the WDRs for illicit discharge elimination, which includes ten (10) days from the receipt of the Notice of Violation (NOV); the source of the illicit discharge shall submit a mitigation plan for removal.	6 months	Submit to the KDOW of Water within six (6) months of the effective date of the permit	Not yet due	No	In Progress

Progress Summary Narrative

MSD will compile procedures and submit to the KDOW within 6-months of the effective date of the permit.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 1 Legal Prohibition/Control Authority						
Public Illicit Discharge Report Investigation						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.3	The permittee shall continue to receive and investigate public reports of potential illicit discharges via customer service hotline, webpage reporting and MetroCall. The permittee shall update and perform customer service hotline staff training for receiving calls regarding potential illicit discharges and appropriate routing procedures.	Annually	Permittee shall provide in the annual report, a summary of the investigations of illicit discharges performed	Service calls addressed	No	Completed / Being Implemented

Progress Summary Narrative

The MSD IWD Incident Response staff conducts investigations of reported pollutant discharges by residents, businesses, and public agencies. This includes responding to reports that come in via: the Customer Service 24-hour Hotline, on the MSD webpage, activities observed by staff while patrolling their assigned area, and referrals from other agencies. The program is authorized by and administers compliance and enforcement of the MSD WDRs. This activity will target the general public and employee reporting through the website, hotline and in person to reduce illicit discharges.

In particular, MSD will update and perform customer service hotline staff training for receiving calls regarding potential illicit discharges and appropriate routing procedures. MSD will include in the annual report the number of potential illicit discharges received through the hotline, Metro Call and the website.

Tracking and Assessment

A summary of MS4 customer service request reports are found in Appendix 2.1.5 / 2.2.3, Customer Call Counts Summary.

The HANSEN/MIDAS database is used by both Louisville Metro and MSD to record inquiries and track response activity. The database format enables robust data analysis.

Reporting Period July 1 – June 30	PY	Number of Related Customer Service Requests
2010-11		260 (IWD Customer Service Calls)
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 1 Legal Prohibition/Control Authority						
Dry Weather Screening						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.4	The permittee shall conduct dry weather screening of representative outfalls. The recommended level of effort is 20% of the major outfalls per year. However, all the major outfalls shall be addressed within the permit term. The permittee shall also conduct dry-weather screenings at ninety 90% of large industrial outfalls of industrial facilities once every two years.	Annually	Permittee shall provide in the annual report, a summary of the dry weather screenings performed.	TBD	No	In Planning / Progress

Progress Summary Narrative

MSD intends to perform outfall screening through a process originating with aerial thermo-photography. While the details of the process are yet to be defined, it is anticipated that the aerial thermo-photography will be performed in a winter condition appropriate for identifying potential illicit discharges. Analysis of the data will result in a list of potential illicit discharges that will then be investigated by field crews for confirmation and as appropriate, outreach, enforcement or other actions resulting in the elimination of illicit discharges. MSD anticipates performing this procedure over the MS4 area every two years to exceed the requirement of screening major outfalls at least once over the course of the permit term and meet the requirement to screen large industrial outfall every two years.

In addition to actively screening the system with aerial thermo-photography, MSD staff will be trained to recognize potential illicit discharges. This will performed through information delivered in the SORP training. This existing training program is similar in nature and highly integrated into routine training for MSD staff. In this regard, MSD will far exceed the expectations established in this requirement.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Potential Illicit Discharges Identified
2010-11		
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 1 Legal Prohibition/Control Authority						
Screening Follow-up						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.5	After the initial follow-up to insure the illicit discharge has been mitigated, the permittee shall re-evaluate outfalls that were previously found to have had contaminated discharges to determine the current status of those outfalls.	Annually	Permittee shall starting in PY One (1) inspect at least 25% of suspect outfalls per year	TBD	No	In Planning

Progress Summary Narrative

MSD identified and screened over 5,716 outfalls along streams in Jefferson County in the previous permit term. Of the 5,716 identified outfalls, 114 outfalls (approximately 1.5%) were found to be potentially contaminated. Subsequently, the outfall identification component of the Illicit Discharge Program was moved in-house. Actively identifying and eliminating contaminated outfalls is now a function of IWD's routine responsibilities. IWD officially took over the responsibility of monitoring blue line streams for illicit discharges.

MSD will conduct follow-up screening of the 114 outfalls previously identified in an effort to reduce the number of illicit discharges. MSD will re-inspect at least 25% of the original 114 outfalls suspected to be contaminated per year.

This task is augmented by the staff training with the intent that a large number of staff operating in the field will be able to recognize potential illicit discharges and know what to tell the MetroCall operators to report the potential illicit discharge.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Percent of Outfalls Re-Inspected
2010-11		0
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
Mapping - Stormwater Infrastructure Inventory						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.6	The permittee shall continue to maintain the GIS LOJIC layers constituting its storm sewer system map, showing the location of all known major outfalls, and the names and location of all waters of the Commonwealth that receive discharges from those outfalls.	Annually	Permittee shall maintain a storm sewer system map.	Mapping Routinely Updated	No	Completed / Being Implemented

Progress Summary Narrative

MSD maintains an extensive drainage system electronic map through LOJIC. The data is utilized by many field and office staff throughout MSD for the daily implementation of their duties. This data far exceeds the requirements of this activity in that the entire known public drainage system, including pass-through drainage, is mapped rather than only the MS4 outfalls.

Information on LOJIC and its data is available at: http://www.lojic.org/.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
Non-Industrial IDDE Program Enforcement						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.7	The permittee shall continue to utilize the WDRs, related checklists and procedures for investigation of potential illicit discharges and elimination of illicit discharges.	Annually	Permittee shall report annually, including number of investigations, enforcement actions and referrals to KDOW, and follow-up investigations.	125 investigations	No	Completed / Being Implemented

Progress Summary Narrative

MSD will continue to enforce the WDR and related policies, regulations and procedures for the enforcement of illicit discharges. Incidents of possible illicit discharges are immediately investigated by IWD and enforcement action is taken. This activity will include annual reporting of enforcement actions and referrals to KDOW.

Tracking and Assessment

See Appendix 2.2.7, ERI Case Study Report, for detailed IMSUS003 reports detailing investigations and enforcement actions.

Reporting Period July 1 – June 30	PY	Number of Calls Requesting Investigations	Number of Resulting Enforcement Cases
2010-11		178	125
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
Hazmat/Spill Unified Response Program						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.8	The permittee shall continue to maintain and enforce the ordinances, policies, programs and procedures for response and containing spills that may discharge into the MS4. The spill response procedures outlined in Section 95.07 of the Louisville Metro Code of Ordinances relating to hazardous materials shall continue to be implemented and enforced.	Annually	Permittee shall report, if necessary, any changes to the policies and programs and procedures, in the annual report.	No changes to report	No	Completed / Being Implemented

Progress Summary Narrative

The Louisville Metro Coordinated Response Program responds to all hazmat incidents throughout the community. The MSD Regulatory Management Services IWD Pretreatment and Hazardous Materials programs address runoff pollution prevention controls via the HMPC spill plan requirements. MSD will continue to maintain and when needed coordinate the improvement of ordinances, and improve MSD policies, programs and procedures for response and the containment of spills that may discharge into the MS4.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
On-site SWPPP						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.9	The permittee shall institute procedure for receiving SWPPP for qualifying construction sites within six months of the effective date of the permit.	6 months	Permittee shall document SWPPP procedures and expectations and make the procedures and expectations publicly available.	Receiving SWPPP for qualifying construction sites	No	Completed / Being Implemented

Progress Summary Narrative

Effective July 14, 2008 MSD instituted a requirement and procedure for receiving SWPPP for qualifying construction sites. This requirement was intended to reduce confusion associated with pre-existing MSD requirements for a "BMP Plan" and KDOW's KPDES General Construction Permit (KYR10) references to a "SWPPP." Certified developers, homebuilders and related stakeholders were sent letters indicating the requirement for SWPPPs. This requirement was completed before the stated deadline.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
MVA Mitigation Kit Program						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.10	The permittee shall continue MVA mitigation kit distribution program to meet Fire Department and emergency response spill containment needs.	Annually	Permittee shall report metrics for kit distribution and after-use collection in the annual report.	Metrics for kit distribution and after-use collection	No	Completed / Being Implemented

Progress Summary Narrative

As part of MSD's efforts to detect and eliminate illicit discharges, the MSD IWD MVA Mitigation Program trains 22 Fire Departments in Louisville Metro to prevent fluids released from motor vehicle accidents from escaping into stormwater conveyances. MSD will continue the MVA mitigation kit distribution program to meet Fire Department and emergency response containment needs. MSD will report the numbers of kits distributed and after-use collection.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Material Purchased
2010-11		$8,958
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

IDDE 2 Management Activities						
IDDE Identification SWPPP Training Integration						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.11	The permittee shall integrate techniques and practices to assist staff identify potential illicit discharges into facility and system operations and maintenance training.	Annually	Training shall occur at least once per year and the permittee shall report in the annual report the date of training and the number of staff participating in training.	Training	No	In Planning / Progress

Progress Summary Narrative

MSD will integrate techniques and practices to assist staff identify potential illicit discharges into facility and system operations and maintenance training starting in Permit Year One. This activity is intended to provide the wide variety of MSD facility and office staff with the information needed to recognize potential illicit discharges during the normal course of their duties. This will provide MSD with a more effective and efficient alternative to one-pass dry-weather field screening approaches for identifying potential illicit discharges.

In addition, a general knowledge is necessary to identify potential illicit discharges, the staff will be instructed to contact the appropriate staff/hotline to make sure the appropriate MSD professionals can visit the site to fully determine if observation is in fact an illicit discharge and perform appropriate investigation of source(s) to eliminate the illicit discharge.

MSD anticipates adding this information to its existing SORP training staff that all MSD staff participates in on a routine basis, or providing training to a large number of field training. Furthermore, it will be provided for key staff including crew managers/leaders, facility supervisors and other key personnel.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Employees Trained
2010-11		27 sessions, 661 staff in SORP
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

Cooperative Efforts						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
KDOW Support						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.2.12	As KDOW requests, the permittee shall accompany KDOW on inspection of KPDES stormwater permitted facilities in Jefferson County.	Annually	Permittee shall summarize and include in the annual report any assistance given to the KDOW by MSD	No requests	No	Completed / Being Implemented

Progress Summary Narrative

As KDOW makes requests, MSD will accompany KDOW inspection of KPDES stormwater permit facilities in Jefferson County. MSD will report these activities to KDOW. The KDOW issues KPDES permits for all point-source and stormwater discharges from industrial facilities. The KPDES permits include a program to monitor and control pollutants in storm water discharges from landfills, hazardous waste treatment, disposal and recovery facilities and industrial facilities. The program identifies priorities and procedures for inspections and establishes and implements the control measures for those discharges. The MSD industrial pretreatment and hazardous materials programs complement the KDOW permit and compliance programs for stormwater by referring potential illicit discharges to KDOW for enforcement action. MSD will continue to offer training to local industry for technical assistance in developing and implementing Facility HMPC and SWPPPs for compliance with local requirements.

Tracking and Assessment

While MSD is prepared to assist, KDOW has not asked for MSD to assist them on an inspection. However, it should be noted that in October 2011, the local field office forwarded information regarding a customer call and a potential illicit discharge from an industrial property. At time of publication, the investigation was underway, but not resolved.

Reporting Period July 1 – June 30	PY	Estimated Number of Times Assisted KDOW
2010-11		0
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning/In Progress; Red = Overdue; Blue Changed

TABLE 2.3 IP

TABLE 2.3 - IP	
SWQMP ID	**IP 1 Legal Prohibition / Control Authority**
2.3.1	Industrial IDDE Program Enforcement (Implementation)
2.3.2	Industrial IDDE Program Enforcement (Legal Authority)
2.3.3	Industrial Facility Inventory
	IP 2 Inventory and Inspection of Industrial Facilities
2.3.4	"High Risk" Facility Definition
2.3.5	HRIF Inventory Update
2.3.6	HRIF and High-Risk HMPC Inspection
2.3.7	Industrial Facility Control Measures
2.3.8	Enforcement / Inspections
2.3.9	MSD Plan Review
2.3.10	Industrial & Commercial Community Outreach
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.3.11	KDOW Support

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 1	Legal Prohibition/Control Authority					
Industrial IDDE Program Enforcement (Implementation)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.1	For industrial properties, the permittee shall continue to utilize the WDRs, HMO and related checklists and procedures for identification of potential illicit discharges and elimination of illicit discharges/ unauthorized stormwater discharges. The permittee shall perform analysis of industry property data layer in LOJIC cross linking with properties holding a Hazardous Materials (spill) Prevention Control (HMPC) Plan to identify potential sites that should be added to the program with consideration for High Risk Industrial Facilities designation (determined in other activities).	Annually	Permittee shall summarize in the annual report the industrial enforcement actions and referrals to KDOW.	Contractor Efforts Underway	No	In Planning / Progress

Progress Summary Narrative

The Industrial Program was not a required component of the permit during the reporting period. MSD hired a contractor in 2009 in order to prepare for the third cycle MS4 Permit requirements, effective August 1, 2011. This effort includes the MS4 permit elements described in the remainder of this section.

Trends and Assessment

TBD

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 1	Legal Prohibition/Control Authority					
Industrial IDDE Program Enforcement (Legal Authority)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.2	The permittee shall maintain adequate legal authority, per 401 KAR 5:060, Section 12(9)(b)3 and 40 CFR 122.26(b)(2), to require compliance and inspection of sites, inspection of priority industrial and commercial facilities, including establishing control measure requirements such as HMPC, Spill Prevention, Control and Countermeasure (SPCC) Plan and/or the Groundwater Protection Plan (GPP) for facilities that have a potential to discharge to the MS4 and enforce stormwater requirements.	6 months	Within six (6) months of the effective date of the permit the Permittee shall have established adequate legal authority to require compliance with this measure.	Draft Modification Developed	No	In Progress

Progress Summary Narrative

Modifications to the WDRs have been drafted and it is anticipated they will be adopted prior to the deadline. The adopted modifications will be provided in future annual reports.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
Industrial Facility Inventory						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.3	The permittee shall maintain an inventory of all potential industrial and commercial sites/sources that could contribute substantial pollutant loads to the MS4.	Annually	Permittee shall update annually and made available to the KDOW upon request.	Inventory Being Updated	No	In Progress

Progress Summary Narrative

MSD has developed an inventory of potential industrial / commercial sites / sources that could contribute pollutants to the MS4. Currently through the HMPC Program MSD requires businesses such as gas stations, manufacturing facilities, hospitals, medical laboratories, cleaning establishments, pest exterminators, and state and local government offices that handle hazardous materials to submit an HMPC plan. This list of entities along with those identified as potential industrial users through the pretreatment program is utilized as an inventory starting point for prioritization of inspection / risk.

Trends and Assessment

As a baseline is established and more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked.

Reporting Period July 1 – June 30	PY	Estimated Number of Potential Industrial & Commercial Sites/Sources Contributing Pollutants to MS4
2010-11		1,225 total inventoried – under assessment for potential
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
"High Risk" Facility Definition						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.4	The permittee shall identify Risk Factors to define facilities as "High Risk", "Moderate Risk" and "Low Risk".	Annually	Permittee shall report results by end of PY one (1).	Metrics Drafted Preparing to be Finalized	No	In Progress

Progress Summary Narrative

MSD is in the process of drafting risk factors to be used to define "high risk" facilities in the community. This process is complex and incorporates the experiences of the IWD staff and metrics utilized by similar communities in the region. MSD will use the definition to sort and distinguish the hundreds of Significant Industrial Users (SIUs) and qualifying facilities already participating in the HMO requirements. It is anticipated that the final definition will include provisions for facilities classified as seemingly low risk based on categorical descriptions, but have a history of poor environmental performance, multiple spills or history of non-compliance. The resulting metrics will be used to define HIRFs in the MSD service area will be provided in future annual compliance reports. Through this process "moderate" and "low" facilities will also defined. Updates to the definition will be provided in the annual report.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
HRIF Inventory Update						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.5	A. MSD shall compare the datasets for local Approved HMPC Plan Facilities to the publicly available Facility data from local and state environmental and emergency response agencies to address the completeness and accuracy of High Risk Industrial Facilities identification.	Annually	MSD shall summarize and report annually, the assessment and updates of any industrial facilities identified as "High", "Moderate", and "Low" risk.	TBD	No	In Progress
	B. MSD shall update the list of HRIFs at least twice over the permit term, to account for the most recently available North American Industry Classification System (NAICS), Standard Industrial Classification (SIC) codes, Toxic Release Inventory (TRI) data, MSD's HMPC data and MSD's pretreatment program data with the goal of establishing a tiered list of industries to support priorities in MSD's industrial facility inspection program.	Twice over the permit term		TBD	No	In Progress

Progress Summary Narrative

A. In 2010 MSD began performing a baseline analysis to list of potential high and moderate risk industrial facilities. MSD will finalize the list in permit year one and annually update the list of HRIFs to account for the most recently available NAICS, SIC codes, TRI data, MSD's HMPC data and MSD's pretreatment program data with the goal of establishing a tiered list of industries to support priorities in MSD's industrial facility inspection program. MSD will report the assessment results and updates. In addition to identifying HRIFs, "Moderate" and "Low" risk industrial facilities will be identified to prioritize inspections. The prioritization results will be reported and updates summarized.

B. In 2010 MSD began performing a baseline comparison of the datasets for local approved HMPC Plan Facilities to the publicly available facility data from local and state environmental and emergency response agencies to address the completeness and accuracy of HRIFs identification. KDOW was notified of the potentially qualifying facilities that do not have state issued KPDES permits.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of High Risk Industrial Facilities (HRIF)	Number of Moderate Risk Industrial Facilities	Number of Low Risk Industrial Facilities
2010-11		NA	NA	NA
2011-12	1			
2012-13	2			
2013-14	3			
2014-15	4			
2015-16	5			

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
HRIF and High-Risk HMPC Inspection						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.6	Based on the results of the updated HRIF assessment, the permittee shall inspect high priority facilities at least once every three (3) years and moderate risk facilities at least once every five (5) years.	Starting in PY 2	Starting in PY two (2), the Permittee shall report the summary of prioritized inspections completed, and any enforcement resulting from the inspections.	TBD	No	Planning / In Progress

Progress Summary Narrative

This activity requirement is not yet in effect for the permit year. The schedule for this activity starts in permit year 2. MSD will inspect high priority facilities at least once every three (3) years and moderate risk facilities at least once every five (5) years.

Trends and Assessment

There is not enough data to make conclusions on performance or effectiveness. As more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked.

Reporting Period July 1 – June 30	PY	Number of Inspections at HRIF	Number of Inspections at Moderate Risk Industrial Facilities
2010-11		NA	NA
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
Industrial Facility Control Measures						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.7	The permittee shall require the High Risk industrial and commercial facilities to select, install, implement, and maintain control measures that promote prevention and source control for discharge of applicable pollutants of concern. This requirement may be addressed through HMPC Plan and/or federal programs such as SPCC Plan and/or the GPP that are already implemented at the industrial and commercial facilities. The permittee shall require the applicable facilities to identify the specific control measures, good housekeeping and maintenance procedures, and employee training necessary.	Starting in PY 2	Starting in PY two (2), the Permittee shall report annually on control measures required of the high-risk industrial and commercial facilities to ensure compliance with this measure.	HMPC Ordinance in place since 1985	No	Completed / Being Implemented

Progress Summary Narrative

While this specific requirement is not in effect till permit year two, Louisville and Jefferson County adopted an ordinance to prevent serious harm to the environment and reduce the likelihood of a problem from a hazardous material spill. The HMPC program has been in place since 1985. The ordinance requires that businesses which have hazardous materials on site must submit a plan for each business site as to how they will respond in the event of a spill of that hazardous material. A HMPC Plan must be submitted by any business which manufactures, uses or stores hazardous materials in minimum designated quantities at their business location. Hazardous materials shall include those contained in the most recent version of 40 CFR 302.4.

For businesses which have certain minimum quantities of hazardous materials on their business site, an HMPC Plan must be submitted to MSD. Businesses which must submit plans are generally defined by a SIC code in the ordinance. Businesses covered in the ordinance include, but are not limited to, gas stations, manufacturing facilities, hospitals and medical laboratories, cleaning establishments, pest exterminators and state and local government offices that handle hazardous materials.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
Enforcement / Inspections						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.8	The permittee shall develop criteria or procedures for site inspections and enforcement including criteria to address how the MS4 will use enforcement authorities to ensure compliance with the industrial program requirements. The permittee shall enforce the procedures outlined in Section 95.11 of the Louisville Metro Code of Ordinances relating to hazardous materials.	Six months	Within six months of the permit issuance, the Permittee shall develop the required criteria or procedures to comply with this measure.	Procedure Documents Compiled / Drafted to be Finalized	No	In Planning

Progress Summary Narrative

MSD has inspection and enforcement procedures and authority to ensure compliance with the industrial program requirements. The procedures related to the MS4 program and hazardous materials ordinance are reviewed in training program for IWD staff. As the procedures documentation will be compiled and/or are revised within the established deadline.

This activity requirement is not yet in effect. The schedule for this activity starts 6 months after the permit effective date.

Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
MSD Plan Review						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.9	The permittee shall determine if existing triggers in the new development and redevelopment plan and plumbing systems review process are sufficient to include appropriate industrial stormwater quality specialists/inspectors in the plan approval process.	Every 3 Years	Permittee shall assess at least every three (3) years and report changes to process in the annual report.	Adequate Triggers in Place	No	Completed

Progress Summary Narrative

As a matter of routine business the MSD Stormwater Department (construction plan review) refers potential projects to the IWD for additional review. Periodically, MSD determines if triggers in the new development and redevelopment plan and plumbing systems review process are sufficient to include appropriate industrial stormwater quality specialists/inspectors in the plan approval process. The existing plan review triggers provide a means to involve the IWD. This task is intended to refresh associated staff with the indicators and/or checklists used to trigger their involvement and provide a basis for the expanded plan review process.

Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
Industrial & Commercial Community Outreach						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.10	The permittee shall develop and distribute outreach materials (brochure, fact sheets, etc.) to HMPC Facilities and other commercial operations of concern to promote illicit discharge elimination awareness.	Starting in PY 2	Starting in PY two (2), the Permittee shall identify materials developed and distribution estimates and summarize in the annual report.	TBD	No	In Planning

Progress Summary Narrative

This activity requirement is not yet in effect. The schedule for this activity starts in permit year 2. MSD will develop outreach materials focused toward industrial/commercial sectors in order to promote IDDE awareness and related stormwater quality issues.

In addition, MSD sends letters to businesses that appear to be required to submit a HMPC Plan, concerning the schedule for submission. Businesses which believe they should be exempt from a submission are required to submit an exemption request form as described in the letter. Nearly 5,000 businesses in the community have received a letter to date. The HMPC Plan is to be submitted on forms which are provided by MSD. A joint review is conducted by MSD and the Fire Department that has jurisdiction in the area of the business. Plans that are considered to be deficient will be returned to the business for correction and resubmission. Once approved, businesses will be responsible for implementing their plan including initiation of a training program for employees within their business.

Tracking and Assessment

Not Applicable.

Reporting Period July 1 – June 30	PY	Estimated Number of Outreach Materials Distributed
2010-11		NA
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

IP 2	Inventory and Inspection of Industrial Facilities					
Cooperative Efforts (MSD provides supportive or other non-lead role)						
KDOW Support						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.3.11	As KDOW requests, the permittee shall accompany KDOW on inspection of KPDES stormwater permitted facilities in Jefferson County.	Annually	Permittee shall summarize and include in the annual report any assistance given to the KDOW by MSD	No requests	No	Completed / Being Implemented

Progress Summary Narrative

As KDOW makes requests, MSD will accompany KDOW on inspection of KPDES stormwater permit facilities in Jefferson County. MSD will report these activities to KDOW. The KDOW issues KPDES permits for all point-source and stormwater discharges from industrial facilities. The KPDES permits include a program to monitor and control pollutants in stormwater discharges from landfills, hazardous waste treatment, disposal and recovery facilities and industrial facilities. The program identifies priorities and procedures for inspections and establishes and implements the control measures for those discharges. The MSD industrial pretreatment and hazardous materials programs complement the KDOW permit and compliance programs for stormwater by referring potential illicit discharges to KDOW for enforcement action. MSD will continue to offer training to local industry for technical assistance in developing and implementing Facility HMPC and SWPPPs for compliance with local requirements.

Tracking and Assessment

While MSD is prepared to assist, KDOW has not asked for MSD to assist them on an inspection. However, it should be noted that in October 2011 the local field office forwarded information regarding a customer call and a potential illicit discharge from an industrial property. At time of publication, the investigation was underway, but not resolved.

Reporting Period July 1 – June 30	PY	Estimated Number of KDOW Requests for MSD Inspection Support
2010-11		0
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue Changed

TABLE 2.4 CS

TABLE 2.4 - CS	
SWQMP ID	**CS 1 Legal Prohibition/Control Authority**
2.4.1	Assess Legal Prohibition / Control Authority
2.4.2	Implement Legal Prohibition / Control Authority
2.4.3	Site Plan Review
2.4.4	Construction Site Inspection
2.4.5	Construction Site Inspection Frequency
2.4.6	Construction Site Inventory
	CS 2 CS Management Activities
2.4.7	Construction BMP Guidance Materials
2.4.8	On-site SWPPP
2.4.9	Construction Stormwater Runoff Control Program Inspection Refresher
2.4.10	Construction Inspector Training
2.4.11	Plan Preparers and Reviewers Training (MSD Facilitates)
2.4.12	Local Utility Construction General Permit Entities
2.4.13	MSD General Construction Permits Evaluation
2.4.14	Enforcement Tracking Log / Database
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.4.15	Plan Development Process Identification
2.4.16	Metro IP & L Enforcement Coordination

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

The CS 1 Legal Prohibition/Control Authority						
Assess Legal Prohibition/Control Authority						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.1	MSD shall assess existing ordinance and regulations to identify changes needed to account for changes in standard of care (as directed by KDOW General Construction Permit KYR10), changes in technology, changes to development management process and related program needs in satisfaction 40 CFR 122.26(b)(15)(i) for construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre that is part of a larger common plan of development that would disturb one acre or more.	PYs 1 and 3	MSD shall summarize proposed changes enumerated by end of PYs one (1) and three (3) and report proposed changes in to Wastewater/Stormwater Discharge Regulations for consideration by MSD Board in the annual report.	Report Submitted to the Board	No	Planning/ In Progress

Progress Summary Narrative

In 2011, MSD began reviewing the legal controls to identify changes needed to account for changes in standard of care as directed by KDOW General Construction Permit, changes in technology, changes to development management processes and related program needs in satisfaction of 401 KAR 5:060, Section 12(a)(b)(4)a, b and 40 CFR 122.26(b)(15)(i) for construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre that is part of a larger common plan of development that would disturb one acre or more.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

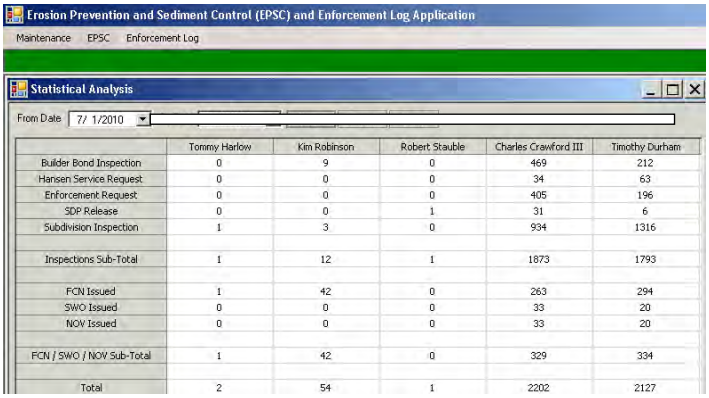
Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority

Implement Legal Prohibition/Control Authority

SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.4.2	MSD shall continue to enforce existing ordinances and regulations intended to limit construction phase stormwater quality impacts from new construction and significant redevelopment.	Annually	MSD shall require routine inspections of active construction sites with reasonable potential to discharge to MS4. A summary of these inspections and any enforcement actions resulting from these inspections shall be included in the annual report	Number Construction Site Inspections and Enforcement Actions	No	Completed / Being Implemented

Progress Summary Narrative



	Tommy Harlow	Kim Robinson	Robert Stauble	Charles Crawford III	Timothy Durham
Builder Bond Inspection	0	9	0	469	212
Hansen Service Request	0	0	0	34	63
Enforcement Request	0	0	0	405	196
SDP Release	0	0	1	31	6
Subdivision Inspection	1	3	0	934	1316
Inspections Sub-Total	1	12	1	1873	1793
FCN Issued	1	42	0	263	294
SWO Issued	0	0	0	33	20
NOV Issued	0	0	0	33	20
FCN / SWO / NOV Sub-Total	1	42	0	329	334
Total	2	54	1	2202	2127

In the 2010-11 MS4 reporting year, a total of 7,009 construction site inspections were performed by the Engineering Development Team Field Inspectors. This data is tracked in the Erosion Prevention and Sediment Control and Enforcement Log Application at MSD. The types of inspections performed include: EPSC compliance inspections; subdivision site disturbance general permit release inspections; enforcement request inspections which are typically referrals from Field Inspectors; CSR inspections resulting from customer complaint; builder-bond inspections of individual construction sites that are not in bonded subdivisions. Compliance and Enforcement actions are taken as follows: Each Field Correction Notice (FCN) includes a list of required remedial actions; NOV for failure to comply with a Correction Notice; SWOs for non-compliant practices; and fines collected.

Tracking and Assessment

July 1- June 30 Types of Enforcement Actions	Approximate Number of Enforcement Action
FCN Issued	1,392
SWO Issued	80
NOV Issued	80
Total	1,552

July 1-June 30 Data from EPCS Enforcement Log Application	Approximate Number of Inspections
Builder Bond Inspection	1,244
Hansen Service Request	127
Enforcement Request	1,130
SDP Release	66
Subdivision Inspections	4,442
Total	7,009

Reporting Period July 1 – June 30	PY	Approximate No. of Site Inspections	Estimated No. of Enforcement Actions
2010-11		7,009	1,552
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

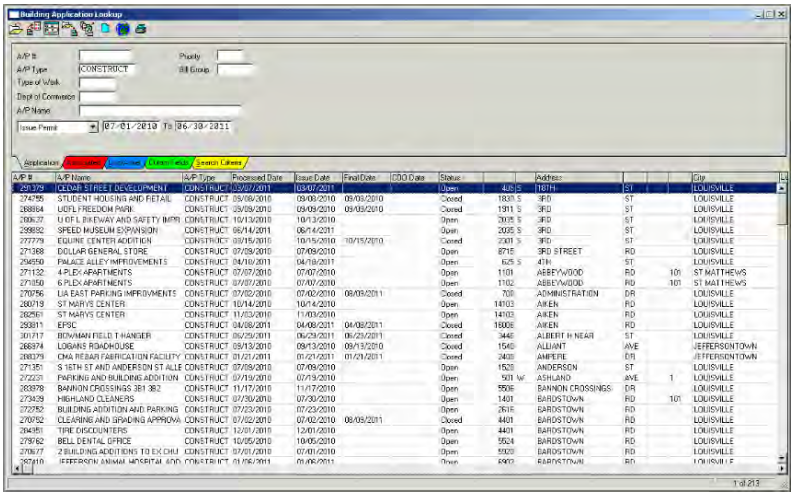
Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority					
Site Plan Review						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.3	MSD shall conduct site plan reviews in accordance with the procedures outlined in Section 159.02 of the Louisville/Jefferson County EPSC to assess whether the plans include measures that address potential water quality impacts from construction prior to authorization of land disturbance.	Annually	MSD shall review plans as needed and report the number of plans reviewed in the annual report.	Number of Permits Issued	No	Completed / Being Implemented

Progress Summary Narrative

Prior to the issuance of a permit, it is common for MSD to perform multiple reviews. MSD conducted site plan reviews for 213 Construction Permits issued. The image below is from the MSD Hansen database, which is used to track projects.



Tracking and Assessment

A baseline has been established. As more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked.

Reporting Period July 1 – June 30	PY	Construction Permits Issued
2010-11		213
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
Y	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority					
Construction Site Inspection						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.4	MSD shall develop and implement criteria and/or procedures for site inspection. The procedures shall include an Enforcement Response Plan outlined in Section 159.05 of the Louisville/Jefferson County EPSC Ordinance.	Within 60 days of permit effective date.	Within 60 days of permit effective date.	Documentation Compiled	No	Completed

Progress Summary Narrative

To ensure compliance with approved plans, MSD currently inspects land disturbing activities for compliance with Section 159.05 of the ordinance. The intent of the ordinance is to pursue and secure negotiated compliance wherever practicable and effective prior to alternative enforcement measures being invoked.

MSD Development Team site inspection staff has been trained via JCPS program with materials documenting procedures and expectations to comply with Section 159.05 of the ordinance. Development Team site inspection staff also takes a qualifying exam to comply with Section 159.05 of the ordinance. The summary sheet for Construction Inspection Protocols, Expectations and Procedures can be found in Appendix 2.4.4, Field Inspection Guidelines.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority

Construction Site Inspection Frequency

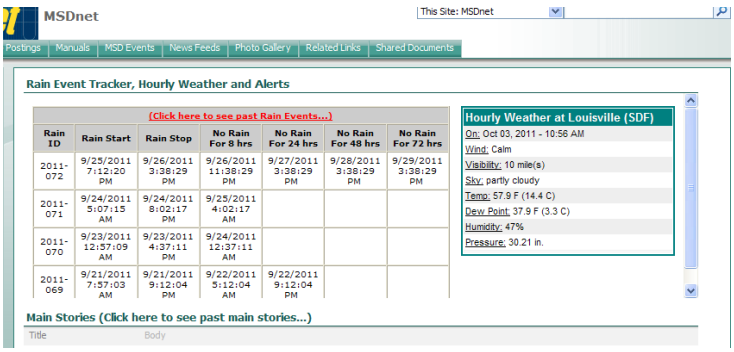
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.4.5	Permittee (Site Operator) is required to conduct inspections monthly or after 0.5 inch rain events with less frequent MSD oversight inspections of at least 90% of active sites.	Annually	MSD shall report the number of inspections performed in the annual report.	7,009 Self-Inspections Performed	No	Completed / Being Implemented

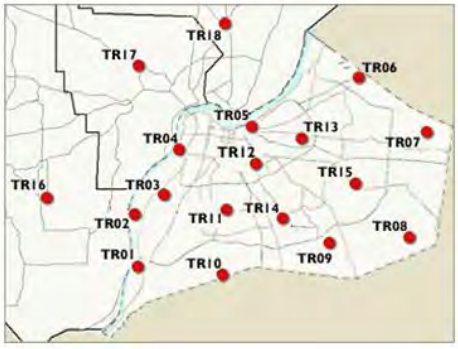
Progress Summary Narrative

MSD verifies inspections of active construction sites on a bi-monthly basis but do not go out after every ½" rain event. The MSD oversight inspections review the documentation of self-inspections that the property owners maintain. MSD does not maintain copies of the property operators' self-inspections. In addition to these required inspections, MSD inspects other potential violations referred to MSD by other city and county inspectors for follow-up and enforcement action.

Tracking and Assessment

MSD maintains an electronic database of inspection activity to assign inspectors and track activities. MSD has a number of rain gauges located around Louisville Metro. There were approximately 33 rain events that qualified for self-inspections.





Reporting Period July 1 – June 30	PY	Estimated No. Qualifying Rain Events	Estimated Number of Inspections Performed
2010-11		33	7,009
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

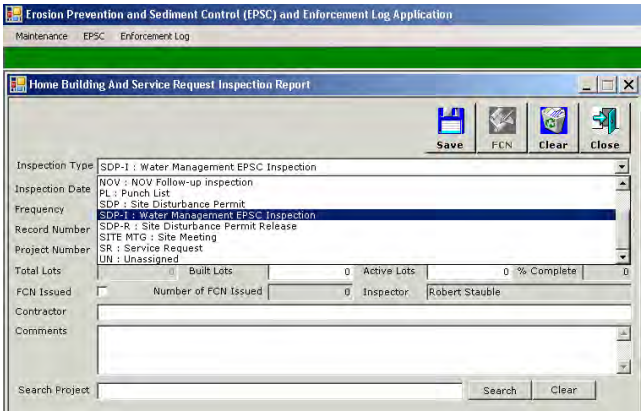
Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
Y	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Site Inventory						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.6	MSD shall develop and maintain an inventory of all active public and private construction sites that result in a total land disturbance of greater than or equal to one acre and less than one acre that is part of a larger common plan of development. Inventory should include the project's name, address, contact person, inspection dates, and any enforcement actions issued to the project	Continually updated	Inventory continually updated as projects are permitted and projects are completed.	1552 Actions	No	Completed / Being Implemented

Progress Summary Narrative

MSD tracks active construction sites in the HANSEN and the EPSC_ENFLOG databases. The HANSEN database tracks customer issues, including phone calls regarding active construction sites. The EPSC_ENFLOG database catalogs construction sites project name, address, primary site contact and inspection dates and tracks any enforcement actions issued for the site.



Tracking and Assessment

Tracking is completed using the EPSC_ENFLOG database. The tables below were generated from the database.

Types of Enforcement Actions	Number of Enforcement Actions
FCN Issued	1,392
SWO Issued	80
NOV Issued	80
Total	1,552

Data from EPCS Enforcement Log Application	Number of Inspections
Builder Bond Inspection	1,244
Hansen Service Request	127
Enforcement Request	1,130
SDP Release	66
Subdivision Inspections	4,442
Total	7,009

Reporting Period July 1 – June 30	PY	Number of Sites Inspected
2010-11		Not tracked in this way yet
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction BMP Guidance Materials						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.7	As needed to account for changes in the KDOW general construction permit(s), MSD shall update the guidance materials facilitating current technology use, local plan review/inspection requirements and related implications, Design Manual chapters and Standard Specifications sections to address EPSC and other construction phase (waste concrete, fueling and repairs operations, etc) topics including BMP selection, feasibility, design considerations, operation, maintenance, inspection checklist and related matters.	By end of PYs 1 and 4	MSD shall update the Design Manual and Standards Specifications by end of PYs one (1) and four (4) and make the updates publicly available.	Design Manual Updated in 2009 and 2011	No	Completed / Being Implemented

Progress Summary Narrative

MSD updated the Design Manual in 2009. MSD completed the Green Infrastructure (Section 18) Design Manual in June 2011. The Green Infrastructure Design Manual can be found at http://www.msdlouky.org/insidemsd/pdfs/2009_DM_SD_SPECS/GreenInfrastructureManualChapter18_2011-09-14.pdf Minimization of site disturbance as well as preservation and conservation of natural site design features are included in Chapter 18 of the Design Manual.

Construction Guidance is available to the public through the web at:
http://www.msdlouky.org/insidemsd/standard-drawings.htm

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
On-site SWPPP						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.8	MSD shall institute procedure for receiving SWPPP for qualifying construction sites within six months of the effective date of the permit.	6 Months	MSD shall document SWPPP procedures and expectations and make the procedures and expectations publicly available.	Memorandum 2008	No	Completed / Being Implemented

Progress Summary Narrative

Effective July 14, 2008, MSD instituted a requirement and procedure for receiving SWPPP for qualifying construction sites. MSD notified the development community that the SWPPP should be submitted to the Kentucky Division of Water as well MSD with the construction plan submittals. This requirement was intended to reduce confusion associated with pre-existing MSD requirements for a "BMP Plan" and KDOW's KPDES General Construction Permit (KYR10) references to a "SWPPP." Certified developers, homebuilders and related stakeholders were sent letters indicating the requirement for SWPPPs.

A copy the memorandum, dated May 30, 2008 can be found in Appendix 2.4.8, On-Site SWPPP Letter.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Stormwater Runoff Control Program Inspection Refresher						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.9	MSD shall review inspector practices with individual MSD and contract inspectors to communicate/confirm oversight responsibilities, documentation requirements, and frequency of inspection, inspection standards and protocols. The refresher review (performed on-site) will include EPSC and non-EPSC construction stormwater control metrics, the most current KDOW General Construction Permit and the current USEPA MS4 Program Evaluation Construction Site Checklist.	Annually	MSD shall complete refresher with Construction inspectors annually, reporting the date and the number of attendees in the annual report.	Training Conducted	No	Completed / Being Implemented

Progress Summary Narrative

MSD staff reviews inspector practices with individual MSD and contract inspectors to communicate/confirm oversight responsibilities, documentation requirements, inspection frequency, inspection standards and protocols. The refresher review (performed on-site) includes EPSC and non-EPSC construction stormwater control metrics and the most current KDOW General Construction Permit. The last certification for MSD Inspectors was February 26, 2010.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Inspector Training						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.10	MSD shall continue construction inspector training program placing new emphasis on delivering similar messages and understanding between MSD inspectors (regular and contracted) and qualified local contractor inspectors.	Three times annually	MSD shall provide at least three (3) training opportunities annually reporting the date and the number of attendees in the annual report.	Training Conducted	No	Completed / Being Implemented

Progress Summary Narrative

MSD has partnered with the JCPS for several years to facilitate this training. The training was one of the first programs in the state focused on increasing the knowledge and accountability of private construction contractors. The training course has been a useful point of reference to improve the quality of inspections performed and provide creditability to the resulting BMP improvements/maintenance identification. MSD will continue the construction inspector training program administered through the JCPS placing new emphasis on delivering similar messages and understanding between MSD inspectors (regular and contracted) and qualified local contractor inspectors.

Tracking and Assessment

JCPS Training Audience	Estimated Number of Individuals Trained
Contractor EPSC Training	324
Homebuilder EPSC Training	36
MSD Inspector EPSC Training	0
Certified Plan Reviewer/Preparer	0
Total	360

Reporting Period July 1 – June 30	PY	Estimated Number of Inspectors Trained
2010-11		360
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Plan Preparers and Reviewers Training (MSD Facilitates)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.11	MSD shall identify updates to the plan preparers training program currently administered through the JCPS System placing new emphasis on identifying sensitive features (305b listed streams, threatened or endangered species, etc.) and customizing site SWPPPs to account for the special conditions.	Two events annually. Starting in PY 2 report in the annual report	MSD shall offer at least two (2) events annually and starting in PY two (2) report program updates in the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD continues its partnership with JCPS. The table below summarizes the number of individuals who were trained through the partnership between MSD and the JCPS system. MSD will continue to update training programs, including the Plan Preparers Training. In recent years there has been little demand for plan preparers training. During the 2010-2011 permit year MSD introduced preservation of natural features in Chapter 18 of the Design Manual.

Tracking and Assessment

JCPS Training Audience	Estimated Number of Individuals Trained
Contractor EPSC Training	324
Homebuilder EPSC Training	36
MSD Inspector EPSC Training	0
Certified Plan Reviewer/Preparer	0
Total	360

Reporting Period July 1 – June 30	PY	Estimated Number of Individuals Trained
2010-11		360
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Local Utility Construction General Permit Entities						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.12	MSD shall continue to coordinate policy level stakeholders from local utility agencies holding construction general permits from MSD to confirm inter-agency communication protocols and review changes to standard, policies, procedures, BMP operation expectations and related matters.	Starting in PY 2	MSD shall hold meetings with at least 90% of MSD's EPSC general permit holders at least every two years.	Permit Holders Attending Meetings	No	Planning / In Progress

Progress Summary Narrative

MSD coordinates with policy level stakeholders from local utility agencies holding construction general permits from MSD to confirm inter-agency communication protocols and review changes to standards, policies, procedures, BMP operation expectations and related matters.

MSD routinely coordinates with larger general permit holders. MSD is developing a schedule to meet with general permit holders. Some of the general permit holders include but are not limited to the following: LG&E, Insight, and Louisville Water Company. It is anticipated that future reporting will be reflected in the table below, including the total number of general permit holders and the number of permit holders attending meetings.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Total Number of General Permit Holders	Number of Permit Holders Attending Meetings
2010-11		7	1
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
MSD General Construction Permits Evaluation						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.13	MSD shall evaluate General Construction Permits issued by MSD to utilities and other entities to determine adequacy with revisions to the KDOW general construction permits, changes in organization/practices, MSD standards, etc.	Evaluate general permits by end of PY 3. Report annually.	MSD shall evaluate all general permits by the end of PY three (3); and report general construction permits issued by MSD in the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD will evaluate General Construction Permits issued by MSD to utilities and other entities to determine adequacy with revisions to the KDOW general construction permits, changes in MSD organization/practices, MSD standards, etc. This is not to be confused with entities holding general construction permits issued by the KDOW. This activity is focused on entities the MSD has issued a general permit per its local EPSC ordinance. As the task above refreshes the lines of communications, this activity is aimed at modifying the permits that define the standards and expectations. This activity is a more formal process and will be especially important in reflecting changes to ordinances, policies and standards resulting from the changes in expectations communicated in KDOW's general permit issuances. MSD is currently enhancing the EPSC ordinances with post-construction requirements, as this effort progresses, MSD anticipates the need to evaluate the General Construction Permits to determine adequacy.

Tracking and Assessment

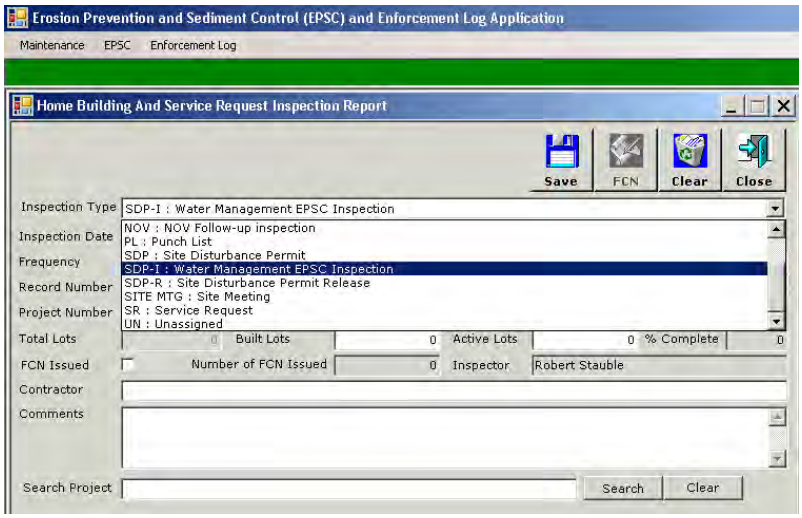
Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Enforcement Tracking Log/Database						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.14	MSD shall continue to track enforcement actions issues (SWO/NOVs) to support follow-up inspections and issuance of penalties and/or Notice of Compliance.	Annually	MSD shall summarize enforcement actions in the annual report. A summary of the tracked enforcement actions issued shall be included in the annual report.	1552 Enforcement Actions	No	Completed / Being Implemented

Progress Summary Narrative



MSD will continue to track enforcement actions issues NOVs and SWOs to support follow-up inspections and issuance of penalties and/or Notice of Compliance. In a community the size and complexity of Jefferson County administering an EPSC program with many inspectors, plan reviewers and enforcement staff, it was necessary for MSD to institute an enforcement tracking database. MSD tracks active construction sites in the HANSEN and the EPSC_ENFLOG databases. The HANSEN database tracks customer issues, including phone calls regarding active construction sites. The EPSC_ENFLOG database catalogs construction sites project name, address, primary site contact and inspection dates and tracks any enforcement actions issued for the site.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	No. of FCN	No. of NOVs	No. of SWOs	Total Fines ($)
2010-11		1,392	80	80	$7,664.18
2011-12	1				
2012-13	2				
2013-14	3				
2014-15	4				
2015-16	5				

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Plan Development Process Identification						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.15	MSD shall review and update, as needed guidance materials identifying the process that developers must follow to obtain related construction permits, including process flow charts and checklists.	Annually	MSD shall make up-to-date guidance documents publicly available. A summary of the revised guidance materials shall be included in the annual report.	Updated Guidance Materials	No	Completed / Being Implemented

Progress Summary Narrative

MSD will review and update, as needed, guidance materials identifying the process that developers must follow to obtain related construction permits, including process flow charts and checklists. Over the years, several documents have been utilized to communicate with the development community the complex process of construction plan approval involving several Metro Louisville government agencies, utilities and MSD. The means of communication includes but is not limited to: the Design Manual, PowerPoint presentations, handbooks, memorandums, and webpages. While the current publically available document appears to reflect the current procedures, this task is aimed at periodically determining if it still meets that objective and implementing modifications accordingly.

MSD updated the slides for Certification Training Class in July 2011. The Assessment for Contractors' Training was updated in June 2010.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Metro IP & L Enforcement Coordination						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.16	MSD shall coordinate program enforcement actions with Metro Inspections, Permits and Licensing (IP& L), as necessary, to support overall site compliance with an emphasis on Notices of Deficiency (NOD), NOV and SWOs issued by MSD and implications on land disturbance and "in building" activities.	Annually	MSD shall hold at least one (1) conference every other year starting in PY one (1).	Attendees at Meeting	No	Completed / Being Implemented

Progress Summary Narrative

MSD will coordinate construction program enforcement actions with Metro IP&L, as necessary, to support overall site compliance with an emphasis on NODs, NOVs and SWOs issued by MSD and implications on land disturbance and "in building" activities. MSD's enforcement policies allow MSD to issue a SWO to halt work on land disturbing activities that has failed to comply with EPSC requirements, while the IP&L has responsibility for applying enforcement on activities on or inside the structures. The MSD and IP&L regularly communicate, when appropriate, to make each other aware of enforcement activities that halt work. MSD routinely coordinates with IP&L field staff. Currently, there is not an official system for documenting these field conferences. The field conferences occur as a matter of common business practice.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.4 CS

TABLE 2.4 - CS	
SWQMP ID	**CS 1 Legal Prohibition/Control Authority**
2.4.1	Assess Legal Prohibition / Control Authority
2.4.2	Implement Legal Prohibition / Control Authority
2.4.3	Site Plan Review
2.4.4	Construction Site Inspection
2.4.5	Construction Site Inspection Frequency
2.4.6	Construction Site Inventory
	CS 2 CS Management Activities
2.4.7	Construction BMP Guidance Materials
2.4.8	On-site SWPPP
2.4.9	Construction Stormwater Runoff Control Program Inspection Refresher
2.4.10	Construction Inspector Training
2.4.11	Plan Preparers and Reviewers Training (MSD Facilitates)
2.4.12	Local Utility Construction General Permit Entities
2.4.13	MSD General Construction Permits Evaluation
2.4.14	Enforcement Tracking Log / Database
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.4.15	Plan Development Process Identification
2.4.16	Metro IP & L Enforcement Coordination

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

The CS 1 Legal Prohibition/Control Authority						
Assess Legal Prohibition/Control Authority						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.1	MSD shall assess existing ordinance and regulations to identify changes needed to account for changes in standard of care (as directed by KDOW General Construction Permit KYR10), changes in technology, changes to development management process and related program needs in satisfaction 40 CFR 122.26(b)(15)(i) for construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre that is part of a larger common plan of development that would disturb one acre or more.	PYs 1 and 3	MSD shall summarize proposed changes enumerated by end of PYs one (1) and three (3) and report proposed changes in to Wastewater/Stormwater Discharge Regulations for consideration by MSD Board in the annual report.	Report Submitted to the Board	No	Planning/ In Progress

Progress Summary Narrative

In 2011, MSD began reviewing the legal controls to identify changes needed to account for changes in standard of care as directed by KDOW General Construction Permit, changes in technology, changes to development management processes and related program needs in satisfaction of 401 KAR 5:060, Section 12(a)(b)(4)a, b and 40 CFR 122.26(b)(15)(i) for construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre that is part of a larger common plan of development that would disturb one acre or more.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

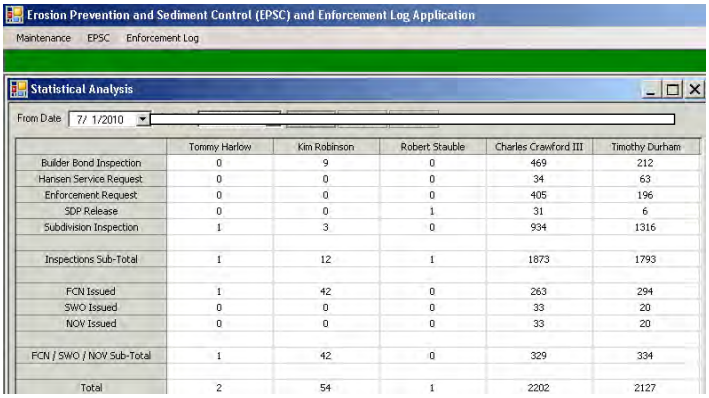
Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority

Implement Legal Prohibition/Control Authority

SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.4.2	MSD shall continue to enforce existing ordinances and regulations intended to limit construction phase stormwater quality impacts from new construction and significant redevelopment.	Annually	MSD shall require routine inspections of active construction sites with reasonable potential to discharge to MS4. A summary of these inspections and any enforcement actions resulting from these inspections shall be included in the annual report	Number Construction Site Inspections and Enforcement Actions	No	Completed / Being Implemented

Progress Summary Narrative



	Tommy Harlow	Kim Robinson	Robert Stauble	Charles Crawford III	Timothy Durham
Builder Bond Inspection	0	9	0	469	212
Hansen Service Request	0	0	0	34	63
Enforcement Request	0	0	0	405	196
SDP Release	0	0	1	31	6
Subdivision Inspection	1	3	0	934	1316
Inspections Sub-Total	1	12	1	1873	1793
FCN Issued	1	42	0	263	294
SWO Issued	0	0	0	33	20
NOV Issued	0	0	0	33	20
FCN / SWO / NOV Sub-Total	1	42	0	329	334
Total	2	54	1	2202	2127

In the 2010-11 MS4 reporting year, a total of 7,009 construction site inspections were performed by the Engineering Development Team Field Inspectors. This data is tracked in the Erosion Prevention and Sediment Control and Enforcement Log Application at MSD. The types of inspections performed include: EPSC compliance inspections; subdivision site disturbance general permit release inspections; enforcement request inspections which are typically referrals from Field Inspectors; CSR inspections resulting from customer complaint; builder-bond inspections of individual construction sites that are not in bonded subdivisions. Compliance and Enforcement actions are taken as follows: Each Field Correction Notice (FCN) includes a list of required remedial actions; NOV for failure to comply with a Correction Notice; SWOs for non-compliant practices; and fines collected.

Tracking and Assessment

July 1- June 30 Types of Enforcement Actions	Approximate Number of Enforcement Action
FCN Issued	1,392
SWO Issued	80
NOV Issued	80
Total	1,552

July 1-June 30 Data from EPCS Enforcement Log Application	Approximate Number of Inspections
Builder Bond Inspection	1,244
Hansen Service Request	127
Enforcement Request	1,130
SDP Release	66
Subdivision Inspections	4,442
Total	7,009

Reporting Period July 1 – June 30	PY	Approximate No. of Site Inspections	Estimated No. of Enforcement Actions
2010-11		7,009	1,552
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

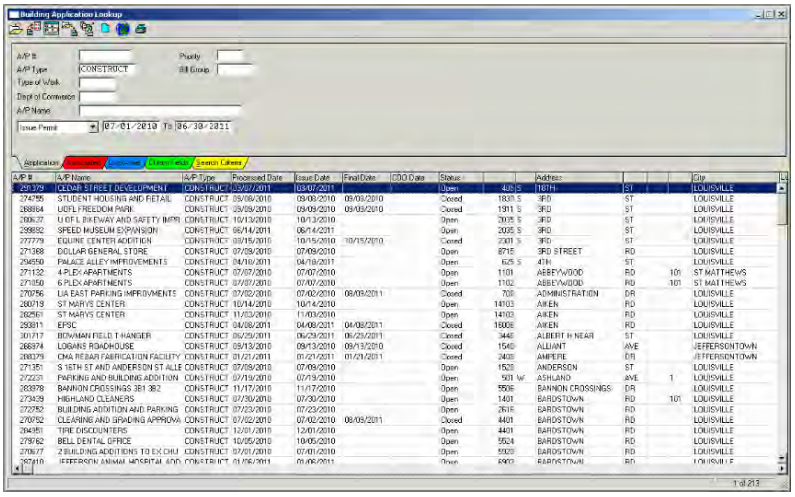
Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority					
Site Plan Review						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.3	MSD shall conduct site plan reviews in accordance with the procedures outlined in Section 159.02 of the Louisville/Jefferson County EPSC to assess whether the plans include measures that address potential water quality impacts from construction prior to authorization of land disturbance.	Annually	MSD shall review plans as needed and report the number of plans reviewed in the annual report.	Number of Permits Issued	No	Completed / Being Implemented

Progress Summary Narrative

Prior to the issuance of a permit, it is common for MSD to perform multiple reviews. MSD conducted site plan reviews for 213 Construction Permits issued. The image below is from the MSD Hansen database, which is used to track projects.



Tracking and Assessment

A baseline has been established. As more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked.

Reporting Period July 1 – June 30	PY	Construction Permits Issued
2010-11		213
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
Y	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority					
Construction Site Inspection						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.4	MSD shall develop and implement criteria and/or procedures for site inspection. The procedures shall include an Enforcement Response Plan outlined in Section 159.05 of the Louisville/Jefferson County EPSC Ordinance.	Within 60 days of permit effective date.	Within 60 days of permit effective date.	Documentation Compiled	No	Completed

Progress Summary Narrative

To ensure compliance with approved plans, MSD currently inspects land disturbing activities for compliance with Section 159.05 of the ordinance. The intent of the ordinance is to pursue and secure negotiated compliance wherever practicable and effective prior to alternative enforcement measures being invoked.

MSD Development Team site inspection staff has been trained via JCPS program with materials documenting procedures and expectations to comply with Section 159.05 of the ordinance. Development Team site inspection staff also takes a qualifying exam to comply with Section 159.05 of the ordinance. The summary sheet for Construction Inspection Protocols, Expectations and Procedures can be found in Appendix 2.4.4, Field Inspection Guidelines.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 1	Legal Prohibition/Control Authority

Construction Site Inspection Frequency

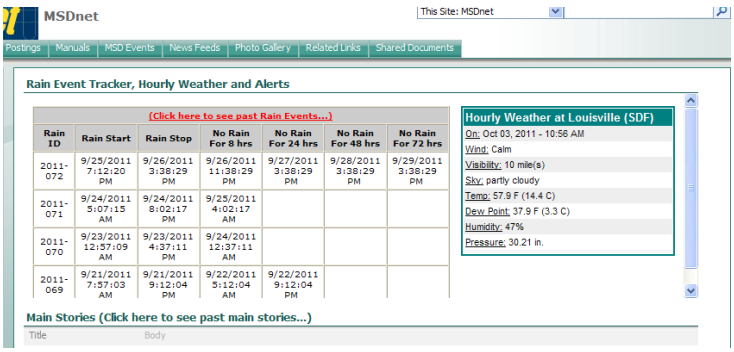
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.4.5	Permittee (Site Operator) is required to conduct inspections monthly or after 0.5 inch rain events with less frequent MSD oversight inspections of at least 90% of active sites.	Annually	MSD shall report the number of inspections performed in the annual report.	7,009 Self-Inspections Performed	No	Completed / Being Implemented

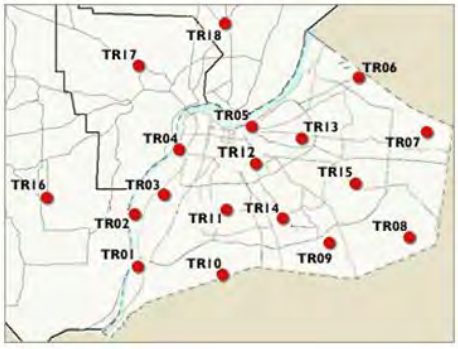
Progress Summary Narrative

MSD verifies inspections of active construction sites on a bi-monthly basis but do not go out after every ½" rain event. The MSD oversight inspections review the documentation of self-inspections that the property owners maintain. MSD does not maintain copies of the property operators' self-inspections. In addition to these required inspections, MSD inspects other potential violations referred to MSD by other city and county inspectors for follow-up and enforcement action.

Tracking and Assessment

MSD maintains an electronic database of inspection activity to assign inspectors and track activities. MSD has a number of rain gauges located around Louisville Metro. There were approximately 33 rain events that qualified for self-inspections.





Reporting Period July 1 – June 30	PY	Estimated No. Qualifying Rain Events	Estimated Number of Inspections Performed
2010-11		33	7,009
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

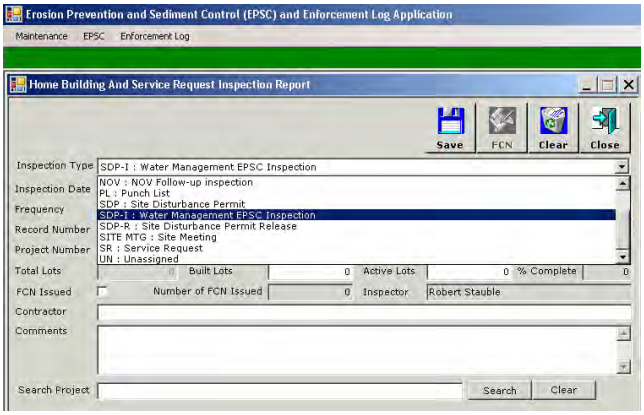
Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
Y	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Site Inventory						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.6	MSD shall develop and maintain an inventory of all active public and private construction sites that result in a total land disturbance of greater than or equal to one acre and less than one acre that is part of a larger common plan of development. Inventory should include the project's name, address, contact person, inspection dates, and any enforcement actions issued to the project	Continually updated	Inventory continually updated as projects are permitted and projects are completed.	1552 Actions	No	Completed / Being Implemented

Progress Summary Narrative

MSD tracks active construction sites in the HANSEN and the EPSC_ENFLOG databases. The HANSEN database tracks customer issues, including phone calls regarding active construction sites. The EPSC_ENFLOG database catalogs construction sites project name, address, primary site contact and inspection dates and tracks any enforcement actions issued for the site.



Tracking and Assessment

Tracking is completed using the EPSC_ENFLOG database. The tables below were generated from the database.

Types of Enforcement Actions	Number of Enforcement Actions
FCN Issued	1,392
SWO Issued	80
NOV Issued	80
Total	1,552

Data from EPCS Enforcement Log Application	Number of Inspections
Builder Bond Inspection	1,244
Hansen Service Request	127
Enforcement Request	1,130
SDP Release	66
Subdivision Inspections	4,442
Total	7,009

Reporting Period July 1 – June 30	PY	Number of Sites Inspected
2010-11		Not tracked in this way yet
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction BMP Guidance Materials						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.7	As needed to account for changes in the KDOW general construction permit(s), MSD shall update the guidance materials facilitating current technology use, local plan review/inspection requirements and related implications, Design Manual chapters and Standard Specifications sections to address EPSC and other construction phase (waste concrete, fueling and repairs operations, etc) topics including BMP selection, feasibility, design considerations, operation, maintenance, inspection checklist and related matters.	By end of PYs 1 and 4	MSD shall update the Design Manual and Standards Specifications by end of PYs one (1) and four (4) and make the updates publicly available.	Design Manual Updated in 2009 and 2011	No	Completed / Being Implemented

Progress Summary Narrative

MSD updated the Design Manual in 2009. MSD completed the Green Infrastructure (Section 18) Design Manual in June 2011. The Green Infrastructure Design Manual can be found at http://www.msdlouky.org/insidemsd/pdfs/2009_DM_SD_SPECS/GreenInfrastructureManualChapter18_2011-09-14.pdf Minimization of site disturbance as well as preservation and conservation of natural site design features are included in Chapter 18 of the Design Manual.

Construction Guidance is available to the public through the web at:
http://www.msdlouky.org/insidemsd/standard-drawings.htm

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
On-site SWPPP						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.8	MSD shall institute procedure for receiving SWPPP for qualifying construction sites within six months of the effective date of the permit.	6 Months	MSD shall document SWPPP procedures and expectations and make the procedures and expectations publicly available.	Memorandum 2008	No	Completed / Being Implemented

Progress Summary Narrative

Effective July 14, 2008, MSD instituted a requirement and procedure for receiving SWPPP for qualifying construction sites. MSD notified the development community that the SWPPP should be submitted to the Kentucky Division of Water as well MSD with the construction plan submittals. This requirement was intended to reduce confusion associated with pre-existing MSD requirements for a "BMP Plan" and KDOW's KPDES General Construction Permit (KYR10) references to a "SWPPP." Certified developers, homebuilders and related stakeholders were sent letters indicating the requirement for SWPPPs.

A copy the memorandum, dated May 30, 2008 can be found in Appendix 2.4.8, On-Site SWPPP Letter.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Stormwater Runoff Control Program Inspection Refresher						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.9	MSD shall review inspector practices with individual MSD and contract inspectors to communicate/confirm oversight responsibilities, documentation requirements, and frequency of inspection, inspection standards and protocols. The refresher review (performed on-site) will include EPSC and non-EPSC construction stormwater control metrics, the most current KDOW General Construction Permit and the current USEPA MS4 Program Evaluation Construction Site Checklist.	Annually	MSD shall complete refresher with Construction inspectors annually, reporting the date and the number of attendees in the annual report.	Training Conducted	No	Completed / Being Implemented

Progress Summary Narrative

MSD staff reviews inspector practices with individual MSD and contract inspectors to communicate/confirm oversight responsibilities, documentation requirements, inspection frequency, inspection standards and protocols. The refresher review (performed on-site) includes EPSC and non-EPSC construction stormwater control metrics and the most current KDOW General Construction Permit. The last certification for MSD Inspectors was February 26, 2010.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Construction Inspector Training						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.10	MSD shall continue construction inspector training program placing new emphasis on delivering similar messages and understanding between MSD inspectors (regular and contracted) and qualified local contractor inspectors.	Three times annually	MSD shall provide at least three (3) training opportunities annually reporting the date and the number of attendees in the annual report.	Training Conducted	No	Completed / Being Implemented

Progress Summary Narrative

MSD has partnered with the JCPS for several years to facilitate this training. The training was one of the first programs in the state focused on increasing the knowledge and accountability of private construction contractors. The training course has been a useful point of reference to improve the quality of inspections performed and provide creditability to the resulting BMP improvements/maintenance identification. MSD will continue the construction inspector training program administered through the JCPS placing new emphasis on delivering similar messages and understanding between MSD inspectors (regular and contracted) and qualified local contractor inspectors.

Tracking and Assessment

JCPS Training Audience	Estimated Number of Individuals Trained
Contractor EPSC Training	324
Homebuilder EPSC Training	36
MSD Inspector EPSC Training	0
Certified Plan Reviewer/Preparer	0
Total	360

Reporting Period July 1 – June 30	PY	Estimated Number of Inspectors Trained
2010-11		360
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2	CS Management Activities					
Plan Preparers and Reviewers Training (MSD Facilitates)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.11	MSD shall identify updates to the plan preparers training program currently administered through the JCPS System placing new emphasis on identifying sensitive features (305b listed streams, threatened or endangered species, etc.) and customizing site SWPPPs to account for the special conditions.	Two events annually. Starting in PY 2 report in the annual report	MSD shall offer at least two (2) events annually and starting in PY two (2) report program updates in the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD continues its partnership with JCPS. The table below summarizes the number of individuals who were trained through the partnership between MSD and the JCPS system. MSD will continue to update training programs, including the Plan Preparers Training. In recent years there has been little demand for plan preparers training. During the 2010-2011 permit year MSD introduced preservation of natural features in Chapter 18 of the Design Manual.

Tracking and Assessment

JCPS Training Audience	Estimated Number of Individuals Trained
Contractor EPSC Training	324
Homebuilder EPSC Training	36
MSD Inspector EPSC Training	0
Certified Plan Reviewer/Preparer	0
Total	360

Reporting Period July 1 – June 30	PY	Estimated Number of Individuals Trained
2010-11		360
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Local Utility Construction General Permit Entities						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.12	MSD shall continue to coordinate policy level stakeholders from local utility agencies holding construction general permits from MSD to confirm inter-agency communication protocols and review changes to standard, policies, procedures, BMP operation expectations and related matters.	Starting in PY 2	MSD shall hold meetings with at least 90% of MSD's EPSC general permit holders at least every two years.	Permit Holders Attending Meetings	No	Planning / In Progress

Progress Summary Narrative

MSD coordinates with policy level stakeholders from local utility agencies holding construction general permits from MSD to confirm inter-agency communication protocols and review changes to standards, policies, procedures, BMP operation expectations and related matters.

MSD routinely coordinates with larger general permit holders. MSD is developing a schedule to meet with general permit holders. Some of the general permit holders include but are not limited to the following: LG&E, Insight, and Louisville Water Company. It is anticipated that future reporting will be reflected in the table below, including the total number of general permit holders and the number of permit holders attending meetings.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Total Number of General Permit Holders	Number of Permit Holders Attending Meetings
2010-11		7	1
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
MSD General Construction Permits Evaluation						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.13	MSD shall evaluate General Construction Permits issued by MSD to utilities and other entities to determine adequacy with revisions to the KDOW general construction permits, changes in organization/practices, MSD standards, etc.	Evaluate general permits by end of PY 3. Report annually.	MSD shall evaluate all general permits by the end of PY three (3); and report general construction permits issued by MSD in the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD will evaluate General Construction Permits issued by MSD to utilities and other entities to determine adequacy with revisions to the KDOW general construction permits, changes in MSD organization/practices, MSD standards, etc. This is not to be confused with entities holding general construction permits issued by the KDOW. This activity is focused on entities the MSD has issued a general permit per its local EPSC ordinance. As the task above refreshes the lines of communications, this activity is aimed at modifying the permits that define the standards and expectations. This activity is a more formal process and will be especially important in reflecting changes to ordinances, policies and standards resulting from the changes in expectations communicated in KDOW's general permit issuances. MSD is currently enhancing the EPSC ordinances with post-construction requirements, as this effort progresses, MSD anticipates the need to evaluate the General Construction Permits to determine adequacy.

Tracking and Assessment

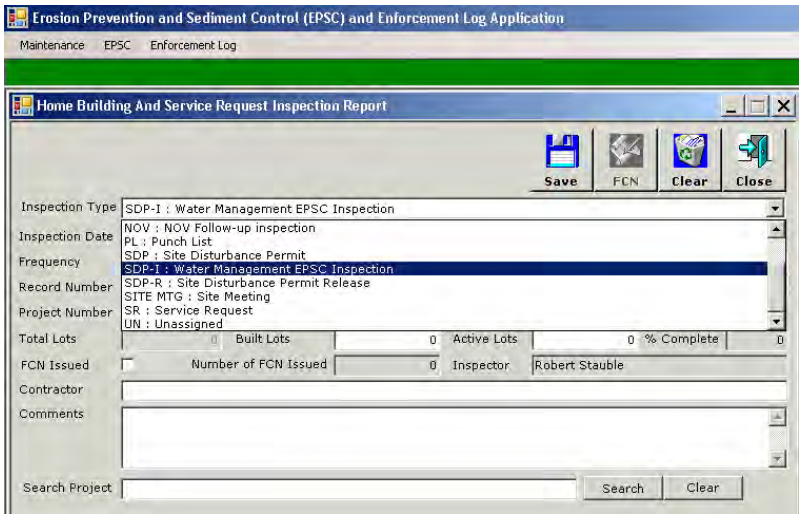
Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Enforcement Tracking Log/Database						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.14	MSD shall continue to track enforcement actions issues (SWO/NOVs) to support follow-up inspections and issuance of penalties and/or Notice of Compliance.	Annually	MSD shall summarize enforcement actions in the annual report. A summary of the tracked enforcement actions issued shall be included in the annual report.	1552 Enforcement Actions	No	Completed / Being Implemented

Progress Summary Narrative



MSD will continue to track enforcement actions issues NOVs and SWOs to support follow-up inspections and issuance of penalties and/or Notice of Compliance. In a community the size and complexity of Jefferson County administering an EPSC program with many inspectors, plan reviewers and enforcement staff, it was necessary for MSD to institute an enforcement tracking database. MSD tracks active construction sites in the HANSEN and the EPSC_ENFLOG databases. The HANSEN database tracks customer issues, including phone calls regarding active construction sites. The EPSC_ENFLOG database catalogs construction sites project name, address, primary site contact and inspection dates and tracks any enforcement actions issued for the site.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	No. of FCN	No. of NOVs	No. of SWOs	Total Fines ($)
2010-11		1,392	80	80	$7,664.18
2011-12	1				
2012-13	2				
2013-14	3				
2014-15	4				
2015-16	5				

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Plan Development Process Identification						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.15	MSD shall review and update, as needed guidance materials identifying the process that developers must follow to obtain related construction permits, including process flow charts and checklists.	Annually	MSD shall make up-to-date guidance documents publicly available. A summary of the revised guidance materials shall be included in the annual report.	Updated Guidance Materials	No	Completed / Being Implemented

Progress Summary Narrative

MSD will review and update, as needed, guidance materials identifying the process that developers must follow to obtain related construction permits, including process flow charts and checklists. Over the years, several documents have been utilized to communicate with the development community the complex process of construction plan approval involving several Metro Louisville government agencies, utilities and MSD. The means of communication includes but is not limited to: the Design Manual, PowerPoint presentations, handbooks, memorandums, and webpages. While the current publically available document appears to reflect the current procedures, this task is aimed at periodically determining if it still meets that objective and implementing modifications accordingly.

MSD updated the slides for Certification Training Class in July 2011. The Assessment for Contractors' Training was updated in June 2010.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

CS 2 CS Management Activities						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Metro IP & L Enforcement Coordination						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.4.16	MSD shall coordinate program enforcement actions with Metro Inspections, Permits and Licensing (IP& L), as necessary, to support overall site compliance with an emphasis on Notices of Deficiency (NOD), NOV and SWOs issued by MSD and implications on land disturbance and "in building" activities.	Annually	MSD shall hold at least one (1) conference every other year starting in PY one (1).	Attendees at Meeting	No	Completed / Being Implemented

Progress Summary Narrative

MSD will coordinate construction program enforcement actions with Metro IP&L, as necessary, to support overall site compliance with an emphasis on NODs, NOVs and SWOs issued by MSD and implications on land disturbance and "in building" activities. MSD's enforcement policies allow MSD to issue a SWO to halt work on land disturbing activities that has failed to comply with EPSC requirements, while the IP&L has responsibility for applying enforcement on activities on or inside the structures. The MSD and IP&L regularly communicate, when appropriate, to make each other aware of enforcement activities that halt work. MSD routinely coordinates with IP&L field staff. Currently, there is not an official system for documenting these field conferences. The field conferences occur as a matter of common business practice.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
Y	**Level 5: Improve Stormwater Quality**
Y	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.5 PC

TABLE 2.5 - PC	
SWQMP ID	**PC 1 Legal Prohibition/Control Authority**
2.5.1	Assess Legal Prohibition / Control Authority
2.5.2	Implement Legal Prohibition / Control Authority
2.5.3	Site Plan Review
2.5.4	Stormwater Infrastructure Inventory
2.5.5	Post-Construction Site BMP Inventory Update
2.5.6	Post-Construction Inspector Training
2.5.7	Regional Flood Control BMP Retrofit Analysis
2.5.8	Inspect "Credit" Basins
2.5.9	Inspection Plan Procedures for Treatment BMPs
2.5.10	Post-Construction and Green Infrastructure BMP Guidance Materials
	PC 2 PC Plan Maintenance and Update
2.5.11	Plan Preparers & Reviewers Training (MSD Facilitates)
2.5.12	Plan Preparers and Reviewers Training
2.5.13	Project DRI
2.5.14	User Fee Credits (Green Infrastructure Incentives) Program Planning
2.5.15	Stream Restoration Inspection and Maintenance
2.5.16	Certified / Qualified Construction BMP Inspector Program
2.5.17	Stormwater Runoff Quality Treatment Standard for all New Development and Redevelopment Projects
2.5.18	Private BMP Maintenance Agreement Assessment / Long Term O&M
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.5.19	Green Infrastructure Demonstration Site(s)
2.5.20	Rain Barrels and Louisville Nature Center
2.5.21	Pond Creek and Mill Creek Recreational Planning

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Assess Legal Prohibition/Control Authority						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.1	The permittee shall assess existing Wastewater/Stormwater Discharge Regulations and other relevant ordinances and regulations, to identify changes needed to account for changes in standard of care, changes in technology, changes to development management process and related program needs for new development and redevelopment projects that disturb greater than or equal to one acre and construction activity disturbing less than one acre, including projects less than one acre that are part of a larger common plan of development.	Assessments in PY 1 and if necessary, in PYs 2 and 4	Permittee shall make assessments in PY one (1) and if necessary, in PYs two (2) and four (4) report proposed changes in the WDR for consideration by MSD Board.	TBD	No	Planning / In Progress

Progress Summary Narrative

In 2011 MSD began assessment of the existing EPSC Ordinance, Wastewater/Stormwater Discharge Regulations and other relevant ordinances and regulations to identify necessary changes to address post-construction regulations for new or redevelopment projects including both individual developments and projects that are part of a larger common plan of development.

MSD has the authority to modify some portions of the program, such as the Wastewater / Stormwater Discharge Regulations with MSD Board approval. However, it must have approval of Metro Council to modify or create new ordinances. A part of MSD's approach is to modify the related program elements, such as the Design Manual and Standard Drawings, development plan review checklists and internal procedures that do not require a Louisville Metro ordinance to be revised. MSD is preparing to move forward with the process of modifying the EPSC ordinance to incorporate the post-construction program requirements. The current intent is to use the EPSC ordinance as the base because it is a well-established and understood process for plan review, construction inspection and enforcement.

Tracking and Assessment

The final report and any ordinance modifications will be submitted with future annual reports.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Implement Legal Prohibition/Control Authority						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.2	The permittee shall enforce existing ordinances and regulations intended to limit long-term stormwater quality impacts from new construction	Annually	Permittee shall summarize enforcement actions in the annual report. The permittee shall include the number of inspections and enforcement actions.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD and Metro Louisville currently regulate post-construction stormwater runoff controls through the Land Development Code and Design Manual, which include requirements for floodplain and setbacks. The recently released Design Manual Section 18 focuses on GMPs, including GMP selection process and incentives requirements. Section 18 of the Design Manual includes a post-construction inspection checklist for compliance.

MSD will continue to enforce existing ordinances and follow through with existing policies and regulations intended to limit long-term stormwater quality impacts from new development and qualifying redevelopment. Inspections and enforcement actions will be adjusted as needed to correspond with Metro Council decisions.

Tracking and Assessment

Future annual reports will provide progress on implementation.

Reporting Period July 1 – June 30	PY	Estimated Number of Enforcement Actions
2010-11		
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Site Plan Review						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.3	The permittee shall conduct site plan reviews through procedures for reviewing development plans for compliance with stormwater management requirements.	Within 30 days of permit effective date	Within thirty days of permit effective date	Plan review is ongoing.	No	Completed / Being Implemented

Progress Summary Narrative

MSD continues to review development plans for compliance with stormwater management requirements with the intent of routinely inspecting stormwater quality treatment BMPs with reasonable potential to discharge pollutants of concern to MS4. As the number of public and private stormwater quality treatment BMPs increase, it is anticipated that inspect resource demands will increase to verify proper construction, operation and maintenance. This requirement has been satisfied as a matter of regular business and the plan review staff responsibilities.

Plan reviews are based on existing requirements. As post-construction stormwater control requirements are enhanced through the requirements of this permit, the plan reviews will incorporate these changes and documented in future years.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Plans Reviewed
2010-11		
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Stormwater Infrastructure Inventory						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.4	The permittee shall continue to maintain the GIS-LOJIC layers incorporating system changes from new development plans, MSD projects and related system projects.	Within 60 days of permit effective date.	Permittee shall update the GIS LOJIC System as data becomes available	GIS-LOJIC layers are updated routinely.	No	Completed / Being Implemented

Progress Summary Narrative

MSD routinely maintains the GIS LOJIC layers incorporating system changes from new development plans, MSD projects and related system projects. MSD has extensive sets of geographic and attribute data managed LOJIC and Hansen databases. As this data was developed through an intense plan conversion and field data collection effort, it has been maintained to include changes, improvements and modifications. MSD manages changes from new development through the Development Team and on-site MSD/LOJIC staffs as new development projects are approved for construction. Similarly, other system improvements and modifications are incorporated into the datasets.

Much of the LOJIC data is publically available through a series of interactive mapping tools administered by LOJIC such as the "Standard Information Map" available at: http://www.lojic.org/standard/viewer.htm. More information about LOJIC is available at: http://www.lojic.org/.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Post-Construction Site BMP Inventory Update						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.5	The permittee shall develop and maintain an inventory and map of post-construction stormwater controls, including retention ponds, detention basins, and stormwater quality treatment facilities. The permittee shall update LOJIC and Hansen datasets to reflect the location, extent, and condition of post-construction stormwater quality BMPs.	Every other year	Permittee shall incorporate related data on ongoing basis; Permittee shall assess data to identify and fill dataset gaps every other year.	Baseline assets determined	No	Planning / In Progress

Progress Summary Narrative

MSD maintains an asset inventory in the HANSEN database that includes all MSD assets and some private stormwater controls. During this report year, MSD completed an inventory and evaluation program of the existing volume control stormwater basins and riparian restoration areas. Contracts for these projects include evaluation of "credit" basins that are privately owned as well as regional flood control basins. Stream restoration areas are being evaluated for current water quality and riparian habitat and recommendations for enhancements.

While MSD already has several datasets on basins, reconciling them is necessary to better support operation and maintenance agreement needs assessments, "credit" basin inspections, retrofit analyses, and treatment BMP inspections (presented in the activities below). MSD is in the final stages of a process to update the datasets for regional flood control basins and "credited" detention basins. This activity identified gaps in the data that are being filled with field visits and other research, to be completed in 2011, well ahead of schedule.

Tracking and Assessment

New post-construction control asset types are being developed for the HANSEN database in order to record and report on BMPs installed and to process inspection and work order schedules.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 1	Legal Prohibition/Control Authority					
Post-Construction Inspector Training						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.6	The permittee shall provide training to the inspectors including internal staff that have been designated to inspect the effectiveness of the post-construction BMPs, as well as, the local residents who are required to provide operation and maintenance of privately-owned Post-Construction BMPs.	Two trainings per year, report annually	At least two trainings per year for the inspectors of Post-Construction BMPs. Report in the annual report the dates of training, # of attendees, and subject matter.	Training Performed	No	Completed / Being Implemented

Progress Summary Narrative

Twice per year MSD will provide training to inspectors of post-construction BMPs, including internal staff designated to inspect the effectiveness of post-construction practices.

MSD is providing training to internal staff much more frequently than the minimum requirement. This primarily takes place at the weekly plan review staff meetings. Plan review staff attends the meetings regularly, while inspection staff attends the meetings less frequently. Furthermore, additional training across MSD departments takes place at least twice annually. Emphasis is place on design and inspection of green infrastructure and lessons learned through demonstration projects, private development and redevelopment activities. Training for inspectors in other departments will be enhanced to include additional water quality controls (riparian buffers, bioswales, pervious pavement, etc).

MSD will also extend this training to local residents who are required to provide operation and maintenance of privately-owned post-construction BMPs. Initially this focuses on property owners who are interested or who have accepted incentive agreements for green infrastructure.

Tracking and Assessment

Training is documented and tracked through the Training Administrator (number of attendees, dates of trainings, and topic for the training session).

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Regional Flood Control BMP Retrofit Analysis						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.7	The permittee shall evaluate regional flood control basins to determine stormwater quality treatment incorporation/retrofit feasibility. Explore opportunities to cost-share, incentives or otherwise finance the projects.	Assessment by PY 3. Summarize in annual report.	Permittee shall complete assessment report identifying with high, moderate, and low retrofit potential by the end of PY three (3) and summarize in the annual report.	Assessment of basins complete	No	Completed

Progress Summary Narrative

MSD has evaluated, ahead of schedule, regional flood control basins to determine stormwater quality treatment incorporation/retrofit feasibility. It will explore opportunities to cost-share, incentives or otherwise finance the projects. The assessment report identifies facilities with high, moderate and low retrofit potential/benefit.

MSD does not have the local regulations requiring private BMP owners retrofit their facilities. This includes regional facilities that are privately held. However, MSD has implemented a financial incentive program, Effective August 1, 2011 to aid those discussions. While it is premature to project outcomes, MSD is committed to developing a framework that encourages incorporation and retrofit of privately held regional BMPs to address stormwater quality in addition to the existing flood control benefits.

Trends and Assessment

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Inspect "Credit" Basins						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.8	The permittee shall inspect private flood control basins, (retention ponds) receiving a stormwater utility user fee credit (reduction) to determine ability to fulfill original, current and projected drainage demands. Continue to enforce, per existing basin credits documentation requirements, necessary to fulfill maintenance agreements and long-term system integrity.	Starting in PY 2. Summarize in annual report.	Permittee shall perform spot check inspections for at least 50% of qualifying facilities annually starting in PY two (2) and summarize for the annual report.	TBD	No	Completed / Being Implemented

Progress Summary Narrative

MSD promotes and encourages stormwater utility customers to participate in its credits policy, where the user has the option to receive a rate reduction by incorporating retention basins. MSD continues to inspect these stormwater control systems to monitor their effectiveness and the adequacy of the maintenance schedule. This process includes communication with the property owner to identify maintenance and improvements necessary to fulfill long-term system integrity. MSD staff continues to spot inspect at least 50% of qualifying facilities annually. An MSD contractor completed an inspection of all the basins in 2011.

Trends and Assessment

This activity is ongoing. Tracking and reporting for this activity is scheduled for implementation in Permit Year 2.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Inspection Plan Procedures for Treatment BMPs						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.9	The permittee shall develop and implement inspection and oversight protocol for private stormwater quality treatment BMPs to facilitate long-term maintenance demands including requirements for qualified private inspection of private BMPs with local government oversight access inspection and controls.	Starting in PY 2. Summarize in annual report.	Permittee shall perform spot check inspections for at least 20% of treatment BMPs annually starting in PY two (2). All BMPs should be inspected by the end of the permit cycle. A summary of this activity shall be included in the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD will develop an inspection and oversight protocol for private stormwater quality treatment BMPs to facilitate long-term maintenance demands including requirements for qualified private inspection of private BMPs with local government oversight access inspection and controls.

As the number of public and private stormwater quality treatment BMPs increase, it will require more consistent procedures to inspect for proper construction, operation and maintenance. The procedures will include applicable checklist and review items to address issues including private BMP owner inspection responsibilities, inspector qualifications, frequency, documentation and related expectations. The procedures will be used to perform spot check inspections for at least 50% of qualifying facilities annually starting in Permit Year two with all treatment BMPs inspected by the end of the permit cycle. A summary of these inspections will be documented in the annual reports for this permit cycle.

Trends and Assessment

As more data is developed, trends will be identified and the program element assessed in other PYs and will be tracked. This activity is scheduled for implementation in Permit Year 2.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2 PC Plan Maintenance and Update						
Post-Construction and Green Infrastructure BMP Guidance Materials						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.10	The permittee shall evaluate and update the guidance materials facilitating current technology use and to reflect local plan review, construction site inspection and post-construction inspection requirements. Design Manual chapters and Standard Specifications sections to address long-term BMP operation, inspection and maintenance including checklists. "Green Infrastructure" is a combination of natural and engineered infrastructure that is designed to reduce the environmental footprint of the system. In terms of stormwater, green infrastructure can effectively manage stormwater runoff through the use of infiltration, biofiltration, detention, and other stormwater management techniques.	Update the guidance materials	Permittee shall update the guidance materials specifically the Design Manual chapters and Standards Specifications sections and make the document publicly available.	Design manual evaluation for post-construction and green infrastructure complete	No	Complete

Progress Summary Narrative

During this report year, MSD evaluated, updated, and drafted revisions to the MSD Design Manual. The Design Manual was amended to include a new Section 18 to address green infrastructure design, long-term operation, inspection and maintenance. Section 18 is also referred to as the GMP Manual. It includes a diverse range of design strategies intended to support decision making by property owners and architects. For example, there is a design strategy for "green parking" with photographs and illustrations of several types of GMPs working together in a parking lot. The intent is give the designer a variety of ides for incorporating green infrastructure in a way that also support their aesthetic expectations for their customers and employees. The GMP manual also provides engineering design fact sheets that emphasize the process for sizing, constructing and maintaining the GMPs. Construction details, design, operation and maintenance checklists are provided with each fact sheet.

The Design Manual is publicly available at: http://www.msdlouky.org/insidemsd/standard-drawings.htm.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2 PC Plan Maintenance and Update						
Plan Preparers & Reviewers Training (MSD Facilitates)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.11	The permittee shall provide available content, such as EPA web casts, through periodic training classes, workshops and meetings for designers, planners, and developers including emphasis on green infrastructure, post-construction planning, and design procedures for structural and non-structural BMPs, pollutant removal and inspection.	Two events annually	Permittee shall continue to offer at least two (2) events annually. A summary of workshops topics and attendance shall be submitted in the annual report.	5 events	No	Planning / In Progress

Progress Summary Narrative

MSD will provide, at least twice a year, available content, such as EPA web casts, through periodic training classes, workshops and meetings for designers, planners, and developers including emphasis on green infrastructure, post-construction planning, and design procedures for structural and non-structural BMPs, pollutant removal and inspection. A summary of workshop topics offered and the number in attendance will be reported in the annual report.

- WWT Stakeholder Group met on November 30, 2010: this meeting included an MSD update on capital projects, green initiatives, and public outreach
- WWT Stakeholder Group met on June 20, 2011: this meeting included an MSD update on capital projects, green initiatives, and public outreach
- Presented Green Infrastructure Financial Incentive Program to Contec Development Community meeting May 11, 2011; Homebuilders Association of Louisville August 10, 2011; Luckett and Farley Development Community meeting October 5, 2011

Furthermore, MSD employees attend in-house training classes taught by the MSD Training Department. The training instructs I&FP workers on regulatory requirements as well as field installation procedures for BMPs. The training is informative to make plan reviewers and area team members' day-to-day jobs easier. MSD will provide available content, such as periodic EPA webcasts, to provide emphasis on post-construction stormwater runoff control practices, including green infrastructure, post-construction planning, and design procedures for structural and non-structural BMPs, pollutant removal and inspection.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Number of Training Sessions
2010-11		5
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Plan Preparers and Reviewers Training						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.12	The permittee shall update, as necessary, content to the existing training program currently administered by JCPS System or to a new program to address green infrastructure, post-construction stormwater quality BMP issues.	Three trainings annually	Permittee shall summarize in the annual report, training updates and offer at least three (3) training opportunities annually.	Training Offered	No	Completed / Being Implemented

Progress Summary Narrative

The JCPS Adult Education Program currently administers the EPSC Certification Training Program for MSD. In contrast for the demand for the certified inspection course, the demand for the Certified Reviewers Plan Preparers Class has not been there, and as a result, MSD has not conducted the class. As demand increases, MSD will offer the class more often. A minimum of 5 attendees is required to feasibly hold the class. Starting in Permit Year 1, MSD will announce opportunities for this training class per the permit requirements.

The training includes permitting, design, installation, inspection and maintenance of EPSC BMPs required for all land disturbance activities. Training sessions are held based on demand, typically at least three times annually, for a variety of participants including: Certified Plan Reviewer/Preparers, Contractors, Homebuilders, MSD personnel, and Certified Plan Reviewers/Preparers. In addition, personnel from other utility companies are certified. The training is currently focused on EPSC, but includes the same target audiences that are needed to train for post-construction practices. MSD will update this course as necessary for post-construction runoff control practices including green infrastructure and will summarize activity in the annual report. The existing training programs will be appended with materials related to post-construction green infrastructure. MSD anticipates developing another course focused entirely on green infrastructure.

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Estimated Number of Training Opportunities Offered
2010-11		0
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Project DRI						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.13	The permittee shall continue to implement Drainage Response Initiative (DRI) program aimed at identifying and solving the local drainage problems in Jefferson County.	Annually	Permittee shall provide program progress summarizing cost, number and type of projects in the annual report.	Project DRI initiative documented	No	Completed / Being Implemented

Progress Summary Narrative

The spending priorities for Project DRI are determined largely by citizen input, city officials and Metro Council members. The standard remains uniform - projects that solve drainage problems for the greatest number of people have the highest priority. Project DRI projects are tracked in LOJIC and HANSEN.

Phase 3 of Project DRI, which began in January 2008, will extend through the summer of 2012. This endeavor involves investing another $25 million in Louisville Metro drainage infrastructure. In addition to efforts that are associated specifically with Project DRI, MSD's crews perform routine and preventive maintenance for the drainage infrastructure of Louisville Metro. This work entails the routine cleaning of more than 30,000 catch basins; mowing of over 16 miles of large channels and the levee; removal of obstructions in the system; repair of cave-ins over storm facilities; and scheduled cleaning of concrete and earthen ditches. Spread throughout the three phases of Project DRI, this work includes almost 150,000 work orders valued at approximately $14.5 million.

Tracking and Assessment

Additional details about Project DRI are available at: http://www.msdlouky.org/projectdri/index.cfm.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
User Fee Credits (Green Infrastructure Incentives) Program Planning						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.14	The permittee shall assess the feasibility of implementing a utility user fee credits program for green infrastructure and post-construction BMPs. The permittee shall perform a feasibility assessment to include considerations for financial sustainability, billing system administration, utilization potential, credit longevity, oversight inspections and related matters. Develop a schedule, that addresses feasibility study issues, to setup a program to promote stormwater utility user fee credits opportunities for properties implementing stormwater quality BMPs beyond minimum requirements with the intent of encouraging flood control pond retrofit, redevelopment GI BMP incorporation and new development GI BMP implementation. This program may offer incentives for developers to use cost-effective, eco-friendly solutions.	End of PY 2	Permittee shall provide assessment and planning results by the end of PY two (2) in the annual report.	Policy in Place	No	Complete

Progress Summary Narrative

MSD assessed the feasibility of implementing a utility user fee credits program for green infrastructure and post-construction BMPs. It was determined that an incentive policy was viable. It was developed and adopted by the MSD and became effective August 1, 2011. This program promotes stormwater utility customers to participate through the option to receive a short-term incentive, known as a stipend to offset construction costs. It also provides a long-term (10-year renewable) incentive through drainage service charge reductions for incorporating green stormwater best management practices on their property.

Credit Computation Basis

Stormwater/ Green Infrastructure Element	Percent of Credit
Peak Flow Rate	15%
Total Runoff	15%
Water Quality	15%
Green Infrastructure Education and Outreach	5%
Maximum 50% credit on Monthly Drainage Service Charge	
Maximum 25% credit if Capitol Recovery Stipend is granted	

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Stream Restoration Inspection and Maintenance						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.15	The permittee shall identify restored stream reaches that MSD has maintenance responsibilities. The permittee shall also determine status of restored reaches and identify, prioritize/schedule and implement maintenance needs.	Start in PY 2	Permittee shall provide in the annual report, summarized stream reaches and maintenance performed to be started in PY two (2).	Inventory updated	No	Planning / In Progress

Progress Summary Narrative

MSD has been involved or lead 32 stream restoration efforts and will identify restored stream reaches for which it has maintenance responsibilities. MSD has determined the status of restored reaches and will identify, prioritize/schedule and implement maintenance needs. It is currently in the process of prioritizing the operation and maintenance activities for each of the reaches.

Additionally, MSD performs stream assessments as part of other projects related to sewers.

Tracking and Assessment

See Appendix 2.5.15, Stream Assessment Jeffersontown Plant Elimination Project.

Reporting Period July 1 – June 30	PY	Estimated Number of Stream Reaches Maintained
2010-11		32
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2 PC Plan Maintenance and Update						
Certified/qualified Construction BMP Inspector Program						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.16	The permittee shall outline and determine the feasibility of a program to identify and hold accountable third party private BMP inspectors (such as home inspectors) to facilitate periodic operation and maintenance of private facilities resulting from the credits program, regulations changes and demonstration projects. If results warrant, develop schedule to implement requirements for private BMP inspections and resulting training/testing program.	By end of PY 2. Summarize in annual report	Permittee shall by the end of PY two (2), summarize the feasibility report study result and schedule of action items and include summary in the annual report	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD's preference is that the KDOW provide leadership on this issue through development of a statewide inspector qualification program. As post-construction programs are implemented at the various MS4 Phase I and II communities across the Commonwealth, this issue will become critically important just as it already has for qualified EPSC BMP inspection. This qualified post-construction BMP inspector program may be even more important, because it represents the point of new long-term financial risk (in terms of inspection and maintenance) for communities across the state and nation.

As the number of public and private stormwater quality treatment BMPs increase, it will require more resources to inspect for proper construction, operation and maintenance. Furthermore, the private constructed BMPs will be potential risk points as they will require private maintenance. As properties age and ownership transfers take place, the potential that the BMPs will be properly operated and maintained will dramatically decrease. Over time, this can in fact create more stormwater quality problems at the receiving waters level had the BMPs not been installed. This can only be avoided by qualified, routine inspection by either the property owner or, as a default, the local government. The results of such inspections will inevitably identify maintenance that if not properly performed by the owner will ultimately default to the local government or at least require drawn-out and expensive enforcement processes that will ultimately exacerbate already limited public supported budgets.

In the absence of a KDOW sponsored/endorsed statewide qualified post-construction BMP inspector program, MSD will outline and determine the feasibility of developing a local program. MSD will develop a plan that will address issues including private BMP owner inspection responsibilities and inspector qualifications. It will be assessed with the intent to identify and hold accountable third party private BMP inspectors (such as home inspectors) to facilitate periodic operation and maintenance of private facilities. If results warrant, MSD will develop a schedule to implement requirements for private BMP inspections and resulting training/testing program.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Stormwater Runoff Quality Treatment Standard for all New Development and Redevelopment Projects						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.17	The permittee shall develop an on-site stormwater runoff quality treatment standard, to be adopted by ordinance or other regulatory mechanism for all new development and redevelopment projects. The proposed local standard will require, in combination or alone, management measures that are designed, built and maintained to infiltrate, evapo-transpire, harvest and reuse stormwater runoff, or otherwise manage the stormwater runoff quality. 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 80th percentile precipitation event. .	Within 60 days of effective permit date	Within 60 days of effective permit date, permittee shall submit a local treatment standard for addressing stormwater runoff quality.	Proposal verbally accepted by KDOW	No	Completed / Being Implemented

Progress Summary Narrative

The MSD has developed an on-site stormwater runoff quality treatment standard that it intends to submit to Metro Council for adoption in the EPSC ordinance for development projects disturbing more than 2,000 square feet. The proposed local standard requires, in combination or alone, management measures that are designed, built and maintained to infiltrate, evapo-transpire, harvest and reuse stormwater runoff, or otherwise manage the stormwater runoff quality. The standard is based on an analysis of long-term precipitation records at the National Weather Service station at the Louisville International Airport. It was determined and verified that the equivalent surface depth of runoff produced from an 80th percentile precipitation event in 0.60-inches.

MSD has integrated the standard into a GMP selection process that is documented in the Green Infrastructure Design Manual, Section 18.3. It identifies a Water Quality Volume and provides several means to address that volume.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Private BMP Maintenance Agreement Assessment/Long Term O & M						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.18	The permittee shall require all new development or redevelopment to establish and enter into a long-term maintenance agreement and maintenance plan approved management practices for property owners. 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 MS4s, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and authority to recover costs from the property owner/operator when the owner/operator has not performed the necessary maintenance.	Within 12 months from the effective date of the permit	Within 12 months from the effective date of the permit all new development and redevelopment projects shall be required to have this agreement.	TBD	No	Planning / In Progress

Progress Summary Narrative

MSD will require all new development and redevelopment to establish and enter into a long-term maintenance agreement and maintenance plan or establish alternative enforceable mechanisms for requiring long-term maintenance of structural and non-structural BMPs within 12 months of the effective date of the permit. This requirement will allow MSD to conduct inspections, account for transfer of responsibility in leases or deed transfers and perform maintenance or corrective actions neglected by the property owner/operator.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Green Infrastructure Demonstration Site(s)						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.19	The permittee shall continue, in cooperation with Louisville Metro Mayor's administration, University of Louisville and other local agencies, to pursue development of stormwater quality and green infrastructure interpretative center(s) at strategic location(s) around Jefferson County with the intent of providing a positive highly visible platform to promote the viability and desirability of green infrastructure BMPs. Where feasible explore the opportunity for BMP evaluation and pre-/post-monitoring.	Annually	Permittee shall report its role and activities, lessons learned, and overall project progress and summarize for the annual report.	Projects constructed	No	Completed / Being Implemented

Progress Summary Narrative

MSD has constructed several green infrastructure demonstration projects to be viewed by the public to encourage people who see them to adopt the practices. Projects include, rain gardens, green roofs, pervious pavement, bio-swales and infiltration beds. Projects are prioritized for selection based on their support of residential, non-residential, professional and non-professional audiences. MSD will continue to collaborate with local entities where feasible to implement these projects and maximize public exposure.

Tracking and Assessment

- University of Louisville – several green incentive projects at Belkap campus
- Metro Louisville Fire Station Number 10 (Ashland) green incentive project
- JCPS green incentive projects at Lincoln Elementary and Roosevelt Perry Elementary
- In cooperation with Metro Louisville several green alleys have been constructed including:
  - 300 W. Lee/W. Bloom (UL)
  - Billy Goat Strut
  - Warren
  - Congress
  - Forrest
  - 17th & Hill
  - Kehlert/Lentz
  - Third & Ormsby Rain Garden

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Rain Barrels and Louisville Nature Center						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.20	The permittee shall explore the opportunity for MSD to continue program with Louisville Nature Center that provided public guidance to construct and maintain rain barrels.	Annually	Permittee shall report its role, lessons learned and overall programs progress and summarize for the annual report.		No	Completed / Being Implemented

Progress Summary Narrative

MSD continues the program with Louisville Nature Center that provides public guidance to construct and maintain rain barrels. MSD has committed significant resources to providing discount rain barrels to the public to encourage and foster the market and the response is overwhelmingly positive. In 2008 MSD shifted from directly selling barrels to the public to providing rain barrel kit materials to the Louisville Nature Center for sale to the public.

Tracking and Assessment

The demand for rain barrels continues to increase beyond MSD's current capacity to provide them efficiently. MSD has not determined a course of action after the current supply of rain barrel materials is exhausted. The materials provide the public guidance to construct and maintain rain barrels. MSD will summarize its role, activities, lessons learned, and overall project progress in the annual report.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

PC 2	PC Plan Maintenance and Update					
Cooperative Efforts (MSD provides supportive or other non-lead role)						
Pond Creek and Mill Creek Recreational Planning						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.5.21	The permittee shall continue to collaborate with the US Army Corps of Engineers in their efforts to develop a trail system integrating community assets and environmental resources.	Annually	Permittee shall report its role, lessons learned and overall programs progress and summarize for the annual report.		No	Completed / Being Implemented

Progress Summary Narrative

MSD will continue to collaborate with the USACE in their efforts to restore riparian zones and habitat and to develop a trail system integrating community assets and environmental resources. As materials and plans are finalized for public release they will be made available to the public. MSD will summarize its role, activities, lessons learned, and overall project progress in the annual report.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.6 GH/P2

TABLE 2.6 – GH/P2	
SWQMP ID	**GH/P2 Plan Maintenance and Update**
2.6.1	SWPPPs for MSD Operations
2.6.2	Training on MSD Facility SWPPPs
2.6.3	Maintenance Staff Training on Pollution Prevention
2.6.4	Pesticides Management
2.6.5	Incident Response Staff Training
2.6.6	MSD Capital Project Control
2.6.7	MSD Stormwater Quality BMP Data
2.6.8	Catch Basin and Storm Sewer Cleaning
2.6.9	Channel Maintenance
Cooperative Efforts (MSD provides supportive or other non-lead role)	
2.6.10	SWPPPs for Co-Permittee Operations

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
SWPPPs for MSD Operations						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.1	The permittee shall periodically update and implement SWPPPs (also known as BMP Plans or Stormwater Plans) to control the discharge of pollutants from POTWs and other applicable MSD-owned facilities as defined in 40 CFR 122.26 including wastewater treatment plants and major operating facilities. SWPPPs will include provisions for maintenance activities on facility grounds, materials and equipment storage, security, preventative maintenance, risk identification and assessment, materials inventory, floor drain protection/controls, inspections and records.	Assess plans within 6 months of major facility changes or at least once every two years	Permittee shall assess plans within six (6) months of major facility changes or at least once every two years by the facility superintendents and operation managers who makeup the SWP3 Committee.	Base Plans Being Updated	No	Planning / In Progress

Progress Summary Narrative

Each MSD facility has an approved HMPC plan, spill control equipment and trained hazmat response teams. The WQTC BMP Plans for stormwater pollution prevention are being revised using a new template and additional educational materials for staff training on the SWPPP requirements. MSD's WQTCs are issued discharge permits for wastewater that have included requirements for stormwater best management practice plans since the 1980s, and are also required to have groundwater protection plans, hazardous materials spill plans and disaster response plans. MSD also maintains internal standards manuals and inspection programs for employee health and safety and emergency preparedness and response. The existing facility plans, policies and manuals are being incorporated into a separate document that ensures that all the MS4 requirements for a SWPPP are met. MSD will periodically update and implement the SWPPPs to control the discharge of pollutants from the WQTCs and other applicable MSD-owned major operating facilities. The updated SWPPPs will include provisions for maintenance activities on facility grounds, materials and equipment storage, security, preventative maintenance, risk identification and assessment, materials inventory, floor drain protection/controls, inspections and records. Re-assessment of the SWPPPs will occur within six months of major facility changes or at least once every two years by the facility supervisors, operators and managers who make up the SWP3 Committee / Safety Committee.

Tracking and Assessment

Updated plans will be summarized in future annual reports.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
Y	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Training on MSD Facility SWPPPs						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.2	The permittee shall utilize the facility SWPPP Committees to perform routine training of key SWPPP issues	Starting in PY 2 address at least 3 SWPPP issues annually. Summarize in annual report.	Permittee shall starting in PY two (2) address at least three (3) SWPPP issues annually and summarize training and attendance for the annual report.	TBD	No	Planning / In Progress

Progress Summary Narrative

This program is in development and the train-the-trainer education program materials are slated to be completed prior to the MS4 permit deadlines. MSD will utilize the facility SWP3 Committee Members (Safety Committee) to perform routine training of key SWPPP issues. Starting in Permit Year two, MSD will address at least three SWPPP issues annually and summarize training and attendance for the annual report.

Tracking and Assessment

Progress will be provided in the Permit Year Two annual report.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Maintenance Staff Training on Pollution Prevention						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.3	The permittee shall provide training to key maintenance staff on good housekeeping activities related to stormwater quality in MSD operations including but not limited to: green infrastructure operation and maintenance, fleet and building maintenance, and stormwater conveyance/drainage system maintenance.	Annually	Permittee shall report the number of staff attending related training and include in the annual report.	Staff Training Conducted	No	Completed / Being Implemented

Progress Summary Narrative

MSD provided the following training during the permit year and tracked the number of employees trained and number of hours of training for each training session:

- Training Name
- 15-Ton Crane
- 40 Hour Hazmat (initial)
- 7.5 Ton Little Giant Crane
- Backhoe
- Basin Cleaner Crane Truck
- Bobcat Excavator
- Brushmaster
- Chainsaws (for ditch clearing)
- Combination Sewer Cleaner
- CSO & Siphon Preventive Maintenance
- CSO Regulators Preventive Maintenance
- Drainage Repair and Regrade
- Erosion Control
- Hazardous Communications (Right To Know)
- Hazmat Level III (Mitigation)
- Hazmat Refresher Training
- Herbicide Application
- Jet Rodder
- Mini Excavator (for re-grading ditches)
- Mini-Excavator – Refresher Training
- Mowers
- MS4 Inspection Workshop
- Pest Control
- Plate Truck
- Sewer Cleaning and Maintenance
- Sewer Overflow Response Protocol (SORP) Annual Overview
- Silt Fence Training
- Skid Steer Loader
- Skid Steer Loader
- Snow Plow
- SORP Quarterly Field Training (each person, 4 times per year)
- Telespection (To assess sewer line condition)
- Traffic Control
- Trench Excavation Safety
- Weedeater

Reporting Period July 1 – June 30	PY	No. Employee Participants	Employee Training Hours Completed
2010-11		3,016	343.5
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Pesticides Management						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.4	The permittee shall utilize Commonwealth of Kentucky pesticide management registration and certifications to qualify MSD employees applying pesticides. The permittee shall develop and maintain a list of pesticides used and stored, including storage locations.	Annually	Permittee shall track employees with related state certifications.	Employees Trained	No	Completed / Being Implemented

Progress Summary Narrative

MSD utilizes Commonwealth of Kentucky pesticide management registration and certifications to qualify MSD employees applying pesticides. MSD maintains a database of pesticides used and stored, including storage locations. The MSD Training Department maintains records of employees with state pesticide certifications and ensures that re-certifications are obtained. MSD includes the number of employees who receive this training in the annual report.

The LMDPHW leads a coordinated effort of appropriate agencies in Louisville Metro to address mosquito control. MSD uses pellets and briquettes for mosquito control. MSD employees who apply pesticides are trained and certified as Pest Control Applicators. Proper application and disposal procedures are followed. MSD discourages the use of herbicides on residential lawns in the environmental education programs.

Tracking and Assessment

During the permit year, MSD offered Pest Control training. Ten employees attended a 4-hour training session.

Reporting Period July 1 – June 30	PY	Number of Employees Trained
2010-11		10
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Incident Response Staff Training						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.5	The permittee shall provide training to unified incident response staff on related stormwater issues including good housekeeping, IDDE, construction, post-construction BMP/controls and program management.	Starting in PY 2	Permittee shall report incident response staff training participation starting in PY two (2).	Employees Trained	No	Completed / Being Implemented

Progress Summary Narrative

MSD routinely, at least annually, provides training to unified incident response staff on related stormwater issues including good housekeeping, IDDE, construction, post-construction, BMP/controls and program management. The training is intended to provide the information the incident response staff to support their recognition of the controls while responding to incidents. The raised awareness will support identification of longer term implications and needs resulting from the incidents. MSD has utilized the EPA NPS Webcasts related to IDDE and other training provided by MSD staff.

In 2010 IWD staff were trained on IDDE, MS4 permit administration, industrial program update and implementation. In addition, staff are trained in OSHA HAZWOPER level training and other programs related to their duties.

Tracking and Assessment

A training record will be maintained for the purposes of future submmissions of the MS4 annual report.

Reporting Period July 1 – June 30	PY	Number of Employee Training Hours
2010-11		NA
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
MSD Capital Project Control						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.6	The permittee shall, for MSD directed capital, rehabilitation and reconstruction projects, disturbing more than one acre, performed by a contractor, ensure the contract documents/agreements/work orders will include stipulations that require the work be designed /performed/ implemented/ constructed under the same standards for construction and post-construction stormwater quality that MSD requires of private development it regulates.	Starting in PY 2	Permittee shall summarize changes to MSD Capital Project requirements starting in PY two (2).	In Progress	No	Planning / In Progress

Progress Summary Narrative

MSD capital construction projects are required to uphold the same requirements as those required of private development. Each project is required to obtain land disturbance permits and corresponding inspections. While the state requirement is for land disturbance of more than one acre, the MSD requirement applies to any project that disturbs 2,000 square feet of land. MSD will summarize changes to MSD Capital Project requirements, including elements in contracting documents, starting in Permit Year Two.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
MSD Stormwater Quality BMP Data						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.7	The permittee shall update LOJIC and Hansen datasets to identify stormwater-quality BMPs located on MSD properties, rights-of-way and easements that MSD is responsible for operating and/or maintaining. The datasets will be updated in a manner to support ongoing prioritization and tracking of operation and maintenance.	Starting in PY 2 and then every other year	Permittee shall every other year assess datasets for completeness and ability to support staff scheduling stormwater-quality BMPs MSD is responsible for maintaining starting in PY two (2).	Underway	No	Completed / Being Implemented

Progress Summary Narrative

MSD continuously updates the LOJIC and Hansen datasets to identify stormwater-quality BMPs located on MSD properties, rights-of-way and easements that MSD is responsible for operating and/or maintaining. The datasets are updated in a manner to support ongoing prioritization and tracking of operation and maintenance. Hansen® software is used to record and track complaints, inspections, work orders and enforcement cases, including reports of illicit discharges. MSD and Louisville Metro infrastructure and property assets are geocoded in the Hansen® database, and the asset data tables are linked in the LOJIC GIS.

A major system update is underway to identify and track inspection of private and public stormwater quality BMPs. Progress will be reported in future annual reports.

Trends and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2	Plan Maintenance and Update					
Catch Basin and Storm Sewer Cleaning						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.8	The permittee shall continue to clean catch basins and sewers (closed pipe systems) to prevent debris from entering receiving streams and address drainage/flooding issues in MSD area based on known priorities and information gathered from the customer hotline.	Annually	Permittee shall summarize and include in the annual report.	System Maintained	No	Completed / Being Implemented

Progress Summary Narrative

Catch basins were cleaned at a cost of $536,372 for 29,390 work orders over the permit year. The following table includes the storm sewer cleaning performed during the report year:

ACTIVITY	COSTS	FOOTAGE	# OF WO'S
Flushing Pipe	$80,288	128,322	2,159

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Total Number of Work Orders
2010-11		2159
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Channel Maintenance						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.9	The permittee shall continue to maintain open channel system in MSD area based on priorities and information from the customer hotline including ditch cleanings, ditch regrading, drainage obstruction removals, erosion repairs, floodwall levee maintenance, headwall install/repair, concrete channel installation, tree removal, driveway apron restoration, routine mowing and closed pipe installations.	Annually	Permittee shall summarize and include in the annual report.	System Maintained	No	Completed / Being Implemented

Progress Summary Narrative

The following table includes the Work Orders performed for Channel Maintenance during the report year:

Channel Maintenance			
ACTIVITY	**COSTS**	**FOOTAGE**	**# OF WO'S**
Ditch Cleanings	$463,716	70,575	414
Ditch Regrading	$1,450,635	30,059	875
Drg Obstructions	$145,698	N/A	304
Erosion Repairs	$243,384	2,055	181
Floodwall Levee Maintenance	$10,911	N/A	5
Routine Mowing	$375,440	N/A	180
Tree Removal	$64,081	N/A	62
TOTALS	$2,753,865	102,689	2,021
Hotspots and Storm Events			
ACTIVITY	**COSTS**	**FOOTAGE**	**# OF WO'S**
Hot Spots - Rain Events	$106,398.00	N/A	2,047
Storm Events-Rain/Snow, Etc	$149,269.00	N/A	24
TOTALS	$255,667.00		2,071

Tracking and Assessment

Reporting Period July 1 – June 30	PY	Channel Maintenance: Number of Work Orders	Hotspots and Storm Events: Number of Work Orders
2010-11		2,021	2,071
2011-12	1		
2012-13	2		
2013-14	3		
2014-15	4		
2015-16	5		

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

GH/P2 Plan Maintenance and Update						
Cooperative Efforts (MSD provides supportive or other non-lead role)						
SWPPPs for Co-Permittee Operations						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.6.10	As co-permittees make request, the permittee shall provide periodic 3rd-party technical assistance and/or review of the facility SWPPPs, BMP plans, or Stormwater Plans and BMPs and/or site visit/walkthrough to help identify opportunities to improve the effectiveness of the plans and their implementation.	Annually, if requested	Permittee shall assist in the review of at least one (1) facility annually if requested by co-permittees.	1 Request and Response	No	Completed / Being Implemented

Progress Summary Narrative

Upon request by a co-permittee, MSD provides 3rd-party technical assistance and/or review of the facility stormwater pollution prevention plans (SWPPPs, BMP plans, or Stormwater Plans and BMPs) and/or site visits or walkthrough to help identify opportunities to improve the effectiveness of the plans and their implementation. The permit requires at minimum that MSD shall assist in the review of at least one facility annually if requested. MSD will report on these activities annually.

Tracking and Assessment

In 2011 Metro Louisville requested MSD review SWPPPs for format and completeness of information. MSD provided comments. It is anticipated that there will be other requests. Those activities will be provided in future reports.

Reporting Period July 1 – June 30	PY	Number of Assessments Provided
2010-11		1
2011-12	1	
2012-13	2	
2013-14	3	
2014-15	4	
2015-16	5	

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
Y	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = Planning / In Progress; Red = Overdue; Blue = Changed

TABLE 2.7 M

TABLE 2.7 - M	
SWQMP ID	M Monitoring Plan Maintenance and Update
2.7.1	Long-Term Monitoring Network (LTMN)
2.7.2	Monitoring Summary
2.7.3	Trend Analysis
2.7.4	Flow Estimate to Support Quarterly Ambient Monitoring
2.7.5	Monitoring Location Maintenance
2.7.6	Precipitation Estimate
2.7.7	Water Quality Standards
2.7.8	Location Mapping
2.7.9	Sampling Methodology and Test Procedures
2.7.10	Annual Data Summary

M	Monitoring Plan Maintenance and Update

Long-Term Monitoring Network (LTMN)

SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.1	The permittee shall continue the existing program of the collection of long-term data on stream quality and habitat for at least 25 LTMN locations selected to support the various types of data collected. This program includes: · Continuous – pH, conductivity, temperature, dissolved oxygen, percent dissolved oxygen and stream flow. · Once Every Two Years – Biological sampling and/or evaluation rotating to include: algae, fish and benthic macro invertebrates. · Quarterly – Ambient monitoring for TSS; TDS; Fecal Coliform; E. coli; Oil and Grease; BOD5; COD; Lead, Total Recoverable; Cadmium, Total Recoverable; Copper, Total Recoverable; Zinc, Total Recoverable; Dissolved Phosphorus; Total Phosphorus; Total Ammonia Nitrogen (as N); Total Kjeldahl Nitrogen (as N); Nitrate plus Nitrite Nitrogen (as N); and pH · 5/month (May-October) - Recreational monitoring for fecal Coliform. · 1/month (May-October) – Recreational monitoring for E. coli.	Annually	Permittee shall provide datasets electronically with annual report.	Monitoring Completed	No	Being Implemented

Progress Summary Narrative

Monitoring was performed quarterly, in September 2010, December 2010, March 2011 and June 2011, at the Long Term Monitoring Network locations. Sampling events are scheduled in advance and the schedule does not vary based on the weather except in rare instances when safety might be jeopardized. That did not occur during this report year. Twenty five percent of the samples were collected during wet weather, defined for this purpose as a minimum of 0.10" of rain within the 8 hours prior to the time of the sample.

A total of 3,218 analytical results from the 30 monitoring locations were compared to applicable water-quality criteria for aquatic life in the warm aquatic habitat. Criteria for acute as well as chronic exposure were used in the comparison. At least 5 additional samples were collected per month at each location and analyzed for fecal coliform for comparison to Kentucky's primary recreational contact criteria. The monitoring data is attached on the compact disc in Appendix 2.7.1 to this report.

Tracking and Assessment

Monitoring data is located in Appendix 2.7.1 including locations.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Monitoring Summary						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.2	The permittee shall provide a summary of monitoring collection efforts and results in the annual report.	Annually	Permittee shall summarize and include in annual report.	Monitoring Completed	No	Being Implemented

Progress Summary Narrative

For LTMN sites located in waters that are designated as impaired on the 303(d) list that the MS4 discharges into, monitoring will be performed for those pollutants attributed to MS4 sources. While not yet performed the monitoring will be implemented for at least 3 storm events over the course of the permit term. MSD will continue the existing program of long-term data collection of stream quality and habitat at least 25 LTMN locations. The LTMN sampling for this permit includes the addition of monthly E. coli sampling to the existing recreational contact monitoring.

Continuous In-Stream Water Quality and Flow Monitoring - Sonde monitors will be maintained and the data collected by telemetry for pH, conductivity, temperature, dissolved oxygen, percent dissolved oxygen and stream flow. On-line access to this data is maintained by USGS and is not prescribed by this permit.

Quarterly Water Quality Grab Samples - Samples will be collected and analyzed for the following parameters once per quarter at each of the LTMN locations. Sample collection will occur regardless of precipitation except in the case of physical danger to the sample technician.

Seasonal 5/Month Recreational Contact Monitoring - Five grab samples per month during the recreational contact season (May-Oct) will be collected at each of the LTMN locations for fecal coliform. One grab sample per month for E. coli will be collected at each location in conjunction with one of the five fecal coliform samples.

Biennial (Once Every 2 Years) Biological Monitoring - Biologic and habitat sampling and/or evaluation rotating to include: algae, fish and benthic macro invertebrates will be performed every other year at each of the LTMN locations.

Tracking and Assessment

See Appendices 2.7.2 (A) Raw Monitoring Data and 2.7.2 (B) WQ Hardness Table Analyzed with Wet Dry.

M	Monitoring Plan Maintenance and Update

Trend Analysis

SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.3	The permittee shall perform trend analysis to support long-term assessments of local waterways and program performance. Report analysis through the "Synthesis Reports" at least once every permit cycle	Once per permit cycle	Permittee shall, at least once per permit cycle, provide synthesis report.	TBD	No	In Planning

Progress Summary Narrative

Trend analysis to support long-term assessments of local waterways and program performance will be performed by the end of the permit term. As the analyses is performed it will be included in the annual report.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Flow Estimate to Support Quarterly Ambient Monitoring						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.4	The permittee shall utilize total precipitation estimates over the previous twenty-four (24) hour period to estimate flow. When flow is measured with in stream gauging equipment, that data will be utilized rather than precipitation based estimates.	Annually	Permittee shall provide available data and include in annual reports.	Flow Estimated	No	Being Implemented

Progress Summary Narrative

Stream flow is measured by USGS flow monitoring gauges for monitoring stations when available. The flow data is included in the monitoring data in Appendix 2.7.4, USGS Flow Monitoring Data Summary.

Tracking and Assessment

MSD continues its relationship with USGS to maintain the flow monitoring and sonde stations including quality control and data maintenance.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Monitoring Location Maintenance						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.5	The permittee shall continue its collaboration with United States Geological Survey (USGS) on flow gauges and monitoring locations maintenance and data management.	Continually	Permittee shall summarize activities and include in annual reports.	Website	No	Completed / Being Implemented

Progress Summary Narrative

MSD continues collaborate through its contract with USGS wherein MSD operates and maintains the monitors and USGS provides analysis and on-line access to the water quality data at http://waterdata.usgs.gov/ky/nwis/qw.

Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update

Precipitation Estimate

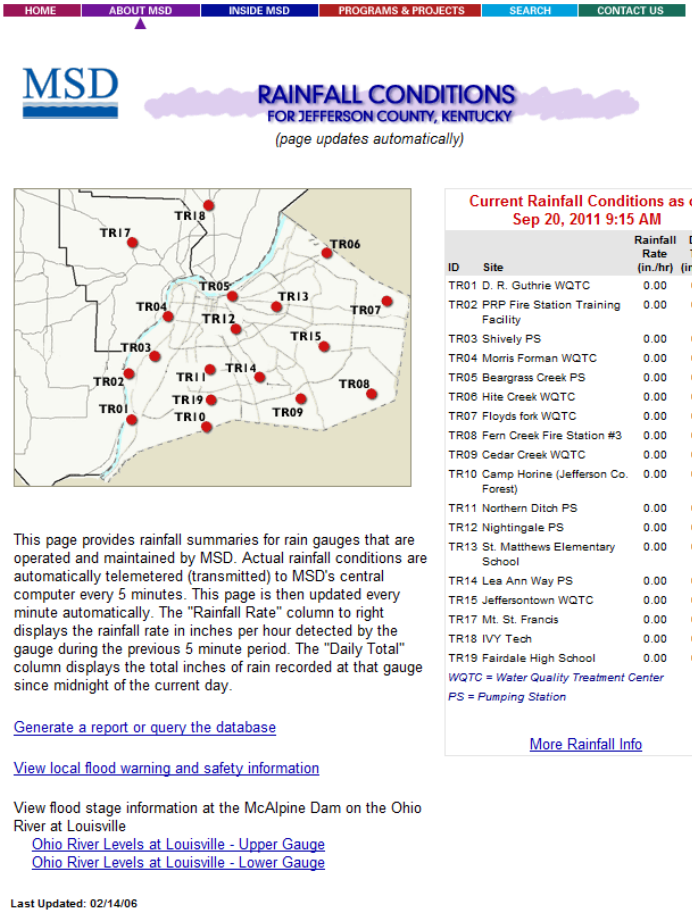
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.6	The permittee shall continue to maintain the continuous rain gauge network and on-line public access to that data.	Maintain	Permittee shall continue to make rain gauge network data available on-line.	Website	No	Completed / Being Implemented

Progress Summary Narrative

MSD continues to maintain continuous rain gauge network and provides on-line public access to that data. This rain gauge network data is currently available on MSD's website, as demonstrated in the Rainfall Conditions figure to the right.

Trends and Assessment

Not applicable.



Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update

Water Quality Standards

SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.7	The permittee shall compare stream monitoring analytical results to the applicable water quality standards for each parameter of the monitoring program. The most stringent applicable standard shall be used for comparison. Constituents that exceed applicable Water Quality Standards shall be highlighted. The permittee shall include a discussion of possible pollutant sources through the annual report	Annually	Permittee shall apply the most stringent standard.	Annual Summary of Findings	No	In Planning

Progress Summary Narrative

MSD will compare analytical results of the stream monitoring to the most stringent applicable water quality standards for each parameter of the monitoring program. Constituents that exceed applicable Water Quality Standards shall be highlighted. When data indicate that illicit discharges may be present that are causing or contributing to exceedances of applicable water quality standards, follow-up investigation will be performed per IDDE procedures. MSD will refine the IDDE procedures during permit year one.

Tracking and Assessment

Historical data is available to perform trend assessments. Water quality trends will be determined during the current permit cycle.

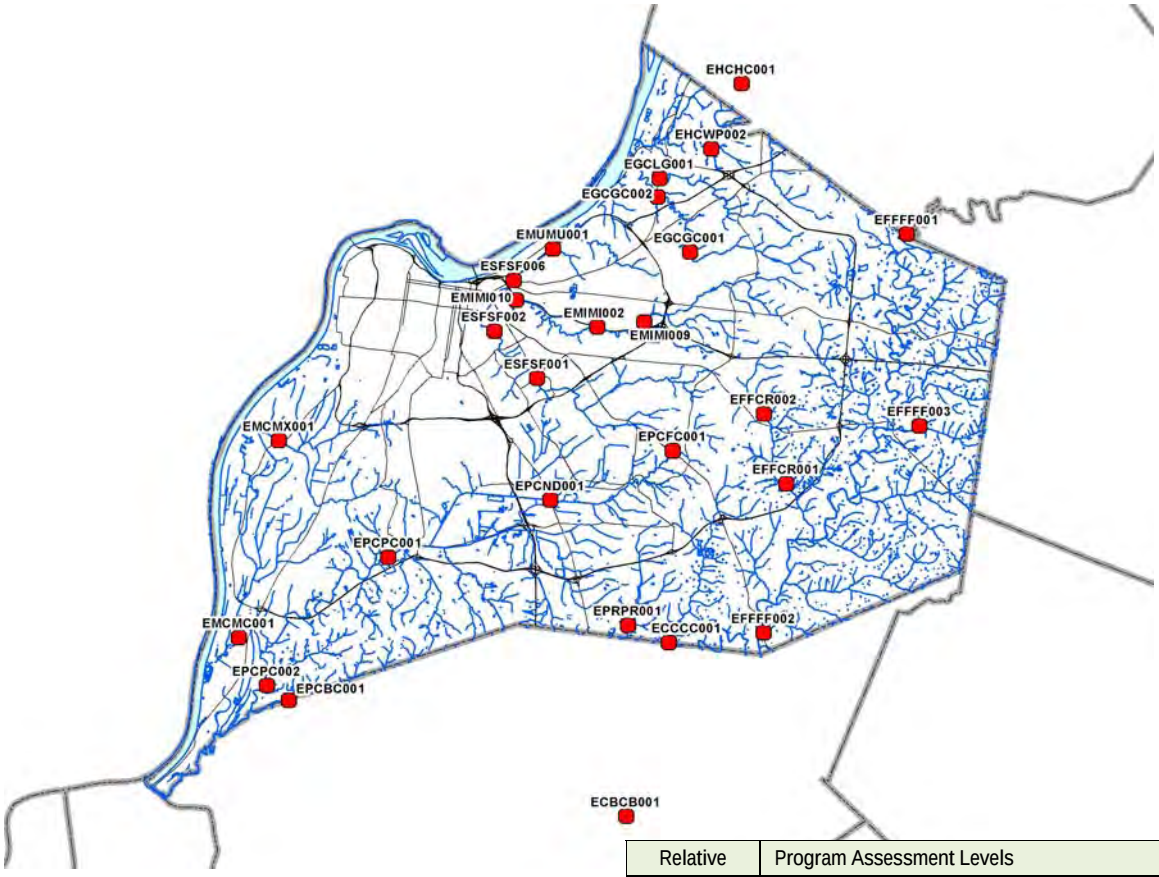
Relative	Program Assessment Levels
Y	Level 1: Activity Measures
Y	Level 2: Raise Awareness
Y	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Location Mapping						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.8	The permittee shall maintain the geo-coded monitoring station locations and descriptions through related geographic datasets and databases.	Maintain	Permittee shall maintain the monitoring stations reflected in mapping system.	Maps	No	Completed / Being Implemented

Progress Summary Narrative

The LOJIC database maintains geocoded LTMN monitoring station locations and descriptions.



Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Sampling Methodology and Test Procedures						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.9	The permittee shall perform the sampling methodology according to the EPA stormwater application regulations at 40 CFR 122.26. The permittee shall perform the analyses according to the procedures approved under 40 CFR Part 136, unless other test procedures have been specified.	Annually	Permittee shall perform the sampling methodology to insure compliance with 40 CFR 122.26 and 136.	Report	No	Completed / Being Implemented

Progress Summary Narrative

Sampling methodology is conducted according to the EPA storm water application regulations. Analyses are conducted according to procedures approved under 40 CFR Part 136.

Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
N	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
N	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

M	Monitoring Plan Maintenance and Update					
Annual Data Summary						
SWQMP ID	Activity Required	Schedule	Frequency or Measure of Success	Result	Propose Change	Status
2.7.10	The permittee shall submit a stormwater monitoring report annually. The monitoring reports shall include: status of implementation of the monitoring program, methods of evaluating data, graphical summaries of the data, and an explanation/discussion of the data for each component of the monitoring program. The monitoring data/results obtained each year will be submitted electronically with the annual report. A narrative data analysis shall be submitted annually within the annual report.	Annually	Permittee shall provide a summary electronically with the annual report.	Report	No	Completed / Being Implemented

Progress Summary Narrative

See Chapter 5 of this report for Summary of Monitoring Program.

Trends and Assessment

Not applicable.

Relative	Program Assessment Levels
Y	Level 1: Activity Measures
N	Level 2: Raise Awareness
N	Level 3: Changes in Behavior
Y	Level 4: Reduce Pollutant Loading
N	Level 5: Improve Stormwater Quality
Y	Level 6: Receiving Waters

Status Key: Green = Completed / Being Implemented, Yellow = In Planning / Progress; Red = Overdue; Blue Changed

TABLE 2.8 PAR

TABLE 2.8 - PAR	
SWQMP ID	**PAR**
2.8.1	Activity Measures Reporting
2.8.2	PEOPLE
2.8.3	Illicit Discharge Trend Analysis
2.8.4	Industrial / IDDE Compliance Actions Portal
2.8.5	Post-Construction Inspection Portal
2.8.6	Six-Level Program Assessment Methodology
2.8.7	Cooperative Annual Report

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Activity Measures Reporting						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.1	As described in the specific activity listings, the permittee shall compile information necessary to provide in an annual compliance report. The metrics defined by "Measure of Success" shall be reported and kept for program assessment purposes. The permittee shall track the appropriate metrics through existing databases/spreadsheets to support staff assignments and budget development.	Annually	Permittee shall develop and retain annual reports for three years beyond permit term.	Completed Annual Report	No	Completed / Being Implemented

Progress Summary Narrative

MSD compiles the information necessary to provide in annual compliance demonstration reports. The metrics defined by the "Targets / Measures of Success" are reported and kept for program assessment purposes. MSD utilizes other metrics tracked through existing databases/spreadsheets to support staff assignments and budget development.

As applicable, some data may be provided electronically or made available through web applications and not submitted in hard-copy format. In particular, this will be the case for large datasets such as monitoring data and requested GIS data. MSD's Annual Compliance Demonstration Reports will be retained in electronic form for at least three years beyond permit term.

Tracking and Assessment

Tracking for the various metrics is performed by the various MSD departments, utilizing a variety of databases and tools. Regulatory Services staff compiles data for inclusion in annual reports.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
PEOPLE						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.2	The permittee shall develop and implement an activity tracking procedure to support consistent coordination and integrated reporting in a way that enables the variety of MSD staff to report their individual activities, target audiences, and related metric.	End of PY 2. Summarize Annually	Permittee shall, by the end of PY two (2), summarize tracking procedures and results and include with annual	TBD	No	In Planning/ Progress

Progress Summary Narrative

The third cycle permit requires much more detail than previous permits. MSD is in the process of developing and implementing activity tracking procedures. This will support consistent coordination and integrated reporting by the wide variety of MSD staff.

This activity is particularly critical to gathering the pertinent data from the wide variety of staff and MSD business units involved in the PEOPLE activities. A PEOPLE strategic plan has been developed to identify and guide outreach and educational activities for the five year permit cycle. The PEOPLE plan includes ranking criteria for individual outreach activities and will assist MSD in evaluating long term trends in community stormwater understanding. The ranking criteria will help assess social marketing philosophies for effecting behavior change and will provide a mechanism to assign priority and selection of MSD target resource allocation for future program activities. As part of this plan to track the success of the initiatives identified in the PEOPLE MS4 program, surveys will be used to assess behavior influence and measure effectiveness of outreach activities and will be used to direct the new education materials, programs and initiatives. Additional activity reports will be developed as tracking tools to assist MSD staff and partnerships on documenting and reporting activities and attendance.

While MSD has not yet made a final determination regarding the form of the tracking tool, it will likely be a blend of hard-copy and electronic forms to support the variety of staff involved in this effort. It is anticipated that the procedure will include reporting for individual activities, target audiences, and related metrics.

Tracking and Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
N	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Illicit Discharge Trend Analysis						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.3	The permittee shall perform a trend analysis of illicit discharge investigations and enforcement actions over the term of the permit.	PY 5	Permittee shall provide, during PY Five (5) a report of trends and potential implications of IDDE investigations.	TBD	No	In Planning / Progress

Progress Summary Narrative

MSD will attempt to perform a trend analysis of illicit discharge investigation and enforcement actions over the term of the permit, by the end of Permit Year five (5). This will support goal-setting and provide a basis to refocus the illicit discharge identification and elimination activities in the fourth permit term. It is anticipated that this data will also provide insight into the PEOPLE plan needs for the fourth permit term.

Trend Assessment

Not Applicable

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Industrial / IDDE Compliance Actions Portal						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.4	The permittee shall develop strategies and establish a schedule to initiate a Compliance Actions Web Portal supplementing existing databases for functionality for internal use to expedite follow-up inspections of HRIFs.	End of PY 3	Permittee shall, by the end of PY three (3), report progress summarized in annual compliance demonstration report.	TBD	No	In Planning / Progress

Progress Summary Narrative

MSD will investigate tools and other methods to meet this requirement on the schedule established.

Tracking and Assessment

Results will be provided with the annual report for permit year three.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Post-Construction Inspection Portal						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.5	Permittee shall develop strategies and establish a schedule to initiate a Compliance Actions Web Portal for internal use to expedite follow-up inspections of private post-construction BMPs.	End of PY 3	Permittee, shall, by the end of PY three (3), report progress summarized in annual compliance demonstration report	TBD	No	In Planning / Progress

Progress Summary Narrative

MSD will investigate tools and other methods to meet this requirement on the schedule established.

Tracking and Assessment

Results will be provided with the annual report for permit year three.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Six-Level Program Assessment Methodology						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.6	The permittee shall develop an approach to implement [applicable] portions of the six-level program EPA began advocating in 2008 to assist MS4 programs in identifying success and future areas of focus.	Enumerated by end of PY 2 and implemented by end of PY 4	Permittee shall develop approaches enumerated by the end of PY two (2) and implemented by the end of PY four (4).	In place on each activity fact sheet	No	Completed / Being Implemented

Progress Summary Narrative

As a part of the activity reporting fact sheets in the annual report, MSD has provided a quick view of the applicable level. This is illustrated in the lower right hand corner of each activity fact sheet.

Trends and Assessment

Completed

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

PAR						
Cooperative Annual Report						
SWQMP ID	**Activity Required**	**Schedule**	**Frequency or Measure of Success**	**Result**	**Propose Change**	**Status**
2.8.7	The permittee shall coordinate and cooperate with co-permittees in compilation of the annual compliance demonstration reports.	Annually	Permittee shall prepare and submit annual report in a timely manner.	First annual report completed	No	Completed / Being Implemented

Progress Summary Narrative

MSD will coordinate and cooperate with co-permittees in compilation of the annual compliance demonstration reports. Ultimately, the co-permittees will be responsible for their own annual reports, just as they were for their portions of the SWQMP. However, MSD will continue to provide leadership and assistance to the co-permittees as they compile the reports and adjust their programs to best take advantage of the opportunity with MS4 program partners.

Tracking and Assessment

Not Applicable; Co-permittee sections are submitted with annual report.

Relative	Program Assessment Levels
Y	**Level 1: Activity Measures**
Y	**Level 2: Raise Awareness**
N	**Level 3: Changes in Behavior**
N	**Level 4: Reduce Pollutant Loading**
N	**Level 5: Improve Stormwater Quality**
N	**Level 6: Receiving Waters**

Status Key: Green = Completed / Being Implemented, Yellow = In Planning/Progress; Red = Overdue; Blue Changed

3.1 Compliance Activities Report for Louisville Metro Government

Following the merger of the City of Louisville and Jefferson County (Kentucky) in January of 2003, a single Metro Government body was developed and initiated. In January 2007, Louisville Metro Government (LMG) then proceeded to consolidate its agencies into twelve (12) primary departments, all of which report to the Office of the Mayor. These departments, each with separate specialized operations, resources, facilities, and command-control, are specifically organized by function. Ultimately, the overall missions of the departments are to efficiently provide services to citizens in the Metro Area, support departments providing those services, and maintain all operations of the LMG. The Louisville Metro Government Organizational Chart can be found at the following link: http://www.louisvilleky.gov/YourGovernment/ "See Organization Chart".

KPDES Large MS4 Permit

As one of the Co-Permittees with MSD on the Kentucky Pollutant Discharge Elimination System (KPDES) Large Municipal Separate Storm Sewer System (MS4) stormwater discharge permit, it is necessary for LMG to fulfill applicable permit requirements. These requirements are contained within seven (7) MS4 program elements: Illicit Discharge Detection and Elimination (IDDE), Construction Site Runoff Controls (CS), Post-Construction Controls (PC), Good Housekeeping/Pollution Prevention (GH), Public Education/Outreach (PE), Monitoring (M), and Reporting (R).

Through an interlocal agreement with MSD, the primary co-permittee on the KPDES MS4 permit, LMG is not responsible for performing certain tasks. Those tasks are overseen and implemented by MSD. With that being said, the compliance activities included in the permit for which LMG are responsible are documented in this section under applicable program elements. The 2011 MS4 Annual Report is defined by the time period of July 1, 2010 – June 30, 2011.

3.1.1 Illicit Discharge Detection and Elimination (IDDE)

Through the previously mentioned interlocal agreement, MSD performed the following IDDE program tasks on behalf of LMG:
Implement an Aggressive Follow-up Program (IDDE-1)
Stormwater Outfall Location, Structure Inventory and Screening Program (IDDE-2)
Database/Case Tracking System (IDDE-3)
Illicit Discharge/Illegal Dumping Ordinance (IDDE-4)
Education (IDDE-5)

The following IDDE tasks were performed and completed by LMG:

3.1.1.1 IDDE-1: Implement an Aggressive Follow-up Program

When applicable, LMG aggressively initiates follow-up in regards to illicit discharges for the facilities that it governs in correspondence with MSD. Reports are maintained in a HANSEN database regarding hazmat incident response activities performed by LMG.

3.1.1.2 IDDE-2: Stormwater Outfall Location, Structure Inventory and Screening Program

Stormwater asset inventory data is continually supplied to the Louisville-Jefferson County Information Consortium (LOJIC) GIS system through LMG Public Works & Assets GIS team.

3.1.1.3 IDDE-3: Database/Case Tracking System

MSD is primarily responsible for database management. The MetroCall system that uses MIDAS (a common HANSEN software database) was recently updated and expanded to record and track municipal assets and citizen service requests.

3.1.1.4 IDDE-4: Illicit Discharge/Illegal Dumping Ordinance

In an effort to enforce and prevent illegal dumping in the city, LMG adheres to the illegal dumping ordinance. Signs are posted which prohibit dumping at locations that are considered problematic. Related LMG employees are responsible for investigating problem dumping areas on a regular basis, and responding to resident complaints. Numerous local ordinances were reviewed during the previous permit cycle prior to re-adoption. The Floodplain Management Ordinance was re-adopted with no modifications. The Hazardous Materials Ordinance, along with the Sewers Ordinance was reviewed by multiple agency and stakeholder committees. Within the Sewer Ordinance (#50), changes were made that ensured clarification and brought the wording in ordinance up-to-date. The Hazardous Materials Ordinance was reviewed by the Hazardous Materials Board comprised of MSD, Fire Department, Public Health and Wellness Department, and Industrial Representative members of that body.

3.1.1.5 IDDE-5: Education

Education is required on revised Wastewater Discharge Regulations (WDRs). MSD distributes informational pamphlets to the public in reference to proper disposal of wastes. These pamphlets are provided to co-permittees as requested for distribution at their educational events. In addition, LMG maintains Codes and Ordinances, in addition to informational pages on requirements for proper disposal of waste, on the LMG website: www.louisvilleky.gov.

3.1.2 Construction Site Runoff Controls (CS)

Through the previously mentioned interlocal agreement, MSD performed the following CS program tasks on behalf of LMG:

Erosion Prevention and Sedimentation Control (EPSC) Plan (CS-1)
Training for Designers/Planners/Developers (CS-2)
Training for Operators (CS-3)
Guidance Materials (CS-4)
Scheduled Inspections of BMPs (CS-5)
BMP Maintenance Schedule (CS-6)

The following CS tasks were performed and completed by LMG:

3.1.2.1 CS-1: Erosion Prevention and Sedimentation Control (EPSC) Plan

LMG re-adopted the EPSC Ordinance as promulgated by MSD after city-county merger in 2003. The ordinance still remains effective and continues to be overseen by MSD to date.

3.1.2.2 CS-2: Training for Designers/Planners/Developers

LMG ensures that appropriate employees attend the EPSC Methods for designers and planners. Topics covered include pre-construction planning (basic development practices), design procedures for structural and non-structural BMPs, pollutant removal (maintenance of the BMPs), and inspections.

3.1.2.3 CS-3: Training for Operators

Numerous LMG employees have participated in and attended the EPSC Training class. All building permits are issued through LMG. The plans must receive approval through MSD and the Health Department before a permit can be issued.

3.1.2.4 CS-4: Guidance Materials

Guidance materials for EPSC plans and inspections are utilized by LMG employees.

3.1.2.5 CS-5: Scheduled Inspections of BMPs

Scheduled inspections of construction sites operated by LMG are conducted specifically by LMG Inspectors. A checklist developed by MSD is completed to assist the inspectors and developers on proper procedures and requirements. In addition, LMG also completes building inspections on an as-needed basis. Bonds are required as part of

drainage and construction projects. LMG notifies MSD if an EPSC violation is discovered at a construction site to follow-up and ensure compliance with the program.

3.1.2.6 CS-6: BMP Maintenance Schedule

A maintenance schedule is required for every structural BMP at every construction site. LMG Inspectors are required to visit respective sites on scheduled occasions, as well as random, non-scheduled site visits. This is done to ensure that the required maintenance schedule is being followed and properly completed.

3.1.3 Post-Construction Controls (PC)

Through the previously mentioned interlocal agreement, MSD performed the following PC program tasks on behalf of LMG:

Watershed Planning (PC-1)
Source Controls (PC-4)

LMG began or continued to perform the following PC Controls tasks and Watershed related programs:

3.1.3.2 PC-2: Pilot BMP Projects

Over the permit term, LMG was required to complete a minimum of three (3) BMP Pilot Projects. The following stormwater BMPs have been implemented by LMG for its operated jurisdiction during the five-year MS4 Permit period:

- LMG increased green space on West Main Street and at Park Duvalle. Phase 1 and Phase 2 of the Park Duvalle redevelopment were completed.

- The 9th Street extension project incorporated vegetated islands and roadside easements into the design.

- Parking lot runoff at four (4) LMG fire stations was redirected to one outfall for treatment. The runoff is filtered at the end of the pipe in order to minimize the amount of petroleum entering the stream.

In conjunction with MSD, LMG required the following BMPs on private development projects:

- Riverport Area – A portion of the Mill Creek drainage channel was dammed to provide water for a wetlands restoration area.

- St. Anthony's Landing – A riparian buffer adjacent to the creek was required to contain wetland vegetation.
- Fern Creek Christian Church – a "Stormceptor" parking lot runoff treatment unit was required to be installed.
- Krogers on Bardstown Road – a "Stormceptor" was to be installed.
- The Big Rock parking lot project in Cherokee Park on Beargrass Creek – pervious pavers were used in the new parking area. The parking area drains into a water quality basin before discharging to Beargrass Creek.
- Norton Commons – several BMPs were required of the developer to protect the water quality of streams, springs and seeps as well as aquatic and terrestrial habitat.
- Woods of Beckley Station – Three retention basins were installed to control runoff volume.
- Little Spring Farm – numerous water quality basins were specified to capture the first one-half inch of runoff. The basins were planted with wetland vegetation. Open space was also been incorporated into the design.
- Glenmary Village – a water quality basin with a sand filter was installed.
- Southern Farms – the approved plan included wetlands enhancement as well as development of a stream buffer.
- As described in Section 3, a "Green Roof" was officially installed on the Metro Development Center, 444 S. Fifth Street, in 2007-2008. A second green roof is projected for the Metro Archives building, 635 Industry Road.

3.1.3.4 PC-4: Source Controls

Pollutants in runoff are controlled by LMG after the termination of construction activities to the maximum extent practicable by requiring developers to comply with a "Post-Construction" checklist. For its own facilities, LMG maintains approved Hazardous Material Spill Prevention and Control (HMPC) Plans. Oils and associated fluids from LMG fleet vehicles are collected and properly recycled or recovered. Salt storage is maintained by LMG in covered buildings, on impermeable surfaces, and away from storm drains. LMG presents a diked area for refueling fleet vehicles so that spills are controlled and maintained. Secondary containment is present, where necessary, for associated storage of materials at LMG facilities. LMG initiated a recycling program for condominiums and maintained existing recycling services. Dumpsters and trashcans located within the Urban Service Area of LMG must be covered in order to minimize litter and leakage. Wheeled trash containers with lids are

provided by LMG to 80,000 households in the Urban Service Area. No plastic garbage-filled bags are allowed at trash pick-up sites.

The third of three federally-declared natural disasters related to weather hit Louisville when an unprecedented cloudburst storm caused extensive flash-flooding on August 4, 2009. LMG suffered extensive damages to its owned facilities and thousands of residents had basements, cars and even entire homes flooded. LMG established drop-off sites for flood-damage debris that included furniture, clothing, carpeting, drywall and other construction materials, appliances, toys, etc. These sites remained open for months as volunteer crews assisted residents in removing and repairing flood damaged walls, insulation, floors and possessions.

3.1.4 Good Housekeeping/Pollution Prevention (GH)

Through the previously mentioned interlocal agreement, MSD performed the following GH program tasks on behalf of LMG:

Catch Basin Cleaning (GH-3)
Storm Sewer Cleaning (GH-4)
Channel Maintenance Tasks (GH-5)

The following GH tasks were performed and completed by LMG:

3.1.4.1 GH-1: Street Maintenance

During street maintenance projects involving construction activities, BMPs suitable for use will be utilized to protect storm sewers, ditches, and streams. Examples of these types of BMPs include: inlet and outfall protection, silt fences to keep sediment from entering streams, employee awareness, and etc. Adjacent catch basins will be fitted with temporary sediment traps to provide protection.

LMG adheres to the EPSC General Permit requirements. LMG continued housekeeping and stormwater pollution prevention tasks:

- Use of gravel bags around street maintenance project areas to minimize debris and soil getting into a stream.
- Street maintenance performed as needed; debris is removed by hand and taken to a landfill.
- Street maintenance projects are generally small in nature; normally completed within a day.
- The projects are seeded and straw is placed on-site the same day.
- If a project exceeds a day, debris is removed from the site 2-3 times a week.

- Plans suitable for use in construction projects, such as inlet and outfall protection and anti-erosion sediment/silt fences are used to protect storm sewers, ditches, and streams during street maintenance projects involving construction activities.
- Adjacent catch basins are fitted with temporary sediment traps to provide protection.

3.1.4.2 GH-2: Street Sweeping

All curbed and uncurbed streets located within the Urban Services District are subject for sweeping and flushing litter, debris, and leaves on a regular cleaning schedule by LMG. Street sweeping is scheduled from March through November. Street cleaning is determined by temperature/weather conditions from December to February. Approximately 130 miles of main arteries are swept in a given week. All debris that is collected is properly disposed of in nearby landfill.

The Metro Central Business District is defined as the area bound by Hancock on the east, Fifteenth Street (15th) on the west, Broadway on the south, and the Ohio River on the north. A vacuum truck and street sweepers clear debris from sidewalks and curbs in this area. This area is typically swept daily. Exceptions to this schedule are made for various neighborhood festivals and/or special events. Street sweeping for special and major events include: Blitz-cleanups, Derby Festival events (Mini Marathon, Thunder Over Louisville, Pegasus Parade route and float staging area, Kentucky Oaks, and the Kentucky Derby, as well as sweeping of the parking lots at the University of Louisville, Light Up Louisville, Mayor's Hike and Bike Sweep, Portland Festival, Cherokee Art Festival, Light Up Louisville, and St. James Art Festival and many other community events.

In the Urban Service District (formerly the City of Louisville), which spans an area covering eleven (11) neighborhood divisions, streets are swept using three-wheeled zero-turn street sweepers instead of Vac-Alls, and the streets are pre-wetted by water sprayer trucks to minimize dust. Streets are swept an average of three times a year, approximately 1,500 curb miles annually. Viaducts within the Urban Service Area are swept monthly. In addition to this monthly sweeping, eight viaducts are designated for more frequent manual cleaning. High tree density sections of the Urban Service Area are swept each fall for leaves. Residents of high tree density areas are instructed to compost leaves onsite or place them in paper bags for collection. LMG collects yard waste weekly; the collected waste is then composted.

LMG continues to manage street sweeping activities in the Suburban Area, covering three sectors: Eastern Suburban, Central Suburban, and Southwestern Suburban. The work is performed by a private contractor, and covers approximately 722 curb miles of just the main thoroughfares.

Street sweeping activities were reduced in recent years due to storm debris clean-up efforts throughout the Metro area. These efforts were focused primarily on storm

debris left behind from natural disasters that impacted the Metro area beginning in 2008 and continuing into the current reporting year.

3.1.4.3 GH-6: Pollution Prevention (De-Icing Operations)

To ensure safety and ease for traveling during the winter months, routes for snow removal and de-icing within LMG are primarily maintained by four (4) coordinating agencies: Public Works-Operations and Maintenance Division, Public Works-Solid Waste Management Division, Metro Parks, and the Metropolitan Sewer District (MSD). The Public Works-Operations and Maintenance Division is responsible for majority of the routes, 94 to be exact. Public Works-Solid Waste Management Division covers 15 routes, Metro Parks maintains 12 routes, and MSD maintains 10 routes. Additional LMG routes are operated by the Kentucky Transportation Cabinet, District 5.

Of the 3,362 total miles of roads in the community (including major thoroughfares, school routes, hospital routes, and arteries that connect major employers), one-third (1,362 miles) of those are cleared by LMG. Through the Kentucky Department of Transportation (District 5), small cities, and private contractors, one-third (1,000 miles) of the major roads and streets in Jefferson County are cleared by the state. The remaining one-third (1,000 miles) is considered neighborhood streets and are not cleared. Among the Snow Fleet contributors, routes may potentially be adjusted (expanded or reduced), as needed. Snow Fleet response is based on continual monitoring of local weather forecasting and local road temperatures.

In a continual effort to keep citizens safe on Louisville roads, and to keep the city moving during the winter months, a Metro Snow Fleet is utilized. The Metro Snow Fleet is compromised of two Public Works & Assets divisions (Operations and Maintenance, Solid Waste Management), Metro Parks department, and auxiliary support from MSD. Specifically, the Snow Fleet includes approximately 261 LMG employees and 130 trucks/associated equipment. Approximately 169 trucks/associated equipment are used Metro-wide during snow/ice operations. In addition, the Snow and Ice Removal Plan and routes are reviewed annually by qualified Snow Coordinators.

An annual meeting is conducted for these agencies in which snow removal and de-icing operations are thoroughly discussed, and the most efficient techniques are evaluated. LMG actively searches new application techniques, practices, and technologies to ultimately reduce potential detrimental environmental impacts.

LMG encompasses seven (7) salt storage facilities, including four (4) domes, located throughout the Louisville metro-area. Approximately 19,500 tons of salt were stored within these salt storage facilities in the reporting year. An additional 20,000 tons of salt were stored underground for emergency reserve. A new state contract with LMG has

initiated the added storage of 3,000 tons of salt aboveground in the upcoming year. Before application, salt is pre-wetted with liquid calcium chloride, which is based on the temperature at the time of application. Calcium chloride allows the salt to melt ice at colder temperatures. Light-utility or medium/heavy dump trucks conduct salt spreading. As part of the agency pre-season snow fleet preparation, the associated salt spreaders are checked and reset or recalibrated as needed. Based on the speed of the truck, salt spreaders are set for predetermined rates of application.

Brine solution was incorporated into LMG pre-event wetting in 2004, and currently continues to expand its use to the greatest extent possible. Salt spreading pretreatment was replaced by the use of the newly introduced brine solution. The solution adheres to pavement, which leads to melting and direct sublimation at lower temperatures. It also prevents snow from sticking to pavement, making it easier to remove with snow plows during heavy snowfall events. Twenty-three (23) brine distributors, each with a 1,600 gallon capacity, are mounted on snow fleet dump trucks during the winter months. Brine storage occurs at five strategic locations throughout the LMG area, and a brine mixer system (generates 5,000 gallons of solution per hour) is utilized for efficiency.

Magic -0°, an anti-icing additive, is used as an additional component added to the brine mixture during winter months de-icing operations. This additive allows LMG to apply brine at a much lower temperature (i.e. below 30 degrees). LMG stores approximately 10,000 gallons of pure Magic -0° solution, which is considered to be biodegradable. The solution is typically mixed at 15% with brine. The remaining amount after completing treatment is stored in separate 10,000 gallon containers at LMG Operations and Maintenance districts. Not only is this technique more effective in keeping thoroughfares safe and clear, but it is also considered more efficient by reducing the amount of road salt/calcium chloride needed to accomplish the task.

There have been no changes in the application process from the previous year. However, to account for the additional road mileage with the state contract, 8 units will be added to the de-icing operations. LMG tracks the amount of de-icing materials on an annual basis. For the reporting period included in this Annual Report, LMG expended the following amounts: calcium chloride – 45,204 gallons, brine – 147,799 gallons, Magic -0° - 6,032 gallons, and salt - 16,692 tons.

In conjunction with the Louisville Jefferson County Information Consortium (LOJIC), the LMG Public Works & Assets department operates a "Snow Removal Center" accessible online. An interactive snow routes map is available on the site. The interactive map allows the public easy access to the real-time status of snow removal on routes by simply entering an address. Designated snow routes accessible during storm events can be located through the "Snow Removal Center." The mapping feature and additional information regarding de-icing operations is available to the public online at:

www.louisvilleky.gov/PublicWorks/snowremovalcenter.htm.

3.1.4.4 GH-7: BMP Inspections

LMG has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain GH program tasks. MSD performed the GH-7 BMP Inspections on behalf of LMG.

3.1.4.5 GH-8: BMP Maintenance

LMG has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain GH program tasks. MSD performed the GH-8 BMP Maintenance on behalf of LMG.

3.1.4.6 GH-9: Pollution Prevention (Herbicides and Pesticides)

LMG Public Works & Assets department uses herbicides and pesticides to control weeds and vectors in vacant lots that are owned by Metro. With the increased number of natural disaster occurrences within the reporting year, the amount of spraying decreased. Approximately 9,500 gallons of herbicide was sprayed on medians and Metro-owned properties. A new program that focuses on herbicide pruning for specific rural roadways is currently in its infancy within the Operation and Maintenance division of LMG Public Works & Assets department. The program is projected to be implemented in 2009-2010, following the selection of appropriate product and determination of application rates.

The Metro Parks department uses herbicides on golf courses and at some parks while the LMG Public Health and Wellness department uses fogs, pellets and briquettes for mosquito control. Employees who apply pesticides are trained and certified as Pest Control Applicators.

Community Approach to Mosquito Control: This program was initiated in 2003 after West Nile Virus became a health issue for the community. In 2002, there were 28 confirmed human cases of West Nile Virus in the metro-area, including two West Nile Virus related deaths. The LMG Health and Public Wellness department continued to lead this coordinated effort of agencies in Metro to address mosquito control efficiently and minimize duplication of efforts. The program includes pesticide applicator certification training for those responsible for larvacide application throughout the environment, and coordination among various Metro agencies to complete the task. In addition, public education, focused on mosquito control by removal of containers of standing water where mosquitoes breed, is provided. In coordination with MSD, pesticide/larvacide treatments are applied to all catch basins in the Metro area. However, weather can have a major impact on treatment efficiency. Due to the increase in rainfall in recent months, treatment may have been hindered. The overall goal is to utilize a community-wide approach to efficiently reduce the mosquito population in

Metro Louisville and subsequently reduce mosquito-borne disease transmission, while coordinated efforts to reduce standing water and minimize the over-application of pesticides, improving the health and quality of life for the nearly 700,000 residents. The program is a collaborative effort of eight departments of LMG agencies and private businesses. The community partners include Jefferson County Public Schools, Louisville Water Company, Churchill Downs, the Louisville Gas and Electric Company and MSD. These partners work to eliminate standing water on their property or service/maintenance area, apply larvacides where a mosquito problem is not controlled by removal of standing water, and educate the public on mosquito control activities. More than 200 employees comprised of these agencies are trained annually in safe handling of pesticides in Louisville, compared to the limited number of Health and Wellness department employees previous years. The program continues to play a vital role in controlling mosquito populations throughout the Metro area, providing public health protection and also ultimately contributing to stormwater pollution prevention.

3.1.4.7 GH-10: Continuation of Existing Programs

In general, all applicable LMG facilities have approved and implemented HMPC plans. Oils and associated fluids from LMG fleet vehicles are properly collected, recovered and recycled. Secondary containment is provided, where necessary, for associated materials. LMG salt storage continues to remain under covered buildings, on impermeable surfaces, and away from storm drains. A recycling program for condominiums has been initiated and existing recycling services maintained. Dumpsters and trashcans are required to be covered in order to minimize litter and leakage within the Urban Service Area of LMG. Wheeled trash containers with lids are provided to 80,000 households in the Urban Service Area. Plastic garbage-filled bags are not allowed at trash pick-up sites.

A variety of key solid waste management programs, including once-a-week garbage, yard waste, and recycling collections for Urban Service Area residents (single family to eight-family dwellings) have continued to play a vital role in reducing stormwater pollution:

Semi-Automated Pilot Cart program
This program provides 80,000 large wheeled trash bins with lids to households in the Urban Service Area. This program helps prevent animals from scattering garbage from open containers or ripping open plastic bags. In 2008, approximately 60,000 tons (total) of residential garbage were collected in the Urban Services District (formerly the City of Louisville). Each household averaged about 1,290 pounds. This was a decrease of about 11,298 tons total or 218 pounds per household from 2005.

Fully-Automated Litter Containment Program

This program replaced old wire-mesh trash baskets with covered, plastic trash baskets. These trash baskets are located throughout downtown Louisville and prevent liquid and small sized debris from falling out of the trash baskets.

Semi-Annual Junk Drop Off
The Division of Solid Waste Management provides an opportunity for twice-a-year junk and bulk waste drop-off for all households in the Louisville Metro area. While this junk drop-off is primarily intended to service residents in the Suburban Areas without regular curbside junk collection, it is open to all residents of Louisville Metro.

The free drop-offs are generally held in April and October of each year. The drop-off is scheduled on weekends each year. However, due to storm debris recovery, a spring drop-off was not held during the reporting year. During the fall drop-off event, 169 tons of "junk" was sent to the local landfill, and 11 tons were recycled. The dates are posted on the Solid Waste Management division calendar or additional information can be determined by phoning MetroCall at 311 or 502.574.5000.

The free drop-offs accept bulky junk items such as appliances, furniture, mattresses, etc. Metal items are separated and recycled, and Freon® is properly removed from appliances. The drop-offs will not accept: tires, propane cylinders, fire extinguishers, liquids, hazardous wastes, computer monitors, or yard waste. The free drop-offs are held at the Waste Management Outer Loop Landfill, which cosponsors the events.

Quarterly Junk Pick-Up
LMG continued to hold quarterly residential collections called "Project Pickup" for bulky items. LMG Public Works & Assets – Solid Waste Management division continued collection, however, due to the city's budget shortfall; the 2009 quarterly junk schedules were available to all households in the Urban Services District (formerly the City of Louisville) online. The paper reminder notices were not mailed. The Urban Services District is divided into 11 areas and the corresponding brochures are sent to the specific areas. In 2006 The 54,195 tons of junk collected through the quarterly junk pickup program, junk items brought by residents and businesses to the Waste Reduction Center and the semi-annual junk drop-offs was an increase of about 3000 tons of bulk waste collected over the previous year.

During the reporting year, disposal efforts were largely focused on storm debris recovery throughout the Metro area.

Haz-Bin
LMG Solid Waste Management division continued to operate the Haz-Bin, the household hazardous waste drop-off center. The center takes a variety of materials including: solvents and degreasers, pesticides/herbicides/fungicides/insecticides, lawn and garden chemicals, oil-based paint or lead paint, automotive fluids, fertilizers, and any other household toxic, corrosive, reactive and ignitable wastes. On designated

days, appliances may be accepted at the Grade Lane site and are recycled. Non-asbestos roofing shingles are also recycled. The Haz-Bin household hazardous waste drop-off location is available to all residents of the Louisville Metro area. No waste is accepted from businesses. The location is open on Wednesdays and Saturdays from 9 AM to 3 PM. Haz-Bin is located at 7501 Grade Lane (just north of Outer Loop).

Health and Wellness: Hazardous Materials

The Environmental Health and Protection Division of the LMG Department of Public Health and Wellness provide a variety of community services. Restaurants, swimming pools, and wastewater treatment plants are inspected routinely. Complaints regarding mosquitoes, dog bites, lead paint, toxic spills, sewage, and other environmental hazards are also investigated. Health Education is offered to serve the public regarding environmental health issues.

Specifically, the Hazardous Materials program responds to hazardous material (chemical, biological or radiation) releases 24 hours a day, 7 days a week. Responses are made at the request of a fire district or when public health and safety is threatened. Program staff routinely works with all LMG Fire Districts, MSD, LMG Emergency Management Agency and Metro Police. As part of a regional framework, the program will respond to surrounding counties when requested.

Program staff is trained to perform many functions at a hazardous materials incident, including:

- Determine the health impact to the community by the release
- Assist the responding agencies to ensure responder safety
- Utilize air monitoring and other equipment to determine the material released and to make a hazard assessment
- Advise responsible parties to ensure proper clean up after the release

In addition, associated program staff investigates improper disposal, environmental crime and indoor air quality complaints during regular business hours. Training is provided to external agencies in areas of their expertise.

Neighborhood Clean-Ups

For organizations executing neighborhood clean-ups, LMG provides rakes, garbage bags, gloves and special pick-ups. Operation Brightside organizes and coordinates its anti-litter activities with the Solid Waste Management division of LMG Public Works and Assets department.

Waste Reduction

LMG Public Works & Assets department, specifically the Solid Waste Management division, houses the Waste Reduction Center. This center is open year-round and accepts bulk and household items. Residents are charged a fee depending on the

quantity of the items. Scrapped metal items and appliances from the Waste Reduction Center, as well as any Freon® or hazardous materials are recycled and/or recovered under contract. Up to four used tires are accepted from residents. Tires are shredded onsite and marketed for beneficial reuse.

Yard Waste

LMG continued to ban the landfill of yard waste. Yard waste is collected and taken to a compost facility. Yard waste is collected weekly in the Urban Services Area. Yard waste and bulk woody waste were collected in the Urban Services District and turned into compost. Each fall, LMG also establishes four suburban leaf drop-off sites. Citizens can drop off leaves as long as they are not bagged. If they are bagged, citizens must unload and take bags with them upon leaving. The composting facility sells the final product back to residents for $20 per small pickup truck load. In late December and early January, Christmas tree recycling was held at three (3) LMG locations in the Metro area. For every 5 trees recycled, approximately 35 pounds of mulch can be generated to help nourish new plant and tree growth. Each year, the tree-cycling program produces roughly 6 tons of mulch, which, in turn, is used by Metro Parks, Operation Brightside, and the public. The drop off locations for leaves and Christmas trees are advertised on the radio and mentioned during local newscasts.

Composting Program

The Louisville Zoo composts manure and straw and sells the product as "zoodoo". Manure and bedding from the Kentucky State Fairgrounds and Churchill Downs are marketed to private composters. LMG Solid Waste Management division of Public Works & Assets department collects grass, leaves and other yard waste separately from garbage and delivers that material to a local compost facility.

Anti-Litter Program

Programs funded by a state grant consist of three litter pickups on Interstate highways during the winter months; three times per season sweeping of main arterials in the suburban area; and a dedicated Corrections Department litter pickup crew. In 2008, LMG received a state grant in excess of $384,000 for litter control. LMG spends about $2 million dollars every year to clean up litter and trash, including:

--Making corrections officials available to supervise inmate crews on cleanup patrols.
--Providing support services for organized neighborhood cleanups including debris and trash bag collection, sidewalk sweeping and walk-behind vacuums.
--Removing illegal signs from right-of-ways including utility poles.
--Providing trash receptacles for downtown pedestrian traffic.
--Contracting to remove litter along highways and interstates.
--Educating the public on how litter impacts our community and changing behavior.

General Recycle Programs
Household pick-up and Metro area drop-off locations were continued by LMG for recycling. LMG's overall recycling programs diverted approximately 15,620 tons from the solid waste stream during 2008. This number is more than double the number reported for 2007. The total number of the solid waste stream diverted due to recycling programs for 2009 (January – July) is approximately 15,890 tons.

Curbside Recycling
LMG continued Curbside Pick-up Recycling in the Urban Services Area. Orange plastic containers are provided by LMG for residential recycling of glass, metal, and all types of recyclable plastic, newspaper, cardboard and other household paper items are accepted for recycling.

Recycling Drop-Off Centers
LMG currently houses 17 recycling drop-off centers, 5 staffed and of 12 non-staffed. The centers are located at public buildings and fire stations throughout the Metro area. The most recent addition to the Recycling Drop-Off Centers is located at E.P. Tom Sawyer Park, 3000 Freys Hill Road. In addition to accepting residential recycle items, staffed centers received household hazardous waste, household and automotive batteries, used oil/filters/antifreeze turn-ins, ink-jet and toner cartridges, and some lawn/yard waste. Staffed recycling centers have been issued and implement a HMPC Plan equip with training and spill prevention/control materials.

Paper Recycling
The Business Office Paper Recycling Program collected nearly 431 tons of mixed office paper in 2008. The number of participants continued to increase and tonnages are up by over 28 tons from the previous year. Approximately 240 tons of mixed office paper has been collected from January through July of 2009. Funds redeemed are re-distributed within LMG. For instance, in previous years funds were given to Operation Brightside to plant trees in the Metro area.

Phone Book Recycling
LMG conducts old telephone book recycling collection twice a year, once in the spring (normally March) and then again in autumn (normally late October). This program is implemented to coincide with the issuance of the new white pages and yellow pages. Businesses and residents were encouraged to recycle their books by placing them in special containers at two locations – one in the suburban area and one in the downtown area. Tonnage of telephone books recycled for the entire year of 2008 was 47.05 tons. In the spring event (2009), the tonnage of telephone books recycled was 2.82 tons. The program is accomplished through partnership with Inland Service Corporation, Kroger, and Waste Management of Kentucky.

Free Document Shredding Event

The Annual Free Document Shredding event was held at the Louisville Zoo. Residents and businesses were able to shred their sensitive documents and learn how to protect against identity theft. Items brought in for shredding included: documents, discs, hard drives, credit cards and other confidential materials. All paper materials were shredded on-site and recycled to make materials such as compost, tissues, and toilet paper. The event was made possible through the generosity of a local shredding company, Shred-It, by donating its services and equipment. Annually, the event results in more than 20 tons of material being recycled.

Cyber-Cycle Program: Electronic Systems

Electronics contain a variety of hazardous metals, such as cadmium and lead, which require special handling. Computer monitors can contain as much as 27% lead by weight. Components on circuit boards can contain acids and PCBs which must be processed and kept out of the environment. Electronics also contain plastic, steel and valuable metals such as gold and copper that can easily be recovered and reused. This program allows LMG to accept and recycle electronics items including computers, scanners, printers, monitors, tape and disk drives, electronic game systems, VCRs, CD players, digital cameras, copiers, cell phones, CD's and floppy disks. Commercial-sized copiers, servers and printers will be considered as business equipment and charged accordingly. The program is available to all Louisville Metro residents and businesses and is both convenient and environmentally friendly. Residents are allowed to dispose of three items or systems per visit at no charge. In 2009 the Mayor announced expansion of the program to accept televisions and microwaves.

Eliminate and Recycle Gas-Powered Lawn Mowers

Through a partnership with the Metro Air Pollution Control District (APCD), gas-powered lawn mowers and other equipment are accepted for recycle annually. As an incentive to reduce air pollutants from lawn maintenance equipment, APCD's KAIRE (Kentuckiana Air Education) and "Lawn Care for Cleaner Air" program issues rebates of up to $100 for each gasoline-powered lawn equipment item that is recycled and replaced with electric or human-powered items. In addition, this program offers lawn-maintenance professionals a $50 per unit rebate to trade in their old trimmers and backpack blowers for new, low-emission 4-MIX trimmers and 4-MIX backpack blowers. Rebates are available year-round.

The LMG Recycling Center located at Hubbards Lane now accepts lawn care equipment year round. However, the other LMG Recycling Centers will only accept lawn maintenance equipment from March through September. The Recycling Center must be accepting lawn equipment for you to get the official notarized rebate certificate (green). The Waste Reduction Center accepts riding mowers; the other locations cannot.

3.1.4.8 GH-11: New and Recent Programs

Recycling Scales
LMG Solid Waste Management division secured a grant from the Commonwealth of Kentucky to provide assistance for implementing and administering additional recycling programs in the Metro area. The grant was to help encourage new and expanded business participation in recycling by offering businesses a means to quantify and report recycling volumes. By retrofitting an existing rear-loading waste collection vehicle with an on-board scale and using a companion communications system, Solid Waste Management personnel is able to record and report volumes of recyclables to participating businesses. LMG will be able ensure recycling is available in all of the government buildings. The goal of the program is to increase recycling by 25% within the organization.

Drug Toss
The annual Medication Disposal Program, also known as "Drug Toss," was held at various locations throughout the Metro area. The program is a partnership between Kentucky Senior Medicare Patrol (SMP), AARP Kentucky, Catholic Charities Senior Services, Kentucky Indiana Planning & Development Agency (KIPDA), Franciscan Health Care Center, Metro Police, LMG Solid Waste Management, Senior Pharmacy Solutions and TRIAD. Prescription and over-the-counter medications should never be flushed down a toilet or drain or thrown in the trash. The medications can contaminate drinking and ground water or release toxic pollutants into the air. The program promotes the proper disposal of expired or unused medications to ultimately prevent drinking and ground water contamination. The event collected more than a half-ton of old or expired medications from residents. Metro Police collected and properly disposed of hundreds of pounds of pills and liquid medicines, and LMG Solid Waste Management recycled the pill containers.

Adopt-A-Mile
Adopt-A-Mile (formerly Green Mile) anti-litter campaign operated by Brightside is similar to the Adopt-a-Highway on state-maintained roads. Adopt-A-Mile allows groups or businesses to keep stretches of Metro roads clean and litter-free. Groups that sign up receive recognition on special signage at the site. More than thirty different organizations, some with multiple locations, maintain these "green" miles. Dozens of cleanups were sponsored during the reporting year, recruiting nearly more than 100 volunteers. Keeping Metro area roads clean and litter-free prevents stormwater pollution.

Partnership for a Green City & LMG Climate Change Initiatives
In 2005, Mayor Abramson signed the US Conference of Mayors' Climate Protection Agreement, which pledges to reduce Metro area carbon emissions 7 percent over 1990 levels by 2012. In autumn of 2007, LMG initiated a joint Climate Change Study Group

of LMG, University of Louisville, and Jefferson County Public Schools, sponsored by the Metro Air Pollution District. In the first quarter of 2008, LMG awarded a contract to begin measuring the Metro area's green-house gases/carbon footprint. Data was collected from various partner agencies and other sources by the contract with initial data due out from the contractor in August 2008.

Louisville's efforts are being implemented by a community-wide stakeholder group under the auspices of the Partnership for a Green City. Louisville's Climate Change Committee had its first meeting in December 2006. The committee's goal was to prepare a report to the leadership of the Partner entities that recommends strategies to mitigate the community's greenhouse gas emissions and to prepare for the impacts climate change may have locally. The final Climate Action Report can be found here: http://www.louisvilleky.gov/APCD/ClimateChange/Report.htm.

Energy Star
Louisville was chosen as one of five priority partner cities for the EPA Energy Star program. A team of city representatives continues to work closely with the federal EPA program to measure energy use in city-owned buildings. Energy Star is showcasing Louisville as a model for other cities trying to implement environmentally-friendly practices.

3.1.5 Public Education/Outreach Programs (PE)

Public education and outreach programs in Louisville focused on citizen involvement have been very successful, and continue to be a vital component in keeping Louisville clean and green. Through the previously mentioned interlocal agreement, MSD performed the following PE program tasks on behalf of LMG:

Volunteer Monitoring Support (PE-4)

LMG began or continued to perform the following numerous PE tasks and programs:

3.1.5.1 PE-1: Public Education Programs

LMG's website, www.louisvilleky.gov, addresses littering, water quality, snow removal, recycling issues, pollution prevention and air quality. Mass mailings are sent to residents once a year detailing the entire recycling program. Solid Waste Management Division of LMG Public Works & Assets department provides presentations and publications to encourage establishment of residential compost piles for yard waste, and annually publishes reminders to resident to keep leaves out of street gutters. In addition, new residents receive this information when they move into the Metro area. Operation Brightside continued to implement Metro environmental education and action strategies, reinforcing LMG's commitment to preserve and enhance the community's environment.

Operation Brightside is a LMG public-private collaboration that promotes civic pride by partnering with citizens to keep our community clean, green and environmentally aware. Brightside organizes community-wide and neighborhood cleanups and involves the community in special projects and programs such as Adopt-A-Mile, the Fred Wiche Award and various environmental education programs. Brightside continued to provide public-private collaboration for environmental improvements and educational programs during the report year. Brightside's Fred Wiche Award honors individuals, groups, and schools for environmental stewardship. Its environmental education collaborations reach into public and private elementary schools throughout LMG, instilling environmental protection values into the next generation.

Eco-Drama-Anti Littering Program/Campaign

Eco-Drama, which used to be provided free of charge to all Louisville third grade classrooms, is an environmental education program coordinated in partnership with Stage One Children's Theatre. Eco-Drama provided students and educators with an active approach to exploring environmental issues with drama based instructional strategies. Budget cuts during this report year curtailed this program.

The Partnership for a Green City

The Partnership for a Green City (PGC) began in August 2004, as a collaborative effort to improve environmental education, environmental health, and environmental management by three of Louisville's largest public entities: Louisville Metro Government, the University of Louisville, and the Jefferson County Public Schools. Together, these agencies employ some 25,900 people, enroll 120,000 students, and own more than 500 buildings, 7,000 vehicles, and 25,000 acres of land in Metro Louisville. The Partnership established standing committees, and is currently the source for the Metro Climate Change Study Group begun Autumn 2007 to develop a green-house gas emissions inventory, and as well a generate a green-program initiatives document covering buildings and utilities, urban transportation, fleets, energy use, and land use.

The Partnership emphasizes a community-wide commitment to establish policies, allocate funding, and develop ways-and-means to:

Promote a spirit of Stewardship for all resources

Restore/maintain Ecosystems

Reduce Energy Consumption

Increase Energy Efficiency

Promote use of sustainable energy

Prevent and reduce pollution (air, ground, and water)

Encourage use of public transportation and responsible use of vehicles

Encourage green-design of public, commercial, and residential buildings

Encourage resource recovery and recycling to the greatest extent possible

Green Purchasing: Develop common standards, specifications, and/or contracts for purchase of goods, equipment, and services that are of environmentally friendly, energy efficient, and/or composed of recycled materials.

The PGC Urban Forestry committee is currently undertaking the development of an urban canopy map for the Louisville Metro area, which will ultimately play a role in reducing stormwater runoff volumes. In addition, the PGC has established a Green Infrastructure committee. EPA training was completed in November of 2008, and a Memorandum of Agreement focused on green infrastructure projects, under the MSD Consent Decree, is currently being developed.

3.1.5.2 Media Resources

LMG uses all means and media available to inform the public, and encourage citizen and community involvement, on a wide range of environmental protection programs and activities, including littering, recycling, pollution prevention, snow removal, air quality, and water protection. LMG includes related information on its website at www.louisvilleky.gov, and features informational messages on the Metro TV channel. LMG distributes pamphlets regarding proper disposal of waste to the general public, and to MSD and to co-permittees for distribution at their educational events. Established Codes and Ordinances to describe and enforce provisions for this and other environmental protection programs are implemented within LMG.

3.1.5.3 Litter Control PE-3

The Mayor's anti-litter campaign stretches across Metro to work towards a litter free Louisville. The campaign includes many different government departments as well as citizen groups and individual volunteers. The campaign starts with cleaning up litter that is already on the ground. The campaign also looks for innovations and improvements to prevent litter through education and media relations. LMG also addresses enforcement of litter laws.

"Litter-Free Louisville" Initiatives

Environmental education and volunteerism have strong traditions in the Metro community. Operations Brightside organizes and supports community cleanups, beautification areas, and the local Adopt-A-Mile program. Brightside oversees more than 75 Bright-Sites throughout the Metro area, and involves the community in special projects and programs such as the Fred Wiche Award and environmental education programs.

3.1.6 Monitoring (M)

LMG has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform the Monitoring program requirements.

3.1.7 Reporting (R)

LMG has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform the Annual Reporting requirements. LMG provides information on implementation of the MS4 permit requirements to MSD.

3.2 COMPLIANCE ACTIVITIES REPORT FOR THE CITY OF ANCHORAGE

The KPDES Large MS4 stormwater discharge permit program requirements are classified into seven Program Elements, each designated with an acronym. The Program Elements include: Illicit Discharge Detection and Elimination (IDDE), Construction Site Runoff Controls (CS), Post-construction Controls (PC) Good Housekeeping/Pollution Prevention (GH), Public Education/Outreach Programs (PE), Monitoring (M) and Reporting (R).

The Co-Permittees individually and collectively continue to perform the required activities specified in KPDES Permit # KYS000001. This subsection will focus on those activities for which the City of Anchorage, Kentucky was responsible during the permit period and will document the compliance tasks performed by City of Anchorage during the period of July 1, 2010 – June 30, 2011.

3.2.1 Illicit Discharge Detection and Elimination (IDDE)

The City of Anchorage has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain IDDE tasks. Therefore, only those tasks performed by the City of Anchorage are listed in this report. MSD performs illicit discharge investigation and follow up throughout Louisville Metro, including the City of Anchorage. Previously, most of the City of Anchorage did not have sanitary sewers. With the June 2008 completion of the Hazelwood Extension of its sanitary sewer, the City of Anchorage brought 95 properties previously on septic systems onto an MSD-operated sewer system. Of the 775 residences in Anchorage, 389 are now on MSD-operated sewer systems.

3.2.1.1 Illicit Discharge / Illegal Dumping Ordinance IDDE-4

The City of Anchorage enforces its illegal dumping ordinance and posts signs that prohibit dumping at locations that are problem areas. City of Anchorage staff investigates areas regularly and responds to resident complaints.

3.2.1.2 Provide education on the revised Wastewater Discharge Regulations IDDE-5

The City of Anchorage provides education on their local ordinance(s) that prohibit illicit connections and illegal dumping. The City of Anchorage has marked all Catch Basins throughout the City with markers informing the public that there is no dumping into the basins and that these basins drain to local creeks. All commercial properties and the Anchorage school system have marked all their Catch Basins. The City of Anchorage monthly newsletter periodically contains information on the prohibition of dumping into catch basins and drains, and proper disposal of leaf and grass debris.

3.2.2 Construction Site Runoff Controls (CS)

The City of Anchorage has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain CS program tasks. MSD administers the Erosion and Sediment Control Ordinance. The City of Anchorage requires contractors to show proof of EPSC Certification before they can obtain a Zoning Compliance Certificate. Public Works checks worksites to insure EPSC measures are in place.

3.2.2.1 Erosion Prevention and Sediment Control Plan (EPSC) CS-1

An EPSC Plan with provisions for Best Management Practices (BMPs) to keep sediment on-site (silt fence, staked bales, sediment ponds, gravel mats, etc.) and to capture sediment that would enter local or on-site drainage systems is required for any new development operated by the City of Anchorage.

The City of Anchorage has an approved EPSC General Permit issued by MSD for Public Works activities.

3.2.2.2 Training for Operators CS-3

The City of Anchorage ensures that appropriate staff members attend training for equipment operators and construction managers that describes the proper installation and maintenance of construction site BMPs. The Director of Anchorage Public Works attended the EPSC training class and became re-certified in December 2011.

3.2.2.3 Scheduled Inspections of BMPs CS-5

The City of Anchorage city officials check construction sites to ensure that the EPSC Ordinance is being followed. The City of Anchorage contracts with a local consulting firm which assists the city in EPSC related issues. The City of Anchorage reviews plans to ensure the proposed work does not increase or divert stormwater runoff. The City of Anchorage requires specific drainage retention plans when the construction plans call for a 20% or more impervious area.

3.2.3 Post Construction Controls (PC)

The City of Anchorage has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain PC program tasks. MSD performs the PC-1, Watershed Planning, Post Construction tasks on behalf of the City of Anchorage. In 2010, the City worked with a developer building a large addition on a home. Builder and homeowner designed a rain garden for retention of new impervious surface drainage. In late 2010 and early 2011, Anchorage worked with MSD, a contracted engineering firm, and the bank-appointed developer for Forest School Estates to review, and modify the drainage plan for the development which included the cleanout and regrading of the development's detention basin.

3.2.3.1 Pilot BMP Project PC-2

Over the permit term, the City of Anchorage was required to complete a minimum of three BMP Pilot Projects. Anchorage adopted and continues a policy to not install curbs on city streets so that runoff filters through nearby pervious areas. Residents are required to outlet downspouts into yards or channel to French drains to filter runoff before it enters a stream. The City's Annual Canopy Campaign is an effort to repopulate the tree canopy within the City of Anchorage, especially adjacent to roadways. During the last report year, 542 one+ inch caliper trees were planted at a cost of $5,200.00. An additional 59 1.5 inch caliper trees were planted in the fall of 2010 for the City's annual Canopy Campaign. The City of Anchorage has a tree preservation ordinance that requires one tree replacement for every tree removed. The City of Anchorage has an on-going hazardous tree removal program for trees in the City's right-of-ways. Dead or dying trees are removed, and other trees are pruned, as needed. Trees removed by the Anchorage Public Works Department are chipped up and given to a local Anchorage resident who turns it into compost and reuses on his properties. The City of Anchorage has been a "Tree City USA" for 22 years.

3.2.3.2 Built-Upon Area Reductions PC-3

The City of Anchorage adopted the Land Development Code provisions of Cornerstone 2020. Many provisions in the Land Development Code version that Anchorage follows favor smaller homes than traditional zoning allows so that there is a reduction in impervious surface. The streets are narrower and easements adjacent to the drainage swales are wider in order save trees and to provide more green space. The City of Anchorage's floor-area-to-open-space ratio requirement requires more open space than Louisville Metro's floor-area-to-open-space ratio. Residents are required to outlet downspouts into yards or French drains to filter runoff before it enters a stream. The City of Anchorage requires lots with more than 20% of impervious surface to have alternative measures in place to retain on the lot excess stormwater created by the additional impervious surface. Often recommended are rain gardens, dry wells, French drains, retention ponds, etc.

3.2.3.3 Source Controls PC-4

City of Anchorage facilities have approved HMPC plans. The City of Anchorage maintains salt storage in a covered building. The salt under roof is also covered with tarps. The City of Anchorage has reduced its refueling area for fleet vehicles to 60% of its previous capacity with a reduction of 90% less vehicle use. Prior to 2007, police, fire, EMS, and public works used the refueling area. Only public works uses the refueling area at this time. The area remains diked so that spills are controlled and maintained. A spill management system manages any spilled fuel in the dike area, and allows rainwater to be removed without causing erosion to the ground. The City of Anchorage investigates downspout connectivity to the streams. Residents are required to daylight their downspout or direct to a French drain rather than flow entering the stream directly.

3.2.4 Good Housekeeping / Pollution Prevention (GH)

City of Anchorage Public Works employees use earth-friendly, biodegradable cleaners for washing vehicles and equipment. By agreement with the Anchorage Fire Department, all public works vehicles that are heavily soiled (dirt, salt, asphalt, etc.) must be washed inside the Anchorage Firehouse. The Firehouse has a containment pit to catch the material so it can be disposed of properly.

3.2.4.1 Street Maintenance GH-1

The City of Anchorage follows the EPSC General Permit requirements. Street maintenance in Anchorage is performed on an as-needed basis. During any roadway repair all remaining unused material is swept up and disposed of properly. Staked bales and silt fencing are used to minimize impacts of construction. Public roads are constructed without curbs, allowing the runoff to be filtered through the nearby grasses.

3.2.4.2 Street Sweeping GH-2

The City of Anchorage picks up trash along all of the roadways within its city limits bi-monthly or more often, if needed. A Litter Abatement spreadsheet can be reviewed with the Public Works Director showing miles of road cleaned, number of bags collected and total cost. The City of Anchorage uses a leaf vacuum to keep the culverts and ditch lines clear of leaves during the fall. Leaves collected throughout the fall are given to a local Anchorage resident who turns it into compost and reuses it on all his properties. Road culverts are cleaned weekly in the fall to

remove leaves. A City of Anchorage stormwater management and control ordinance requires property owners to maintain both natural and man-made drainage channels. It is unlawful for to deposit leaves, grass clippings, or other forms of debris in the drainage channels.

3.2.4.3 Catch Basin Cleaning GH-3

Catch basins are checked and cleaned by hand before and after each rain event, if necessary. Outlets are plugged so that debris cannot get into the stream. This debris is taken to a landfill.

3.2.4.4 Storm Sewer Cleaning GH-4

Storm sewer cleaning is performed on a scheduled basis and as needed. Through an agreement with the Anchorage Fire Department, the Anchorage storm sewers are flushed with a high-pressure hose and the debris is collected and taken to a landfill as needed.

3.2.4.5 Channel Maintenance GH-5

Grass channels in Anchorage are mowed no lower than 6-inches. Debris is removed from channels and sent to a landfill. Concrete channels are cleaned of sediment manually. Staked hay bales and silt fencing are required during channel maintenance.

3.2.4.6 Pollution Prevention for De-Icing GH-6

The City of Anchorage calibrates salt spreaders annually. Salt spreaders are adjusted to minimize the amount of overspray. The salt is pre-wetted with calcium chloride and Magic Salt. The City of Anchorage does yearly Internet research and employees attend training to learn about new application technologies. Anchorage uses a brine road pre-treatment for ice and snow weather conditions. In addition, the City now uses liquid “Magic Salt,” a distillers’ by-product combined with magnesium chloride, as an additive to salt. Regular salt treated with Magic Salt melts ice in weather as low as zero degrees, reducing the total amount of regular salt used to remove snow in Anchorage. Pushing the snow off the roadway is the preferred method for snow removal.

3.2.4.7 BMP Inspections GH-7

Good Housekeeping/Pollution Prevention BMPs are inspected regularly by the Maintenance Director.

3.2.4.8 BMP Maintenance GH-8

Good Housekeeping / Pollution Prevention BMPs are maintained on a regular basis.

3.2.4.9 Pollution Prevention for Herbicides and Pesticides GH-9

The City of Anchorage uses minimal amounts herbicides and no lawn pesticides. In the last three years The City of Anchorage has used no pesticides and only minimal herbicides, and is committed to continue on this course.

3.2.4.10 Continuation of Existing Programs GH-10

An outside contractor continues to collect municipal waste, yard waste and recyclables weekly. The yard waste is taken to a compost site. Approximately 79% of the City of Anchorage residents participate in the recycling program. The City of Anchorage utilizes a private contractor to reclaim its used oil and antifreeze. The city maintains a collection tank for used oil.

3.2.5 Public Education/Outreach Programs (PE)

In a large metropolitan area, the impact of the actions of the citizens can cause great harm to the environment if the actions are careless or uninformed, or can have great benefit if the actions are positive. Individual behavior repeated by many people has a cumulative effect.

3.2.5.1 Public Education Programs PE-1

Water quality issues are discussed in the monthly newsletter and on the City of Anchorage's website at www.cityofanchorage.org. The website includes information on the City of Anchorage's Tree Preservation Program and the Stormwater Management Permit. The newsletter has contained information on the recycling program, leaf pick-up schedules, rain gardens, swimming pool drainage, and mosquito control. The City of Anchorage produced a "Forestry Handbook" which is free to Anchorage residents. The City is works with developers who install innovative rain gardens for stormwater control, and encourage the developers to allow the City and other organizations to observe the installation, and become more educated about rain gardens and stormwater retention and quality.

3.2.5.2 Earth Day PE-2

The City of Anchorage does not have separately planned activities for Earth Day, but they do celebrate Arbor Day. Coordinated through the Anchorage Forestry Board, Arbor Day's celebration focuses on tree-related activities often coordinated with the Anchorage Public School. Past activities have included planting seedlings, identifying tree species, clearing invasive plants, spreading wood chips on the Anchorage horse trails, the Emerald Ash Bore, and replacing dying trees.

3.2.5.3 Litter Control PE-3

Youth organizations, the Anchorage Civic Club, and residents of City of Anchorage hold a "Clean Up Anchorage Day" in the spring. The city supplies the garbage bags and is responsible for disposing of the collected debris. In addition, the City's Public Works Department regularly collects litter and debris from public right-of-ways.

3.2.5.4 Internal Training PE-5

The assistant to the Mayor of Anchorage and public works director have attended MS4 presentations by MSD staff. All public works employees will receive SWQMP training three to four times a year. Training will be in the area of IDDE, IDE-4, CS, CS-3 etc. Other areas of training will be spill prevention, disposal of contaminates, etc.

3.2.6 Monitoring (M)

The City of Anchorage has an interlocal agreement with MSD to perform the Monitoring requirements of the MS4 permit.

3.2.7 Reporting (R)

The City of Anchorage provides information on implementation of the MS4 permit requirements to MSD. The City of Anchorage has an interlocal agreement for MSD to prepare the Annual Report.

3.3 COMPLIANCE ACTIVITIES REPORT FOR THE CITY OF JEFFERSONTOWN

The City of Jeffersontown has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain tasks. This subsection will focus on those activities for which the City of Jeffersontown, Kentucky was responsible during the permit period and will document the compliance tasks performed by City of Jeffersontown during the period of July 1, 2010 – June 30, 2011.

3.3.1 Illicit Discharge Detection and Elimination (IDDE)

3.3.1.1 Illicit Discharge / Illegal Dumping Ordinance IDDE-4

The City of Jeffersontown enforces its illegal dumping ordinance and posts signs that prohibit dumping at locations that are problem areas. City staff investigates problem dumping areas regularly and responds to resident complaints. The City has established a database entry portal called Community Awareness Tracking System (CATS) that is a first line quick response system used to track complaints and concerns from the community in an effort to minimize the response time to various community issues. It controls the proper direction of the particular issue to the appropriate department.

The City also regularly performs site inspections of various known dumping sites in an effort to provide and improve enforcement of ordinance.

3.3.1.2 Provide education on the revised Wastewater Discharge Regulations IDDE-5

The City of Jeffersontown bimonthly newsletter periodically contained information on proper disposal of leaf debris.

The City continues the newsletter and has expanded this notice and education to the City's web site and general notices sent home with schoolchildren.

3.3.2 Construction Site Runoff Controls (CS)

The City of Jeffersontown has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain CS program tasks.

The City manages and maintains a general permit with MSD and DOW regarding runoff. Also the City has two employees certified with BMP for EPSC. The City is looking at certifying all Team Leaders of the City public works department.

The City has increased it inspections of development activity within the City during the construction process not only for City projects but general development activity.

3.3.2.1 Erosion Prevention and Sediment Control Plan (EPSC) CS-1

The City of Jeffersontown has an approved EPSC General Permit issued by MSD for Public Works activities.

The City manages and maintains a general permit with MSD and DOW regarding runoff. Also the City has two employees certified with BMP for EPSC. The City is looking at certifying all Team Leaders of the City public works department.

The City will be developing an education handout that will highlight the basic requirements for EPSC practices on Jeffersontown development activity as well as educating the public on what to look for while going about their everyday lives.

Within the next two reporting periods the City plans to map all existing storm water drainage ditches where erosion and sediment control may warrant mitigation or monitoring.

3.3.2.2 Scheduled Inspections and Maintenance of BMPs CS-5 & 6

A City of Jeffersontown city official checks construction sites to ensure that the EPSC Ordinance is being followed.

The City manages and maintains a general permit with MSD and DOW regarding runoff. Also the City has two employees certified with BMP for EPSC. The City is looking at certifying all Team Leaders of the City public works department.

The City will be developing an education handout that will highlight the basic requirements for EPSC practices on Jeffersontown development activity as well as educating the public on what to look for while going about their everyday lives.

3.3.3 Post Construction Controls (PC)

3.3.3.1 Pilot BMP Projects PC-2

Over the permit term, the City of Jeffersontown was required to complete a minimum of three BMP Pilot Projects. Jeffersontown implemented a no-mow forest restoration area on a steep slope of Veteran's Park above Chenoweth Run. The wooded riparian buffer along Chenoweth Run is protected in city easements. Approximately 80% of City of Jeffersontown's grass channels have at least a ten-foot buffer strip, which filters runoff before it reaches the stream.

The above projects are an ongoing project to provide that oversight. In addition, the City recently developed a bike/pedestrian trail along a floodplain and existing development and did manage BMP standards through the project.

The City completed several smaller drainage improvement projects where rear yard drainage swales have over the years began to carry increasingly more water from surrounding development activity. The City in an effort to mitigate erosion and sediment deposits along these areas implemented a drainage improvement project where a series of methods were developed to alleviate these problem areas. The City would either provide a paved ditch invert, installed yard drains to minimize surface runoff or regrade the swales by establishing positive drainage.

The City completed a drainage improvement project along the rear of homes along three streets that were eroding and causing silt to be transferred downtown stream. The City re-graded and stabilized the earth swale as well as several roadside swales that were holding water and creating erosion problems within a residential neighborhood.

The City is constructing a bicycle/pedestrian trail system through Veterans Park. This trail has a couple drainage improvement projects associated with the development of the trail. The City plans to turn an eroding and high volume of water ditch line into an attractive water feature that will mitigate the existing problem of erosion and sediment deposits downstream. The City hopes to turn this area into an attractive landscaped and vegetative buffer area.

4.5.3.2 Built-Upon Area Reductions PC-3

The City of Jeffersontown adopted the provisions of Cornerstone 2020.

3.3.3.3 Source Controls PC-4

City of Jeffersontown facilities have approved HMPC plans. All salt storage areas and refueling areas are covered. All dumpsters located within the City of Jeffersontown must be covered and fenced.

The City continues to monitor these point source areas and maintains a high level of control for possible runoff.

The City is in the process of updating all documents utilized to record the various activities of the City. Updating and creating new checklists, proper procedures for various activities such as storm water management, hazardous material, point source places etc.

The City anticipates funding a drainage mapping project with the FY11/12 budget year. This mapping project will take a proactive approach to analyzing all drainage areas within Jeffersontown. It will map existing drainage easements, major detention/retention basins, catch basins, drainage hotspots and stream corridors. This project will be community wide. It will identify areas that are underserved by easements which make it difficult for the City to make the necessary improvements to improve drainage in a particular area. The goal is to gain a more comprehensive understanding of the drainage issues relative to Jeffersontown and a proactive approach to securing additional easements where necessary to restore positive drainage and minimize erosion, sediment deposits and flooding.

3.3.4 Good Housekeeping / Pollution Prevention (GH)

3.3.4.1 Street Maintenance GH-1

The City of Jeffersontown follows the EPSC General Permit requirements. Street maintenance in Jeffersontown is performed on an as-needed basis. Silt fencing is used during maintenance activities.

The City continues the above measures and incorporates additional project management of general street maintenance. BMP standards are utilized for general maintenance.

3.3.4.2 Street Sweeping GH-2

The City of Jeffersontown performs vacuum sweeping five days per week, except in winter months. City of Jeffersontown vacuums all heavily traveled roads. This debris is sent to a landfill.

3.3.4.3 Catch Basin Cleaning GH-3

Jeffersontown catch basins are vacuum-cleaned as needed. This debris is sent to a landfill.

The City recently (2007) collaborated with MSD to implement the FROG No dumping! Drains to our creeks" program whereby we traversed the City placing decals on catch basins promoting the no dump provisions. This was in conjunction with our annual "Spruce Up" Jeffersontown clean program whereby it is a community wide event to pick up litter, clean debris from streams and other parts of the city. It also visits all catch basins, detention basins and drainage courses to make sure they are free of debris that would block positive drainage.

Summer of 2010 the City continued the expanded "Spruce Up" program aimed at educating the public on the importance of minimizing erosion and sediment deposits, litter and the importance of a clean and green community. This expanded program was titled *"Clean ~n~Green" – Growing and Shaping our Vibrant City*. The program was expanded to include several additional programs beside litter control (see flyer attached). The notable programs are: "Gaslight Clean Up"-- This is a City wide clean-up day aimed at not only litter control but education of the importance of a clean community and the impact litter/trash has on the environment and the effects to water quality. "Gutter Gremlins"- By sweeping the City and clearing the way for drainage and roadway debris, catch basins can function properly and minimize water flooding neighborhoods and streets. In a most instances maintaining an effective drainage system will minimize the possibility of erosion and sediment deposits. "Bright Spot" –This program explores places that could become a bright spot for the City instead of an area that may hold water, continue to erode or otherwise be unattractive. By developing a vegetative environment relative to these features will enhance the community feel while providing a balance between surface runoff and storm water management planning. "Tree Treasure Program"- An educational and sponsorship program that supports planting trees throughout the City and along riparian ways. Developing a strategy for plantings will create a stable environment to promote good stewardship of the land. "Recycle-Reuse-Renew Environmental Educational Program"—this program will create educational materials and interactive field trips to learn more about protecting wetlands, floodplains, erosion, stormwater runoff and pollutants along with developing an understanding of air quality issues and climate changes impact on communities. "Jefferson Gardens"- Gardening is therapeutic and promotes an active lifestyle. This program includes community gardening to promote a healthy lifestyle, flower and vegetative gardening to promote absorption of storm water runoff (i.e. rain gardens). This program will develop a strategy for the utilization of this concept inside of the storm water management procedures of the City.

3.3.4.4 Storm Sewer Cleaning GH-4

Jeffersontown storm sewers are vacuumed as needed.

The City recently (2007) collaborated with MSD to implement the FROG No dumping! Drains to our creeks" program whereby we traversed the City placing decals on catch basins promoting the no dump provisions. This was in conjunction with our annual "Spruce Up" Jeffersontown clean program whereby it is a community wide event to pick up litter, clean debris from streams and other parts of the city. Jeffersontown staff visits all catch basins, detention basins and drainage courses to make sure they are free of debris that would block positive drainage. This

initiative is still communicated through other forms of media to continue educating the public on where storm drains lead and the importance of not dumping anything down the catch basins and storm drains.

See the expanded "Spruce Up Jeffersontown" program as described in **4.5.4.3 Catch Basin Cleaning GH-3** above. **Note the Gutter Gremlins Program, Gaslight Clean Up and the Recycle, reuse, renew environmental educational program.**

3.3.4.5 Channel Maintenance GH-5

The City of Jeffersontown has a fulltime ditch crew that cleans concrete channels as needed. Grass channels are maintained on a regular schedule. Debris removed from drainage channels is sent to a landfill.

The City recently (2007) partnered with MSD to implement the FROG No dumping! Drains to our creeks" program whereby we traversed the City placing decals on all catch basins promoting the no dump provisions. This was in conjunction with our annual "Gaslight Clean Up" Jeffersontown clean program whereby it is a community wide event to pick up litter, clean debris from streams and other parts of the city. It also visits all catch basins, detention basins and drainage courses to make sure they are free of debris that would block positive drainage.

The City developed a bicycle/pedestrian master plan that developed broad goals and objectives as well as policy issues relative to educational elements of floodplains, erosion and sediment control and the impact to streams and drainage ways. The City is developing an educational material and worksheet program that will be used to engage the students of the surrounding schools. The Bike/Pedestrian Trail will be used to conduct this educational training series as well as other means.

See the expanded "Spruce Up Jeffersontown" program as described in **4.5.4.3 Catch Basin Cleaning GH-3** above. **Note the Gutter Gremlins Program, Gaslight Clean Up and the Recycle, reuse, renew environmental educational program.**

3.3.4.6 Pollution Prevention for De-Icing GH-6

The City of Jeffersontown calibrates their salt spreaders as needed. Salt and sand are applied at the beginning of the storm to minimize the amount of salt required.

3.3.4.7 BMP Inspections GH-7

Good Housekeeping / Pollution Prevention BMPs are inspected regularly by the Public Works/Maintenance Director.

The City is in an effort to certify more public works employees as to broaden the City's effort to provide adequate oversight of various construction project within the City both city projects and area development activities.

3.3.4.8 BMP Maintenance GH-8

Good Housekeeping / Pollution Prevention BMPs are regularly maintained.

3.3.4.9 Pollution Prevention for Herbicides and Pesticides GH-9

Appropriate Jeffersontown employees are licensed by the Commonwealth of Kentucky for herbicide application.

3.3.4.10 Continuation of Existing Programs GH-10

The City of Jeffersontown has a contractor to collect municipal waste, yard waste and recyclables weekly. Fifty percent of residents within the city participate in the recycling program. The City of Jeffersontown picks up appliances with Freon and has a contractor recycle these appliances. The City of Jeffersontown utilizes Louisville Metro's used oil and waste program. The city maintains a collection tank for used oil.

Summer of 2009 the City expanded the ~~-~~spruce up" Jeffersontown program to include public education to the effects of litter, trash, and illegal dumping. It will also provide beautification efforts to promote a healthy lifestyle and balance between the environment and everyday living. It will educate the community on erosion and sediment control, floodplains and floodways, pollution of streams and water quality efforts to protect wildlife and the human element. The expanded program is called ~~-~~Jeffersontown Clean ~n~ Green" (see brochure attached).

See the expanded ~~-~~Spruce Up Jeffersontown" program as described in **4.5.4.3 Catch Basin Cleaning GH-3** above. **Note the Gutter Gremlins Program, Gaslight Clean Up, Recycle, reuse, and renew environmental educational program, Bright Spot, and Jefferson Gardens.**

3.3.5 Public Education/Outreach Programs (PE)

3.3.5.1 Public Education Programs PE-1

The City of Jeffersontown due to budget constraints did not issue any newsletter within this reporting period but did provide downloadable information, services and participation opportunities available to the public through the Jeffersontown website, http://www.jeffersontownky.com/. These included articles/handouts on recycling and yard waste as well as the pollution prevention activity, catch basin cleaning and general dumping requirements.

Summer of 2009 the City launched an expanded ~~-~~Spruce Up" program aimed at educating the public on the importance of minimizing erosion and sediment deposits, litter and the importance of a clean and green community. This expanded program was titled *"Clean ~n~Green" – Growing and Shaping our Vibrant City*. The program was expanded to include several additional programs beside litter control (see flyer attached). The notable programs are: ~~-~~Gaslight Clean Up"-- This is a City wide clean-up day aimed at not only litter control but education of the importance of a clean community and the impact litter/trash has on the environment and the effects to water quality. ~~-~~Gutter Gremlins"- By sweeping the City and clearing the way for drainage and roadway debris, catch basins can function properly and minimize water flooding neighborhoods and streets. In a most instances maintaining an effective drainage system will minimize the possibility of erosion and sediment deposits. ~~-~~Bright Spot" –This program explores places that could become a bright spot for the City instead of an area that may hold water, continue to erode or otherwise be unattractive. By developing a

vegetative environment relative to these features will enhance the community feel while providing a balance between surface runoff and storm water management planning. ~~"~~Tree Treasure Program"- An educational and sponsorship program that supports planting trees throughout the City and along riparian ways. Developing a strategy for plantings will create a stable environment to promote good stewardship of the land. ~~"~~Recycle-Reuse-Renew Environmental Educational Program"—this program will create educational materials and interactive field trips to learn more about protecting wetlands, floodplains, erosion, stormwater runoff and pollutants along with developing an understanding of air quality issues and climate changes impact on communities. ~~"~~Jefferson Gardens"- Gardening is therapeutic and promotes an active lifestyle. This program includes community gardening to promote a healthy lifestyle, flower and vegetative gardening to promote absorption of storm water runoff (i.e. rain gardens). This program will develop a strategy for the utilization of this concept inside of the storm water management procedures of the City. The City has made good progress on expanding this program by reaching out to community groups such as ROTC, Boy Scouts and other school service projects to connect them with the importance of keeping the streams, channels, ditches and drains free of debris and dumping.

3.3.5.2 Earth Day PE-2

The City of Jeffersontown does not hold separate Earth Day activities but organizes ~~"~~Clean N Green Jeffersontown" which promotes the national event. The residents pick up litter and clean creeks.

3.3.5.3 Litter Control PE-3

Youth organizations, civic clubs and residents of the City of Jeffersontown participate in various ~~"~~Clean N Green" Programs within Jeffersontown. The city supplied the garbage bags and was responsible for disposing of the collected debris.

The City also provides litter abatement 5 days a week by utilizing work release programs to maintain a level of standards for litter abatement.

See the expanded ~~"~~Spruce Up Jeffersontown" program as described in **4.5.4.3 Catch Basin Cleaning GH-3** above. **Note the Gutter Gremlins Program, Gaslight Clean Up, Recycle, reuse, and renew environmental educational program, Bright Spot, and Jefferson Gardens.**

3.3.5.4 Internal Training PE-5

The City of Jeffersontown's mayor, city administrator and maintenance director have attended MS4 presentations and Project XL meetings held with MSD staff.

The City is also preparing to send more employees to the EPSC certification training course in an effort to maximize the public educational level. The City also provides brown bag luncheons of new trends and programs that could benefit the City and community.

3.3.6 Monitoring (M)

The City of Jeffersontown has an interlocal agreement with MSD to perform the Monitoring requirements of the MS4 permit. Watershed monitoring performed on Chenoweth Run characterized the water quality of the stream within the Jeffersontown MS4.

3.3.7 Reporting (R)

The City of Jeffersontown has an interlocal agreement for MSD to prepare the Annual Report. The City of Jeffersontown provided information on implementation of the MS4 permit requirements to MSD for this report.

3.4 COMPLIANCE ACTIVITIES REPORT FOR THE CITY OF ST. MATTHEWS

The City of St. Matthews, Kentucky has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform required activities specified in the KPDES Permit No. KYS000001. This subsection will focus on those activities for which the City of St. Matthews was responsible during the permit period and will document the compliance tasks performed by St. Matthews during the period of July 1, 2010– June 30, 2011.

3.4.1 Illicit Discharge Detection and Elimination (IDDE)

The IDDE program is intended to detect and eliminate illicit connections and improper disposal to the MS4. St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain IDDE tasks. Therefore, only those tasks performed by the City of St. Matthews are listed in this report. MSD performs illicit discharge investigation and follow-up through out Louisville Metro, including the City of St. Matthews.

3.4.1.1 Illicit Discharge / Illegal Dumping Ordinance IDDE-4

In 2008 the City of St. Matthews put together a hotline list and distributed the list to all its residents via a Newsletter sent to residents four times a year. The intention was to provide a quick and easy to use reference for residents. The hotline provides a directory for city personnel from police to council members. Amongst those numbers on the list is a direct line for individuals to report illegal dumping or illegal discharge into the storm sewer system. The goal is to simplify the reporting process of this illegal act, and to inform the appropriate people so that quick action can be taken. The city has also added this directory of numbers to the St. Matthews website. http://www.stmatthews.org/

Signs are posted in areas which continue to be problem areas. City maintenance staff performs inspections at these sites throughout the year in an effort to reduce dumping & improve enforcement.

3.4.1.2 Provide Education on the Revised Wastewater Discharge Regulations IDDE-5

The City of St. Matthews publishes and distributes a newsletter at least four times per year to all residential property owners within the city limits. This newsletter is an excellent vehicle with which to provide information to the citizens and to alert them to issues and programs that affect the community. In the past, small narratives have been periodically provided to inform residents of drainage problems and ways to report them.

In 2009 the City of St. Matthews added a "Green" page to its website. The "Green" page provides links to various websites, including http://www.louisvillegreen.com, http://www.stormwater.kytc.ky.gov/ http://msdlouky.org, & http://rumpke.com, all of which provide educational material about the Watewater Discharge Regulations.

3.4.2 Construction Site Runoff Controls (CS)

Sedimentation and erosion from land disturbing activities can have severe impacts to stream systems. The City of St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit to perform certain CS program tasks. MSD administers and enforces the Erosion & Sediment Control Ordinance. Therefore, only those tasks performed by City of St. Matthews are listed in this report.

3.4.2.1 Erosion Prevention and Sediment Control Plan (EPSC) CS-1

St. Matthews obtains EPSC and Site Disturbance Permits from MSD on applicable projects constructed with Public Works crews and bid out. The City holds themselves and their contractors to the same EPSC standards as private contractors working within the City.

Before a building permit is granted, the developer needs to pay a review fee to MSD for plan approval on all storm and sanitary design. MSD is responsible for all sanitary systems located within St. Matthews, but it does not maintain the storm water system. Prior to any approvals, MSD confirms with the City of St. Matthews that there are not any existing complaints or reported problems in the project area.

For this reported period, St. Matthews constructed the following projects: Dayton Ave Drainage Improvements, St. Matthews Ave Roadway Improvements, Fairlawn Drainage Improvements, Voll Field Improvements, and Lancelot Court. All projects were reviewed and received MSD's EPSC stamps.

3.4.2.2 Scheduled Inspections of BMP's CS-5

The City of St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, however MSD administers approval and inspection on EPSC and Site Disturbance Permits for construction projects within the City. For private construction, a city official or representative periodically inspects sites for compliance with the EPSC Ordinance. Should a violation occur, St. Matthews will request MSD's assistance to bring the site into compliance.

3.4.3 Post Construction Controls (PC)

Best Management Practices for managing the increase in impervious area and controlling the subsequent increases in runoff quantity, velocity and pollutant migration include planning for on-site capture systems, protecting stream corridors, and implementing regulations and policies. The City of St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain PC program tasks. Therefore, only those tasks performed by the City of St. Matthews are listed in this report.

3.4.3.1 Pilot BMP Projects PC-2

The City of St. Matthews is known as an urban environment populated with many mature trees and the City intends to keep it that way. Following the ice and wind storms in 2008, the City increased its tree planting efforts in an effort to maintain this atmosphere. The last two years the city has planted approximately 120 two-inch diameter trees annually. The City's maintenance crews planted the new trees in public parks and in public right of ways. Should residents want a tree in front of their house, inside the City R/W, they can request a tree on the City's website.

In years past, the City of St. Matthews developed a Storm Water Drainage Master Plan in order to provide a separate storm sewer system for its residents. The City is in its final stages of development of the Master Plan. The plan is continuously updated to handle ongoing issues. Within the past year, storm sewers have been installed in the following locations.

8/01/10	3500 – 3602 DAYTON AVE	STORM SEWER	950' PIPE/28 CB
11/1/10	FAIRFAX AVE	STORM SEWER	654' PIPE/13 CB
04/1/11	GRANDVIEW AVE	STORM SEWER	200' PIPE/12 CB

The City of St. Matthews has been actively replacing all open throat catch basins with grated type basins where possible. This program provides improved capture and removal of debris from grates, rather than allowing the debris to enter the separate storm sewer system. During this report period the City has replaced 3 open throat catch basins.

The City of St. Matthews began construction on the Community Center Park Improvement Project 07/01/10. The first phase of this project was the removal of non native invasive species within the park. On 08/01/10, the City hired a contractor to install more than 3000 lf of walking trails, over 250 trees and shrubs, 250 lf of stream bank restoration, and a 300 sqft rain garden. The rain garden is designed to intercept runoff from an existing parking lot before entering a small existing stream within the park.

3.4.3.2 Built-upon Area Reductions PC-3

The City has a program to reduce the number of off-street parking pads within the public right of way. This activity will reduce the amount of impervious surfaces and replace with grass; thus decreasing surface runoff and providing additional filtering of runoff before entering the separate storm sewer systems.

This program provides property owners wanting this service an easy and free solution. Once the resident contacts the City; City forces will remove the pad, haul away the material, regrade the area, & then restore the disturbed area back to turf. During this report period, one property owner participated in this program. To date there have been 11 pads removed from the City right of way. The program was advertised in the newsletter a few years ago. To help shed light on the program the newsletter will run another article.

3.4.3.3 Source Control PC-4

Dumpsters in St. Matthews are required to be fenced for litter control. All garbage cans that are proposed or replaced within the city parks are equipped with lids to limit animal access and to reduce litter resulting from wind. Twice a week, City forces empty the trash in all public trash cans to decrease the occurrence of cans over flowing. All City salt storage facilities are covered with permanent roofs. New developments and redevelopments within the City of St. Matthews require downspouts to discharge onto surface areas or rocked French drains rather than tied directly to the storm sewers. The City (Public Works, Fire & Rescue, and Police) refuel all vehicles at commercial fueling stations to limit the occurrence of unmanaged spills.

3.4.4 Good Housekeeping / Pollution Prevention (GH)

3.4.4.1 Street Maintenance GH-1

The City of St. Matthews abides by the EPSC General Permit regulations. Street maintenance is performed on an as-needed basis, the city utilizes Metro Louisville's annual contract to resurface local streets. All storm drainage projects are finalized with resurfacing to assure positive drainage. St. Matthews uses stone bag inlet protection and/or silt fence on its storm sewer projects to minimize soil and debris entering the storm sewer system. Throughout the year, on an as needed basis, city crews remove storm debris from public rights-of-way and transport to the landfill.

3.4.4.2 Street Sweeping GH-2

The majority of the City's streets are not curbed. This drainage system allows water to run-off into adjacent yards and into small yard inlets. The small yard inlets or catch basins allow time for the storm water runoff to infiltrate the greenscape prior to entering the storm sewer system. The City uses a private street sweeping company clean to all curbed streets. This reduces the amount of pollutants that enter the separate storm sewer system by removing sediment and debris from streets and disposing of them properly.

3.4.4.3 Catch Basin Cleaning/ Repair GH-3

Storm sewers are cleaned as needed by city employees or contract services. The usual problem areas are routinely checked. During the fall months, when catch basin blockages are at their highest, City forces use vacuum systems to remove leaves throughout the community's right of way. Debris is transported to a landfill. This report period, the city removed approximately 154 – 30 cubic yard dumpsters of mulched leaves.
Below are a list of specific Catch Basins the City has repaired or replaced this report period:

08/10/10	3900 MASSIE	RECONSTRUCTION CATCH BASIN & PIPE	1 CB / 55 LF PIPE

3.4.4.4 Storm Sewer Cleaning GH-4

Storm sewers are cleaned as needed by city employees or contract service. Debris is transported to a landfill. Below is a list of storm sewer cleanings or repairs performed this report period:

08/03/10	ST. MATTHEWS AVE	CLEAN DETENTION BASIN	11 TONS
12/21/10	ART DRAUT PARK	PIPE/CULVERT CLEANING	5 TONS

3.4.4.5 Channel Maintenance GH-5

Public Works performs drainage channel maintenance as needed. Maintenance is done during periods of low flow and low frequency. Problem areas are routinely checked and maintained. The debris is transported to a landfill. The following are the areas cleaned and the amount of material removed.

07/27/10	4875 SHURBURN LANE	DITCH CLEANING	1.2 TONS
10/08/10	TRINITY HILLS	DITCH CLEANING	16 TONS
08/25/10	1007 KING AURTHER	CONCRETE DITCH REPAIR	25 LF
08/12/10	3500 BLOCK GRANDVIEW	CLEAN DITCH	2 TONS
07/07/11	DUTCHMANS LANE	CLEAN DITCH	23 TONS

3.4.4.6 Pollution Prevention for De-icing GH-6

Beginning in the winter of 2007, the City of St. Matthews began experimenting with the use of Geomelt, a natural anti-icing fluid derived from sugar beets in its street salting program. The use of this material is expected to allow a reduction of the use of salt as well as fewer applications, which translates into a much more environmentally friendly solution to snow and ice response that uses less fuel and causes less wear and tear on equipment.

- During this reporting period, the City used 770 TONS OF SALT & 2500 GAL. OF BEET JUICE

3.4.4.7 BMP Inspection GH-7

Good Housekeeping / pollution Prevention BMP's are inspected by public works and construction personnel.

3.4.4.8 BMP Maintenance GH-8

Maintenance activities are performed by city crews and contract services.

3.4.4.9 Pollution Prevention for Herbicides and Pesticides GH-9

City of St. Matthews uses "Round-up" sparingly on weeds. These chemicals are not bought or stored in bulk by the City of St. Matthews. No pesticides are used.

3.4.4.10 Continuation of Existing Programs GH-10

The City contracts out the collection of municipal waste, yard waste, and recyclables weekly. The City has operated a leaf collection program citywide since 1990 to assist residents in the collection and disposal of leaves during the fall season. This activity provides the residents a strong incentive to rake leaves in a timely manner and is important in that it dramatically reduces sediment and debris from the separate storm sewer systems and its discharge waters.

This program provides for two leaf pickups along each residential street throughout the City during the fall months. The Fall Newsletter identifies an approximate schedule for each street. Signs are posted approximately 1 week in advance of the pickup to provide residents time to rake leaves to the front of their properties.

- During this reporting period, the City filled approximately 154 – 30 cubic yard dumpsters. This yard waste material was collected and placed in steel dumpsters and was picked up and removed by Rumpke.

3.4.5 Public Education/outreach programs (PE)

The Permit included requirements for support of existing programs plus several new initiatives to increase public awareness of water quality issues and to promote a sense of stewardship for the streams in Jefferson County. The City of St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain public education program tasks. Therefore, only those tasks performed by the city are listed in this report.

3.4.5.1 Public Education Programs PE-1

The City of St. Matthews publishes and distributes a newsletter at least four times per year to all residential property owners within the city limits. This newsletter is an excellent vehicle with which to provide information to the citizens and to alert them to issues and programs that affect the community. In the past, small narratives have been periodically provided to inform residents of drainage problems and ways to report them. The City implements an annual drainage improvement program to address surface drainage concerns throughout the city. Typically, drainage projects affecting approximately one block have a public information meeting prior to finalizing the design to solicit input from the public on the problems as well as possible solutions.

The City will continue to utilize its newsletter to provide details about the leaf pickup and yard waste bag/sticker program available to its citizens. Specific program details include scheduled leaf pickup dates for areas of town, and phone number/contacts for problems or requests for additional pickups.

The City has revamped its website. www.stmatthews.org/. The website provides another," at your fingertip," source for property and business owners to find the specific information such as leaf pickup, storm damage pickup, recycling programs, etc.. A featured link informs property owners how to choose the correct tree in order to reduce utility costs while maintaining pedestrian and vehicular safety.

Within the website, there is a link for property owners to place a request for a tree to be planted in the R/W at their house. This program not only greens up the city, it gives its residents a viable option to help improve the area at no cost to themselves individually.

3.4.5.2 Earth Day PE-2

The City of St. Matthews at this time does not hold separate Earth Day activities.

3.4.5.3 Litter Control PE-3

The City of St. Matthews has not organized specific events, but uses its public works crew to maintain litter control on streets and public properties.

The City has initiated a program to install signs and waste receptacles at City parks and community centers to inform/remind the public they are responsible for cleaning up after their pets. The major city owned public parks now have waste receptacles and bags on site for pet owners' use while on the property. These will be placed at strategic locations within the facilities to maximize availability by the public.

3.4.5.4 Internal Training PE-5

The City of St. Matthews Mayor and City Engineer have attended MS4 presentations by MSD staff.

3.4.6 Monitoring (M)

St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 Permit. St. Matthews provides an annual report which documents the compliance tasks performed during the individual permit periods.

3.4.7 Reporting (R)

St. Matthews has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 Permit. St. Matthews provides an annual report which documents the compliance tasks performed during the individual permit periods.

SECTION 3.5 COMPLIANCE ACTIVITIES REPORT FOR THE CITY OF SHIVELY

The Co-Permittees individually and collectively continue to perform the required activities specified in KPDES Permit # KYS000001. This section will focus on those activities for which the City of Shively was responsible during the permit period and will document the compliance tasks performed by City of Shively during the period of July 1, 2009 – June 30, 2010.

3.5.1 Illicit Discharge Detection and Elimination (IDDE)

3.5.1.1 Illicit Discharge / Illegal Dumping Ordinance IDDE-4

The City of Shively enforces its illegal dumping ordinance.

- The city's Code Enforcement Board, began citing residents with debris blocking their drainage ditches.

3.5.1.2 Provide education on the revised Wastewater Discharge Regulations IDDE-5

The City of Shively posts "no dumping" signs at two locations within the city.

3.5.2 Construction Site Runoff Controls (CS)

The City of Shively has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain CS program tasks.

3.5.2.1 Erosion Prevention and Sediment Control Plan (EPSC) CS-1

The City of Shively has an approved EPSC General Permit issued by MSD for Public Works activities.

3.5.2.2 Scheduled Inspections of BMPs CS-5

A City of Shively Code Enforcement Officer inspects construction sites as needed.

3.5.3 Post Construction Controls (PC)

3.5.3.1 Pilot BMP Projects PC-2

Shively continued a practice of not installing paved curbs and gutters on residential streets. Grass swales are used to collect street runoff.

- Two drywells were installed at East Rockford Lane.
- 25 barrels with plantings were placed in Shively Park.

3.5.3.2 Built-Upon Area Reductions PC-3

Shively adopted the provisions of Cornerstone 2020.

3.5.3.3 Source Controls PC-4

The City of Shively facilities have approved HMPC plans. De-icing salts are either stored in a building or they are covered.

3.5.4 Good Housekeeping / Pollution Prevention (GH)

The components of the drainage system require routine inspections and maintenance. The City of Shively performed the following activities during the permit year:

- Installed 1100 ft. of new drainage pipe.
- Cleaned approximately 500 ft. of drainage pipe.

'3.5.4.1 Street Maintenance GH-1

Street maintenance by Shively is performed on an as-needed basis. The City of Shively follows the EPSC General Permit requirements.

3.5.4.2 Street Sweeping GH-2

The City of Shively manually collects debris along Dixie Highway as needed. The City of Shively cleans curb and gutter roads within the city on an average of twice per year. Debris removed from streets and gutters is sent to a landfill.

3.5.4.3 Catch Basin Cleaning GH-3

Catch basins are manually cleaned as needed. The debris is taken to a landfill.

3.5.4.4 Storm Sewer Cleaning GH-4

Storm sewers are cleaned as needed with a pressure auger. Debris is collected and sent to a landfill.

3.5.4.5 Channel Maintenance GH-5

Silt is removed from drainage ditch channels as needed. Silt is generally removed by hand to minimize the impact to the channel, though equipment is sometimes used when necessary. Debris removed from drainage channels is sent to a landfill.

3.5.4.6 Pollution Prevention for De-Icing GH-6

The City of Shively calibrates salt spreaders as needed. Salt is pre-wetted with liquid calcium chloride to maximize effectiveness. De-icing salts are stored in a building.

3.5.4.5 BMP Inspections GH-7

Good Housekeeping/Pollution Prevention BMPs are inspected regularly by the City of Shively Maintenance Director.

3.5.4.8 BMP Maintenance GH-8

Good Housekeeping/Pollution Prevention BMPs are regularly maintained.

3.5.4.9 Pollution Prevention for Herbicides and Pesticides GH-9

The City of Shively does not use pesticides. Herbicides are used sparingly.

3.5.4.10 Continuation of Existing Programs GH-10

The city collects municipal waste once per week and collects yard waste and recyclables weekly. The number of garbage pick up days was reduced from twice a week to once a week to encourage recycling. The City of Shively recycles newspaper, plastic, aluminum cans and glass. A private contractor picks up used oil from the City of Shively's maintenance facility.

3.5.5 Public Education/Outreach Programs (PE)

The City of Shively has an interlocal agreement with MSD, the primary Co-Permittee on the MS4 permit, to perform certain public education program tasks. Therefore, only those tasks performed by the City of Shively are listed in this report.

3.5.5.1 Public Education Programs PE-1

The City of Shively maintained a website, www.shivelyky.org. Public education also takes place through quarterly newsletters which address services including recycling, leaf pick-up, appliance and junk pickup days and catch basin cleaning.

- Distributed "clean water" literature at the city festival.

3.5.5.2 Earth Day PE-2

The City of Shively does not hold separate Earth Day activities. Community-wide Earth Day celebrations at the Louisville Zoo are sponsored by Louisville Metro.

3.5.5.3 Litter Control PE-3

Cane Run Elementary and Butler High School have Adopt-A-Stream programs. The Business Association cleans up litter along the Watterson Expressway interchange and along a one-mile section of Dixie Highway.

3.5.5.4 Internal Training PE-5

The City of Shively's Mayor, City Administrator and Maintenance Director have attended MS4 presentations by MSD staff.

3.5.6 Monitoring (M)

The City of Shively has an interlocal agreement with MSD to perform the Monitoring requirements of the MS4 permit. Watershed monitoring performed on the Mill Creek Cutoff characterized the water quality downstream from the City of Shively MS4.

3.5.7 Reporting (R)

The City of Shively has an interlocal agreement for MSD to perform the Annual Reporting function. Shively provided MSD with the information regarding its MS4 program activities for this Annual Report.

TABLE OF CONTENTS

CHAPTER 4 TOTAL MAXIMUM DAILY LOADS

4.1 Approved TMDLs in Jefferson County

This Section provides an assessment of the Total Maximum Daily Loads (TMDLs) requirements in the SWQMP. MSD and the other co-permittees are within the Salt River basin management unit. KDOW is responsible for preparing TMDLs for impaired waters. The following TMDLs have been approved and published by KDOW for impairments in Louisville Metro.

Approved TMDLs			
Title	Impairment	Year of Approval	County
TMDL Floyds Fork part 1 of 4	Organic Enrichment	1986	Jefferson, Shelby
TMDL Floyds Fork part 2 of 4	Organic Enrichment	1986	Jefferson, Shelby
TMDL Floyds Fork part 3 of 4	Organic Enrichment	1986	Jefferson, Shelby
TMDL Floyds Fork part 4 of 4	Organic Enrichment	1986	Jefferson, Shelby
TMDL Chenoweth Run part 1 of 5	Nutrients	1996	Jefferson
TMDL Chenoweth Run part 2 of 5	Nutrients	1996	Jefferson
TMDL Chenoweth Run part 3 of 5	Nutrients	1996	Jefferson
TMDL Chenoweth Run part 4 of 5	Nutrients	1996	Jefferson
TMDL Chenoweth Run part 5 of 5	Nutrients	1996	Jefferson
TMDL Harrods Creek of Ohio River part 1 of 5	Organic Enrichment	1990	Oldham
TMDL Harrods Creek of Ohio River part 2 of 5	Organic Enrichment	1990	Oldham
TMDL Harrods Creek of Ohio River part 3 of 5	Organic Enrichment	1990	Oldham
TMDL Harrods Creek of Ohio River part 4 of 5	Organic Enrichment	1990	Oldham
TMDL Harrods Creek of Ohio River part 5 of 5	Organic Enrichment	1990	Oldham

The following data regarding water quality of the Jefferson County streams was published in the 2008 Section of 303(d) part of the Integrated Report to Congress. The current full list maintained by KDOW is available at http://water.ky.gov/waterquality/303d%20Lists/2008volume2final.pdf. The streams in the Salt River Basin were not re-assessed prior to publication of the 2010 Integrated Report to Congress, so that report did not change the status of any of the listed impairments.

4.2 303(d) Listed Waterbodies in Jefferson County

The data regarding water quality of the Jefferson County streams was published in the 2008 Section of 303(d) part of the Integrated Report to Congress. The current full list maintained by KDOW is available at http://water.ky.gov/waterquality/303d%20Lists/2008volume2final.pdf. The streams in the Salt River Basin were not re-assessed prior to publication of the 2010 Integrated Report MSD will review the monitoring data to determine whether 303(d) streams in Jefferson County can be delisted.

4.3 Special Program Efforts

The KDOW developed the series of activities identified in the MS4 permit with knowledge of the current TMDLs and 303(d) listed waterbodies. New TMDLs have not been issued since the third permit cycle became effective. Furthermore, none of the existing TMDLs include wasteload allocations for MS4 discharges. Therefore there are no additional or special program efforts to address changes in the 303(d) list or new TMDLs. Section 5 of this report discusses findings of the water quality monitoring performed during the report year.


Final
2008 Integrated Report to Congress on the Condition of Water Resources in Kentucky
Kentucky

TABLE OF CONTENTS

CHAPTER 5 MONITORING

5.1 Implementation Status of the Monitoring Program

MSD continues the ambient water quality monitoring in local streams that began in 1988 with the establishment of the Long Term Monitoring Network (LTMN). MSD maintains the continuous water quality monitoring sondes and the flow gauges at these locations. Quarterly sampling at the LTMN locations during this report year was performed in September 2010, December 2010, March 2011 and June 2011. Recreational Contact sampling was performed for fecal coliform bacteria on at least 5 days per month during the recreational contact season of July - October, 2010 and May and June 2011. Sampling is scheduled by date, not precipitation, and 25% of the samples collected were during wet weather, as determined by the nearest MSD telemetered rain gauge. The Mill Creek Cutoff (EMCMX001, USGS location code 03294550) had inadequate flow for sampling to occur during much of August and all of September 2010. No sample results are available for that location for the 3rd quarter 2010.

Quarterly Monitoring

Stream samples were collected quarterly from the LTMN locations and analyzed by the MSD laboratory according to EPA- approved methods. The analytical results for the following analytes are included on the compact disc in the Appendix 2.7.1 files.

Aluminum	Copper	Potassium
Aluminum-Soluble	Copper-Soluble	Potassium-Soluble
Ammonia N	Field pH	Selenium
Antimony	Hardness, Total	Selenium-Soluble
Antimony-Soluble	Iron	Silver
Arsenic	Iron-Soluble	Silver-Soluble
Arsenic-Soluble	Lead	Sodium
Barium	Lead by Graphite Furnace	Sodium-Soluble
Barium-Soluble	Lead-Soluble	TDS
Beryllium	Magnesium	Temperature
Beryllium-Soluble	Magnesium-Soluble	Thallium
BOD	Manganese	Thallium-Soluble
Cadmium	Manganese-Soluble	Tin
Cadmium by Graphite Furnace	Molybdenum	Tin-Soluble
Cadmium-Soluble	Molybdenum-Soluble	Titanium
Calcium	Nickel	Titanium-Soluble
Calcium-Soluble	Nickel-Soluble	Total nitrogen(TKN)
Chloride	Nitrate-N	Total Solids

Chromium	Nitrite-N	TSS
Chromium-Soluble	Oil and Grease Total	Vanadium
Cobalt	OPHOS-P	Vanadium-Soluble
Cobalt-Soluble	Phosphorus	Zinc
COD	Phosphorus	Zinc-Soluble
Coliform, Fecal	Phosphorus-Soluble	

Flow Estimate to Support Quarterly Ambient Monitoring

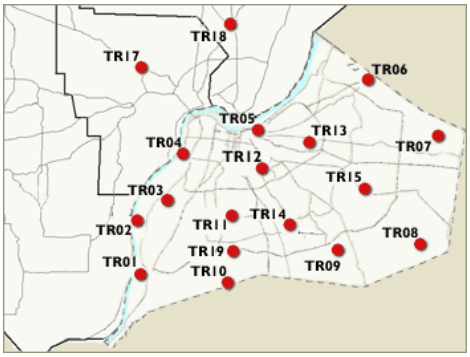
USGS daily flow data for each monitoring station was downloaded from the USGS database at http://waterdata.usgs.gov/ky/nwis/qw and is found on the compact disc as Appendix 2.7.

Monitoring Location Maintenance

MSD continues the collaboration with USGS on flow gages and monitoring locations that began in 1988. MSD maintains the sondes and flow gages while USGS manages and provides public access to the data. MSD pays USGS approximately $300,000 per year for this work.

Precipitation Estimate

MSD maintains a network of rain gauges to support monitoring, modeling and real-time controls. Access to the rain gauge network data for the telemetered locations on this map is available online on the MSD website http://www.msdlouky.org/aboutmsd/rainfall_query.cfm in real time and allows queries and downloads of historic data for use by the general public. Local weather forecasts and newspaper articles frequently include references and graphics based on the online precipitation data provided by MSD.



Water Quality Standards

The analytical results for the following analytes were compared to the Kentucky water quality criteria: Field pH; Arsenic; Cadmium; Chloride; Chromium; Copper; Field pH; Iron; Lead; Nickel; Selenium; Silver and Zinc. The laboratory analyses of the quarterly samples were compared to the water quality criteria applicable to warm aquatic habitat in Kentucky to determine if there were exceedences of the criteria. Comparison to criteria was made for both acute and chronic aquatic life effects. Hardness was calculated for each sample because several analytes have limits that vary with the Hardness of the water. Hardness is calculated from the analytical results for Calcium and Magnesium in each sample. The average hardness for all streams on all dates was 258. During dry weather, the hardness averaged 270 and during wet weather the average was 207. The minimum hardness for any site was 68 and the maximum was 487.

Analytical results were compared to the water quality criteria and the most stringent limit was applied. Hardness was calculated for each sample and the results were compared to both the Acute and the Chronic criteria, regardless of flow or wet/dry weather conditions, even though wet weather flow with low hardness is a temporary condition in local streams that only lasts until high water moves downstream into the Ohio River, while dry weather flows are usually the "normal" or "base" flow and have higher hardness.

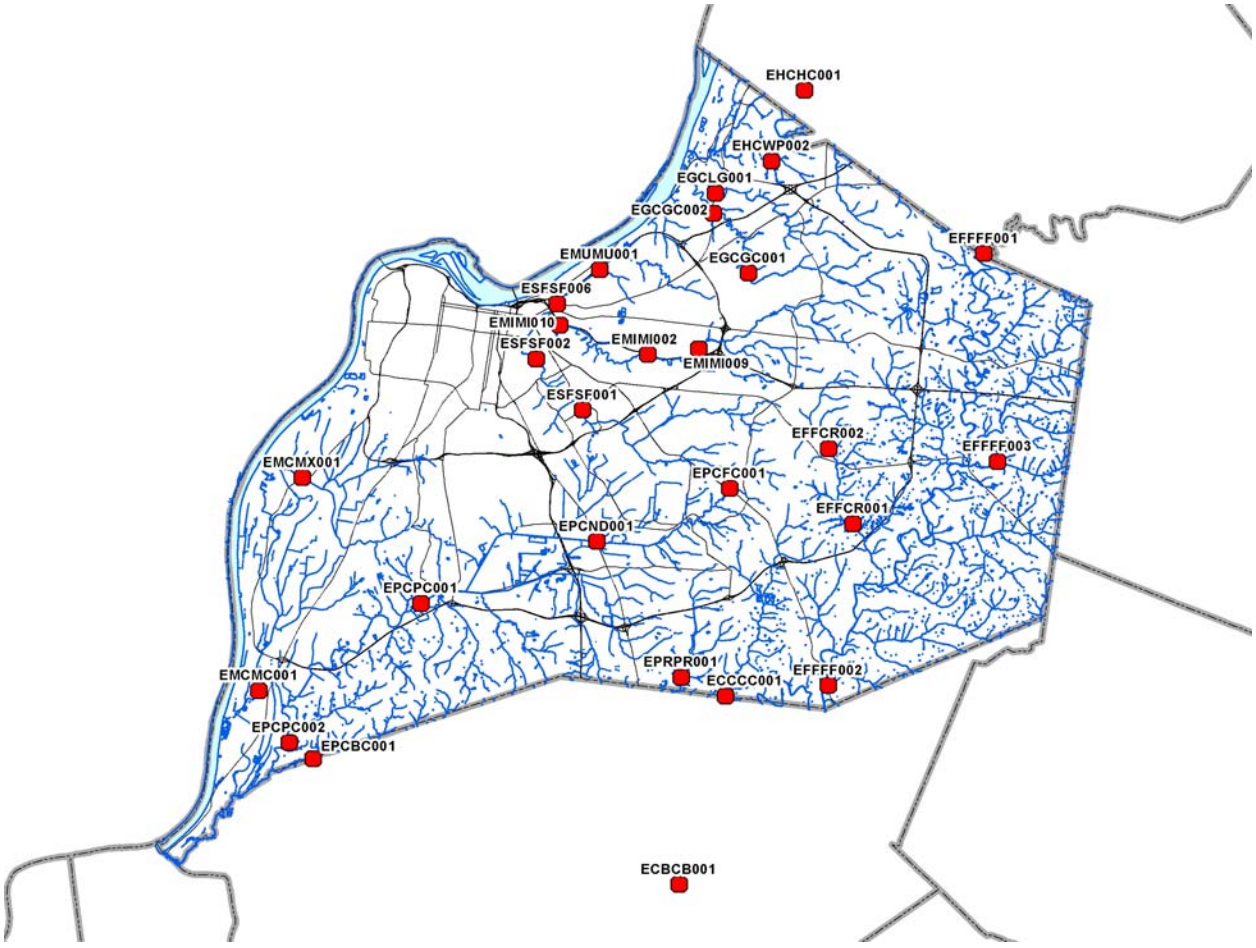
High precipitation and groundwater contributed to low hardness and higher concentrations of iron in the streams during the 2011 monitoring. Exceptional amounts of rain fell in Louisville Metro during the first two quarters of the year. Normal annual rainfall for Louisville averages about 45 inches per year. During just the first six months of 2011, the average total precipitation at the MSD rain gauges located in Jefferson County was 39.70 inches:

5.2 Long-Term Monitoring Network Locations

The LTMN locations in Appendix A of the MS4 Permit #KYS000001 were established by MSD in collaboration with USGS in 1988 and reviewed in 2000 for adequacy, with few revisions made. The LTMN includes USGS ambient monitoring sondes and flow gages described above, and are the locations where quarterly and recreational contact water quality samples are collected. Biomonitoring for fish, macroinvertbrates and algae is performed at those locations biennially. The map of the LTMN locations follows the table.

LOCCODE	Stream	Watershed
ECBCB001	Cedar Creek of Salt River	Salt River
EPCBC001	Brier Creek of Pond Creek	Pond Creek/Salt River
EPCFC001	Fern Creek of Pond Creek	Pond Creek/Salt River
EPCND001	Northern Ditch of Pond Creek	Pond Creek/Salt River
EPCPC001	Pond Creek	Pond Creek/Salt River
EPCPC002	Pond Creek	Pond Creek/Salt River
ECCCC001	Cedar Creek	Floyds Fork of Salt River
EFFCR001	Chenoweth Run	Floyds Fork of Salt River
EFFCR002	Chenoweth Run	Floyds Fork of Salt River
EFFFF001	Floyds Fork Upstream	Floyds Fork of Salt River
EFFFF002	Floyds Fork Downstream	Floyds Fork of Salt River
EFFFF003	Floyds Fork mid-county	Floyds Fork of Salt River
EPRPR001	Pennsylvania Run of Cedar Creek	Floyds Fork of Salt River
EGCGC001	Goose Creek	Minor Ohio River Tributary
EGCGC002	Goose Creek	Minor Ohio River Tributary
EGCLG001	Little Goose Creek	Minor Ohio River Tributary
EHCHC001	Harrods Creek	Minor Ohio River Tributary
EHCWP002	Wolf Pen Branch of Harrods Creek	Minor Ohio River Tributary
EMCMC001	Mill Creek	Minor Ohio River Tributary
EMCMX001	Mill Creek Cutoff	Minor Ohio River Tributary
EMIMI002	Beargrass Creek Middle Fork	Minor Ohio River Tributary
EMIMI009	Beargrass Creek Middle Fork	Minor Ohio River Tributary

LOCCODE	Stream	Watershed
EMIMI010	Beargrass Creek Middle Fork	Minor Ohio River Tributary
EMUMU001	Beargrass Creek Muddy Fork	Minor Ohio River Tributary
ESFSF001	Beargrass Creek South Fork	Minor Ohio River Tributary
ESFSF002	Beargrass Creek South Fork	Minor Ohio River Tributary
ESFSF006	Beargrass Creek Main Stem	Minor Ohio River Tributary
EOCOC001	Otter Creek Meade County	Minor Ohio River Tributary



5.3 Sampling Methodology

Samples were collected by trained and experienced staff who follows standard procedures at dedicated monitoring locations.

5.4 Macroinvertebrate

Macroinvertebrate samples are collected biennially. No macroinvertebrates sampling was performed during this report year.

5.5 Fish Sampling

Fish are sampled biennially. No fish sampling was performed during this report year.

5.6 Habitat Assessment

Habitat assessments were performed at a number of locations in local streams during this report year. One project assesses the present habitat conditions at stream channel restoration project sites that had been completed since 1990. Another project assessed the existing downstream receiving water condition for stormwater basins, and the third assessed potential stream crossing locations for planning a major sewer line construction project. The following reports may be found in the Appendix 2.5.15.

- Appendix 2.5.15 (A) Jeffersontown Plant Removal streams assessment.pdf includes habitat assessments of locations where the sewer line construction required for elimination of the Jeffersontown WQTC will cross streams or wetlands in the Middle Fork Beargrass Creek and the Chenoweth Run of Floyds Fork watersheds.
- Appendix 2.5.15 (B) Basin Project Stream Assessments contains the habitat assessment forms for the stormwater basins and rapid bioassessment protocol forms for the receiving streams or ditches for 70 privately-owned stormwater basins that qualify for drainage fee credits.
- Appendix 2.5.15 (C) 2010 Stream Inspection Report REV 2-9-11.pdf includes habitat monitoring reports for the following 32 stream restoration project locations:

Bruce Creek (Kentucky refers to this stream as “UT to Southern Ditch”)	Buechel Branch
City of St. Matthews Park Wetland	Drive In Branch
Fern Creek/Watterson Trail	Fishpool Creek
Gardiner Lane	Germantown Ball Fields
Largo Court	Leith Lane
Little Bee Lick Creek	Masemure Court
Mud Creek	Muddy Fork
Northern Ditch/Preston Highway	Pond Creek/Lamborne Boulevard
Riverport Wetland	Schuff Lane
Shean Court	Six Mile Lane Ditch 1
South Fork Beargrass Creek	South of Southern Ditch

Stoneybrook Drive/Target	Strawberry Lane Ditch
Unnamed Tributary of Big Run No-Mow Areas 1 and 2	Unnamed Tributary of Fern Creek
Unnamed Tributary of Northern Ditch	Unnamed Tributary of Pond Creek No-Mow Area 1-4
Unnamed Tributary of South Fork Beargrass Creek 1-6	Wetwoods Creek/Olive Road
Winding Falls/Longview Creek	Windsor Forest

5.7 Ambient Monitoring

MSD cleans and calibrates the USGS ambient water quality monitors at the LTMN locations that continuously transmit data that is maintained by USGS. Instantaneous and historic data is available online at the USGS website for six parameters for these sites. The water quality data includes Gage height; Discharge; Temperature; Dissolved oxygen; pH and Specific conductance. Graphs of the data are available and can be downloaded.

5.8 Wet Weather Monitoring

Sampling events are scheduled in advance and the schedule does not vary based on the weather except in rare instances when safety might be jeopardized. That did not occur during this report year. Twenty five percent of the samples were collected during wet weather, defined for this purpose as a minimum of 0.10" of rain within the 8 hours prior to the time of the sample at the nearest MSD rain gauge.

Wet weather samples demonstrate very low hardness compared to dry-weather samples, which means that the limits calculated for wet-weather samples are much lower than the limits that apply during normal flow. The result of low hardness during wet weather and application of both chronic and acute criteria to stream sampling during wet weather, which is an acute condition in local streams, is that certain metals occur above the chronic hardness-based criteria during wet weather, even though the actual concentration of the metal is less during wet weather.

5.9 Impaired Waters

The 2010 Kentucky Integrated Report to Congress included the following water body assessments for Jefferson County.

Waterbody & Segment	WAH	PCR	SCR	Fish Consumption	DWS	Assessment Date
Beargrass Creek 0.5 to 1.8	2B(5)	3	3	3	3	3/3/2009
Middle Fork Beargrass Creek 0.0 to 2.0	2B(5)	5-NS	3	3	3	3/13/2001
Middle Fork of Beargrass Creek 2.0 to 2.9	2B(5)	5-NS	3	3	3	3/3/2009
Middle Fork of Beargrass Creek 2.9 to 15.3	2B(5)	5-NS	3	3	3	3/3/2001 - 3/3/2009
Muddy Fork Beargrass Creek 0.0 to 6.9	2-FS	5-NS	3	3	3	3/12/2001
South Fork Beargrass Creek 2.7 to 13.6	5-NS	5-NS	3	3	3	3/15/2001
South Fork of Beargrass Creek 0.0 to 2.7	2B(5)	5-NS	3	3	3	3/3/2009

Waterbody & Segment	WAH	PCR	SCR	Fish Consumption	DWS	Assessment Date
Willow Pond	3	3	3	2-FS	3	10/7/2005
Cane Run 0.0 to 7.6	2-FS	3	3	3	3	2/5/2001
Cedar Creek 4.2 to 11.1	2-FS	2-FS	3	3	3	3/12/2001
Chenoweth Run 0.0 to 5.2	4A-PS	5-NS	3	3	3	3/12/2001
Chenoweth Run 5.2 to 9.2	4A-PS	5-NS	3	3	3	3/12/2001
Long Run 0.0 to 10.0	2-FS	5-NS	3	3	3	3/13/2001
Long Run Lake	2-FS	3	2-FS	2-FS	3	8/26/2005
McNeely Lake	2-FS	3	2-FS	5-NS	3	8/26/2005
Miles Park Pond #4	3	3	3	2-FS	3	1/31/2008
Pennsylvania Run 0.0 to 3.3	5-NS	5-NS	3	3	3	4/16/2004
Pope Lick Creek 2.0 to 5.2	2-FS	5-NS	3	3	3	3/14/2001
Tom Wallace Lake	3	3	3	2-FS	3	9/25/2007
Floyds Fork 11.6 to 24.2	4A-NS	5-NS	3	3	3	10/15/1999
Floyds Fork 24.2 to 34.1	5-NS	5-PS	2-FS	3	3	12/1/2005
Goose Creek 0.3 to 3.6	2B(5)	5-NS	3	3	3	3/3/2009
Goose Creek 3.6 to 13.0	2B(5)	5-NS	3	3	3	3/3/2009
Little Goose Creek 0.0 to 9.2	2-FS	5-PS	3	3	3	3/12/2001
Hite Creek 0.0 to 5.5	5-NS	3	3	3	3	4/9/2001
Harrods Creek 0.0 to 3.2	4A-NS	5-PS	2-FS	3	3	12/1/2005
Harrods Creek 3.2 to 33.3	3	5-PS	2-FS	3	3	12/1/2005
Mill Creek 0.0 to 11.2	5-NS	5-NS	3	3	3	3/13/2001
Watterson Lake	3	3	3	2-FS	3	3/4/2009
Mill Creek Cutoff 0.0 to 6.7	2-FS	5-NS	3	3	3	3/12/2001
Chickasaw Park Pond	3	3	3	5-PS	3	10/7/2005
Blue Spring Ditch 0.0 to 2.1	2-FS	5-NS	3	3	3	2/22/2006
Fern Creek 0.0 to 1.3	5-PS	5-NS	3	3	3	3/22/2001
Fern Creek 1.3 to 4.4	5-NS	5-NS	3	3	3	5/2/2001
Fern Creek 4.4 to 5.9	5-PS	5-NS	3	3	3	3/12/2001
Northern Ditch 0.0 to 7.3	5-PS	5-NS	3	3	3	4/1/1998
Pond Creek/Southern Ditch 5.1 to 8.1	5-NS	5-NS	3	3	3	3/13/2001
Southern Ditch 0.0 to 5.9	2-FS	5-NS	3	3	3	4/1/1998
UT to Southern Ditch 0.0 to 2.6 (Bruce Creek/ Bruce Ditch)	5-NS	3	3	3	3	4/16/2004
Fishpool Creek 0.0 to 1.9	2-FS	2-FS	3	3	3	3/22/2001
Wetwoods Creek (Slop Ditch) 0.0 to 3.7	5-PS	5-NS	3	3	3	4/1/1998

Reporting Categories Assigned to Surface Waters during the Assessment Process *(From KDOW 2010 IR Executive Summary Table 1)*	
Category	Definition
1	All designated uses for water body fully supporting.
2	Assessed designated use(s) is/are fully supporting, but not all designated uses assessed.
2B	Segment currently supporting use(s), but 303(d) listed & proposed to EPA for delisting.
3	Designated use(s) has/have not been assessed (insufficient or no data available).
4A	Segment with an EPA approved or established TMDL for all listed uses not attaining full support.
4B	Nonsupport segment with an approved alternative pollution control plan (e.g. BMP) stringent enough to meet full support level of all uses within a specified time.
4C	Segment is not meeting full support of assessed use(s), but this is not attributable to a pollutant or combination of pollutants.
5	TMDL is required.
5B	Segment does not support designated uses based on evaluated data, but based on Kentucky listing methodology insufficient data are available to make a listing determination. No TMDL needed.
Definitions	
WAH	Warm Aquatic Habitat (fish and aquatic creatures)
PCR	Primary Contact Recreation (swimming)
SCR	Secondary Contact Recreation (wading or boating)
DWS	Drinking Water Standard (does not apply to local streams except at the Ohio River intake)
FS	Fully Supports the Use
PS	Partially Supports the Use
NS	Non-Support of the use

Most streams, including Reference Reach streams, do not meet fecal coliform recreational contact (PCR and SCR) water quality criteria during wet weather. Many of the local stream segments are also listed by Kentucky as not fully supporting aquatic life (WAH) due to nutrients, metals and/or organic enrichment.

The sources of the pollutants that cause these impairments in urban streams include the high concentration of people, pets, birds and wildlife, air deposition of fallout from coal-fired electrical power plants and industrial and vehicle emissions that are located in the urban area. During wet weather, stormwater runoff washes deposited nutrients and bacteria into streams from the surface of the land, and sewer overflows may occur due to rainwater that gets into the sanitary sewer system.

A total of 3,333 analytical results from 28 monitoring locations were compared to applicable water-quality criteria for aquatic life in the warm aquatic habitat. Criteria for acute as well as chronic exposure were used in the comparison. At least 5 additional samples were collected per month during the recreational months of July, August, September and October, 2010 and May and June 2011 at each LTMN location and analyzed for fecal coliform for comparison to Kentucky's primary recreational contact criteria. The monitoring data is attached on the compact disc in the Appendix to this report.

Aside from selenium, discussed below, a total of 35 excursions beyond aquatic life protection criteria were observed in the 3,333 analytical results from quarterly monitoring that were compared to numeric limits. The laboratory data for the sample dates of June 20 and June 23, 2011 in particular indicate that 32 of the 35 exceedences occurred on samples collected on those dates, while aside from selenium, only 3 excursions were recorded for all samples at all

locations during the previous quarters. Of the criteria exceedences, 24 were of Chronic criteria and 11 were of Acute criteria. The average hardness calculated for the June 20-23 dates was 118, which is significantly lower than the overall average hardness of any stream and may account for the majority of the exceedences of the hardness-based water quality criteria.

The following paragraphs discuss findings for certain analytes. Findings are discussed for Cadmium; Field pH at three locations on two dates; selenium on all dates in all samples; zinc at four locations on four dates; lead that exceeded the hardness-based chronic criteria at nine locations on various dates; iron acute criteria on eight samples and the chronic criteria on nine; and copper that exceeded the hardness-based criteria at one MS4 location and one external location.

Cadmium

KDOW reviewed historic data and determined that Cadmium WAH impairments in Louisville Metro streams could not be confirmed and would be delisted. The review performed on MSD samples during this report year confirms KDOW's finding. No Cadmium was detected at levels that exceed the WAH water quality criteria at any of the LTMN locations during any quarter.

Field pH

Wolf Pen Branch of Harrods Creek was sampled on 12/6/2010, Sample number AD95698, at location code, EHCWP002. The field pH was measured at 9.15, and the pH upper limit is 9.0. This is a unique occurrence at this monitoring location. The weather was dry and there is no indication that an illicit discharge or MS4 discharge had occurred that would cause a pH excursion. This monitoring location does not have a sonde monitor, and no additional reading was available.

The Mill Creek Cutoff of the Ohio River was sampled on 3/30/2011, sample number AE03954, at monitoring location code EMCMX001. The field pH was measured as 5.89 and the lower pH limit is 6.0. About two hours later, Brier Creek of Pond Creek was sampled, sample number AE03958 at location code EPCBC001, where the field pH was measured as 5.7. The weather was dry at the Mill Creek Cutoff but wet (> 0.10" of rain within the preceding 8 hours at the closest rain gauge) at Brier Creek. Brier Creek is a headwaters stream in a rural area in the Knobs in southwestern Jefferson County while the Mill Creek Cutoff is a drainage canal in the Ohio River alluvial terraces in a suburban area. The Mill Creek Cutoff does not have enough sustained flow for a sonde monitor but the Brier Creek location has a sonde.

Verification of pH data for the Brier Creek monitoring location on 03-30-2011 was obtained from USGS. The USGS sonde pH readings are taken every 15 minutes and are recorded. The sonde data with the closest time to 09:05 was at 09:00. The USGS sonde value at 09:00 for pH at the Brier Creek monitoring location was 6.7, and at 09:15 the pH reading was also 6.7. This verification indicates that the MSD pH meter readings were in error on 03/30/11 and that there were no pH excursions. Hand-held field pH monitors are routinely calibrated by the Engineering Field Technician in the morning prior to leaving the base station, but are not re-calibrated in the

field, and no re-sampling was performed based on readings that indicated excursions of the water quality criteria for pH. USGS, 2001, National Water Information System data available on the World Wide Web (Water Data for the Nation), accessed [October 20, 2011], at URL [http://waterdata.usgs.gov/nwis/].

New procedures have now been adopted to address field pH excursions. Procedures for exceedences of the pretreatment pH limits did exist and have been amended for the stream monitoring locations. In the future, field pH excursions in stream monitoring are to be verified by the Engineering Field Technician if the pH probe indicates an excursion above 9.0 or below 6.0. If there is an excursion, the Engineering Field Technician will re-sample for field pH after a 15-minute interval. If the second reading is outside the water quality criteria, (pH <6.0 or >9.0) the Engineering Field Technician will report the incident to the on-call Emergency Response/Pretreatment Inspector for verification and follow-up.

Selenium

Although not required by the MS4 permit, analyses of quarterly samples taken at the LTMN locations included results reported for Selenium. Selenium is a metal that occurs naturally in soils and bedrock in varying levels. Selenium, like many other metals, is a required nutrient at low concentrations but can be toxic to aquatic organisms at high concentrations such as those found in mine waste drainage and coal ash pile runoff, where the levels of selenium become concentrated.

The Kentucky water quality criteria for Selenium was adopted from criteria recommended by EPA in the 1980s. While EPA did draft revised criteria in 2008, those new criteria have not yet been finalized and consequently have not been adopted by Kentucky. The revised criteria as drafted by EPA in 2008 was 258 micrograms per liter (parts per billion) for an acute concentration, with a formula to calculate an additional acute limit based on different forms of the metal and sulfate in the water. The draft criteria did not include a chronic criteria for concentration of selenium in water. The draft chronic criteria was 7.9 micrograms of selenium per gram of fish tissue. The EPA's 1986 recommended criteria, and the current criteria for Selenium in Kentucky waters, is an acute concentration of 20 micrograms per liter (parts per billion) and a chronic concentration of 5 micrograms per liter.

The laboratory method minimum detection limit for the ICP analyses for selenium is 11 micrograms per liter. Common practice is to estimate "<MDL" sample results as ½ of the MDL itself. With an MDL of 11, the estimated concentration of selenium in samples that had non-detectible results using the ICP method would be 6.5 micrograms per liter, which exceeds the 5 micrograms per liter chronic water quality criteria currently in place. This means that all of the ICP sample results for Selenium at all monitoring locations, including the Reference Reach, exceeded the Kentucky chronic criteria and all but a handful of the samples also exceeded the current acute criteria for selenium, but, all sample results were far below the revised selenium water quality criteria EPA drafted in 2008. EPA reports that the 2008 draft criterion resulted from more than six years of development, cooperation with other federal agencies, and a

comprehensive peer review process. EPA continues performing studies on selenium and expects to finalize revisions of the recommended criteria within the next few years.

The average concentration of selenium in all dry weather (at least 0.1" of rain within the previous 8 hours at the nearest rain gauge) samples was 33 micrograms per liter (ppb), and for wet weather samples was 27 micrograms per liter. That the dry weather samples had higher concentrations of selenium than the wet weather samples indicates that the selenium concentrations in local streams are naturally occurring background levels, and that stormwater dilutes those concentrations. There is no indication that MS4 discharges or illicit discharges cause or contribute to aquatic life impairment by selenium in local streams. Naturally-occurring selenium is not a pollutant of concern in local streams and analysis of it is not required by the MS4 Permit that became effective on August 1, 2011. Future samples of Selenium may be analyzed by the Graphite Furnace method in addition to the ICP method in order to achieve more accurate results and a method detection limit that is lower than the water quality criteria for this metal.

Zinc

Zinc was observed one time each at five locations in five different watersheds at levels in exceedence of the water quality criteria. Four of those five samples were collected on the June 20-23 dates previously discussed. Two of the samples were taken during dry weather, while the other three were during wet weather. One commonality between the dates and locations when zinc exceeded the hardness-based water quality criteria was the unusually low hardness of the water in the sample on four of the five dates, which resulted in the criteria itself being very low. Of the locations where zinc occurred, the Mill Creek Cutoff is a primarily MS4-impacted stream. Middle Fork Beargrass Creek is subject to MS4 and SSO impacts, two locations are in the far reaches of Jefferson County, and another is in Meade County. SSOs are addressed by MSD's Project WIN under a Consent Decree.

Zinc is a common element that is found in the environment and is ubiquitous in metal products, paints and coatings and consumer products. Atmospheric deposition of particulate fallout from two coal-fired electrical generating stations, large metal fabricating facilities and a cement plant may contribute to pollutants on the ground that may wash into the Mill Creek Cutoff and lower Pond Creek watersheds. Discharge monitoring reports for the KPDES permits that regulate stormwater discharges from those facilities may be reviewed to determine whether industrial sources contribute to zinc excursions in the nearby streams.

Iron

Iron was in exceedence of the water quality criteria at nine locations sampled during the June 20-23, 2011 quarterly event. Iron is naturally-occurring as nodules in the black shales that underlie much of the region, and groundwater from the shales commonly contains very high concentrations of iron. Exceedences of the iron criteria in the Reference Reach stream indicates that the naturally-occurring concentrations of iron may occasionally exceed the criteria adopted for iron in Kentucky streams.

Copper

Copper analytical results exceeded the hardness-based water quality criteria at two locations on June 20, 2011. The hardness at the Mill Creek Cutoff location was calculated as 68 and at the Otter Creek location was 143, both exceptionally low values compared to the average as discussed above. The hardness of the water itself causes the limit to be much lower, causing an exceedence of the criteria even if the concentration is less during wet weather than during dry weather. At an average hardness the average acute concentration limit might have been 27 ppb and the chronic criteria 22 ppb. The Mill Creek cutoff concentration of Copper on June 20 was 19 ppb, but due to the low hardness, the acute criteria on that day was calculated as 10 ppb, and the chronic criteria was 7 ppb. Based on these analyses, it would appear that increasing the hardness of stormwater would most readily ensure that hardness-based criteria for copper can be met.

Copper is a metal that is naturally-occurring at low levels in local soils and bedrock, but is used extensively in water piping and electrical wiring, is a component in anti-algae water treatment chemicals in ponds and some roofing shingles, is common in metallic automotive brake pads and is occasionally used as metal roof or guttering material, where it is considered to be a luxury product. Copper may also leach from copper-chromate-arsenic treated wood, but no increase in chromium nor arsenic was detectable in the samples that exceeded the criteria for copper, and the concentration of copper was not indicative of an increase in the discharge of the metal from any source.

Lead

Lead was analyzed by graphite furnace in addition to the usual ICP method. Ten exceedences of the hardness-based chronic criteria were determined at nine different locations.

Nine out of the 10 exceedences of chronic criteria for lead criteria occurred in the 2nd quarter, 2011. The average hardness for those samples was 125. The calculated chronic criteria averaged 4.3 ppb while the lead concentration average was 9.49 ppb. The Reference Reach stream sampling location was one of the chronic criteria exceedences.

One exceedence was detected that was less likely due to weather and flow conditions. Lead was detected at EFFFF003 during dry weather at a concentration of 20.4 ppb at hardness of 275 on 9/29/10. The WAH chronic criteria calculation for that sample indicates that the chronic criteria was 11.53 ppb and the acute criteria was 296 ppb. Potential sources are unknown. EFFFF003 is a monitoring location on Floyds Fork with an upstream drainage area of 138 square miles, of which 58 square miles are within Louisville Metro. Discharge data from the upstream FFWQTC indicate that the plant does not discharge high concentrations of lead, and aside from a limestone quarry on an upstream tributary, there are no known major industrial facilities and few MS4 outfalls near this location. The majority of the area is rural agricultural and residential, forest, parklands and golf courses.

5.10 Data Evaluation Methods

Stormwater impacts to local streams tend to occur immediately, and the transit time for stormwater flows through most local streams is short. In order to evaluate the monitoring data, wet weather was defined as >0.10" of rain within 8 hours prior to the sample, as recorded at the nearest MSD rain gauge. The weather determination did not consider stream flow or antecedent rainfall prior to the 8-hour period.

MSD's analytical data is recorded in the LIMS Laboratory Information Management System database. Precipitation data is stored in the Telog database, and USGS streamflow data is obtained from downloads from the USGS website. MSAccess, Crystal Reports and MSExcel software products are used to perform data analysis and reporting. The Appendices submitted electronically to KDOW with this Annual Report include MSExcel spreadsheets of the analytical data.

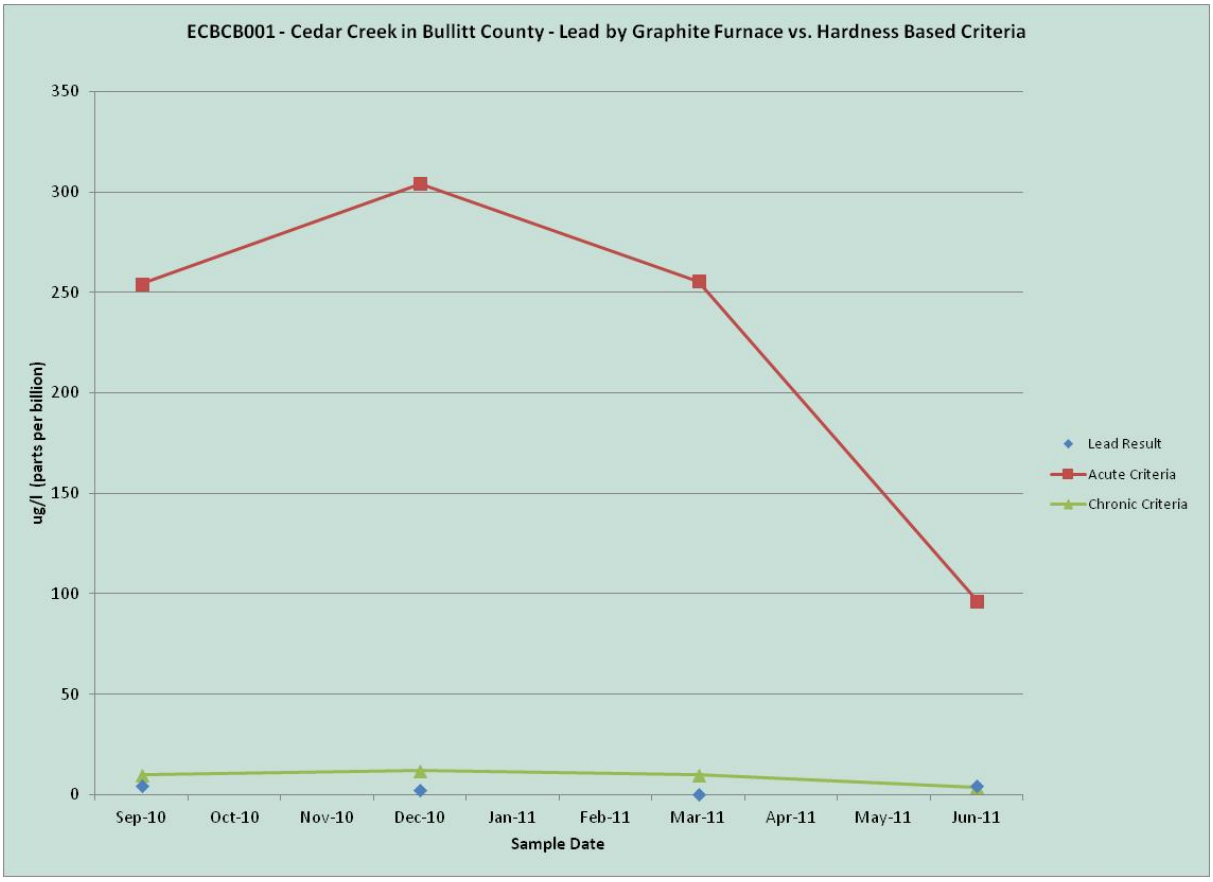
Reports that include calculation of the geometric mean and the percent of the sample results that exceeded the Kentucky recreational contact criteria for Fecal Coliform are attached in Appendix 5.7.1. Certain metals have hardness-based limits. Hardness is calculated by the laboratory analyses of the quarterly samples. The data for hardness is included in the Appendix. The averages of the hardness data are summarized here:

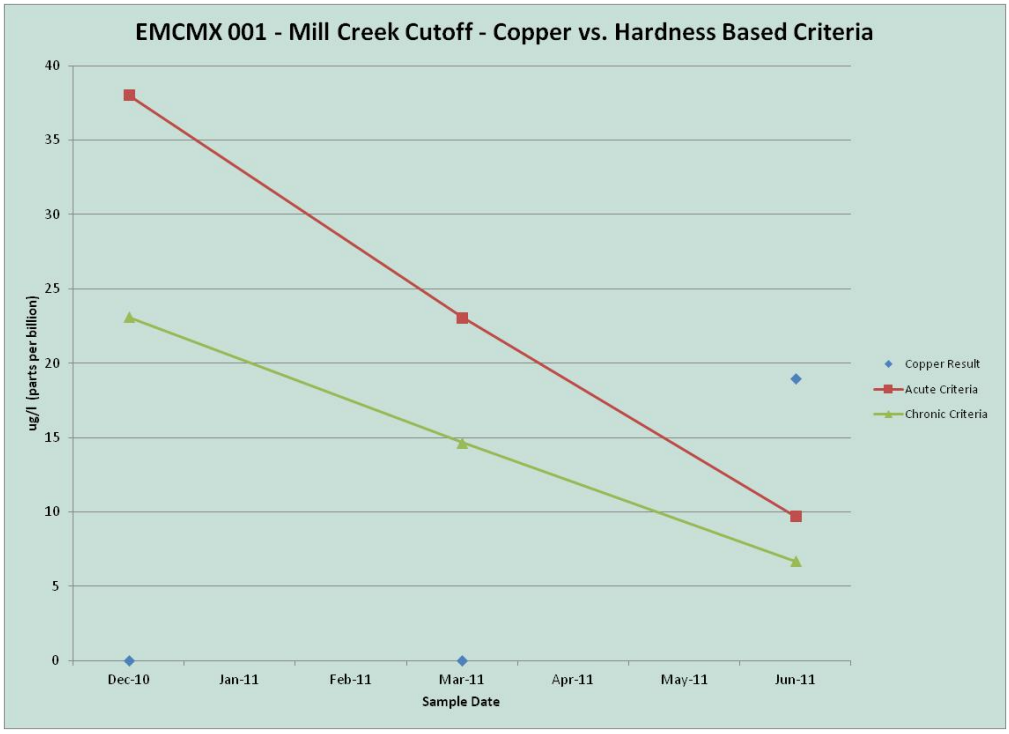
273	Avg Hardness, Dry weather
201	Avg Hardness, Wet weather
68	Minimum Hardness, all sites
487	Maximum Hardness, all sites

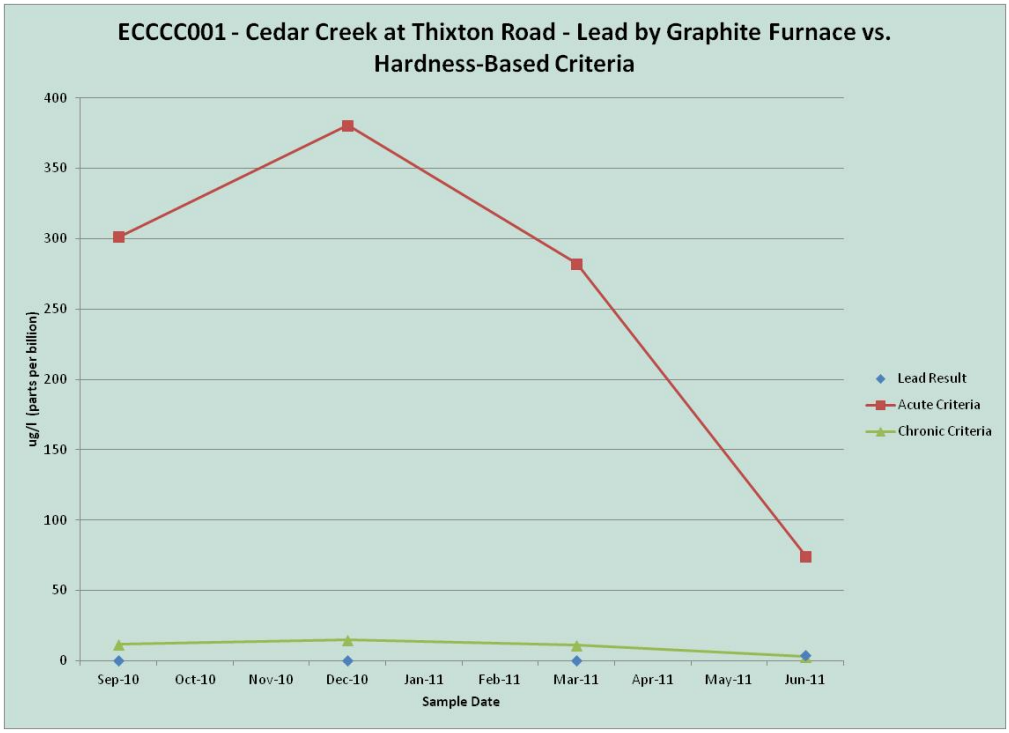
Some metals have both chronic criteria and acute criteria for aquatic life that is based on the hardness of the water at the time of sampling, with lower hardness resulting in more stringent criteria. The chronic criteria is a lower concentration than the acute criteria because it is based on the theory that aquatic organisms are exposed to chronic concentrations for long periods of time. Although stormwater flows are of short duration and pass quickly downstream, all applicable analytical results were compared to both acute criteria and the more-stringent chronic criteria regardless of weather conditions or flow duration.

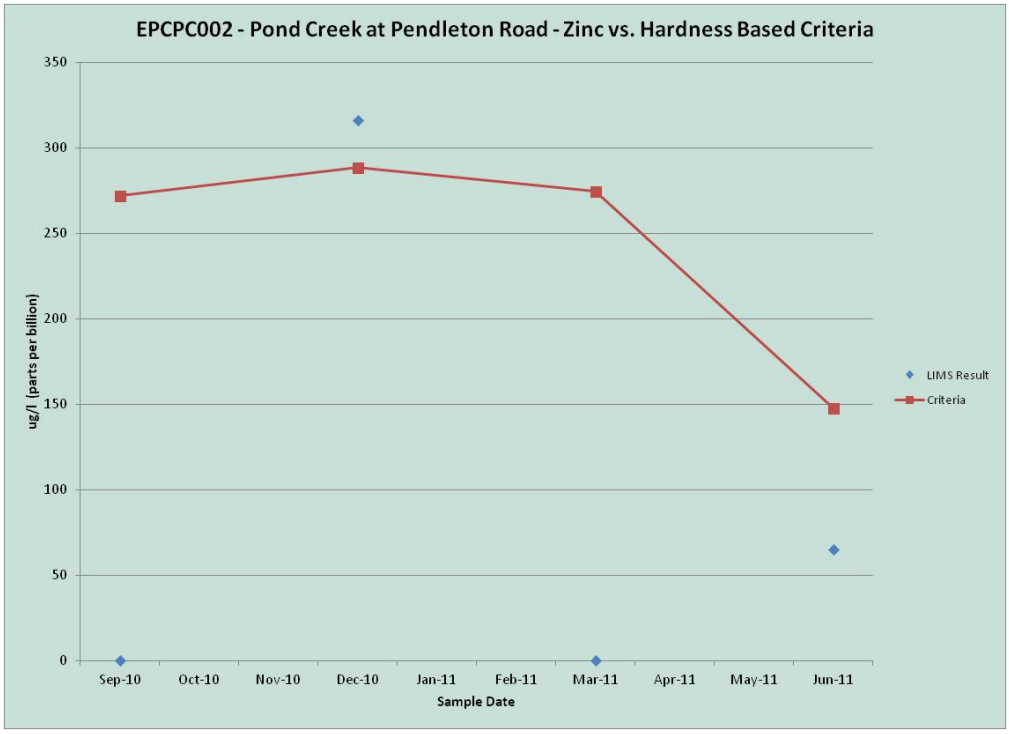
5.11 Graphical Summaries

The following graphs illustrate the relationship between hardness and water quality criteria for selected sample locations that indicated exceedences of the water quality criteria. Analytical results for samples are indicated by blue diamonds. The hardness-based Acute criteria for aquatic life are shown as red squares connected by a red line while the Chronic WAH hardness-based criteria are shown as green triangles connected by a green line.


ECBCB001 - Cedar Creek in Bullitt County - Lead by Graphite Furnace vs. Hardness Based Criteria
ug/l (parts per billion)
350
300
250
200
150
100
50
0
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Sample Date
Lead Result
Acute Criteria
Chronic Criteria


EMCMX 001 - Mill Creek Cutoff - Copper vs. Hardness Based Criteria
ug/l (parts per billion)
40
35
30
25
20
15
10
5
0
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Sample Date
Copper Result
Acute Criteria
Chronic Criteria


ECCCC001 - Cedar Creek at Thixton Road - Lead by Graphite Furnace vs. Hardness-Based Criteria
ug/l (parts per billion)
400
350
300
250
200
150
100
50
0
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Sample Date
Lead Result
Acute Criteria
Chronic Criteria

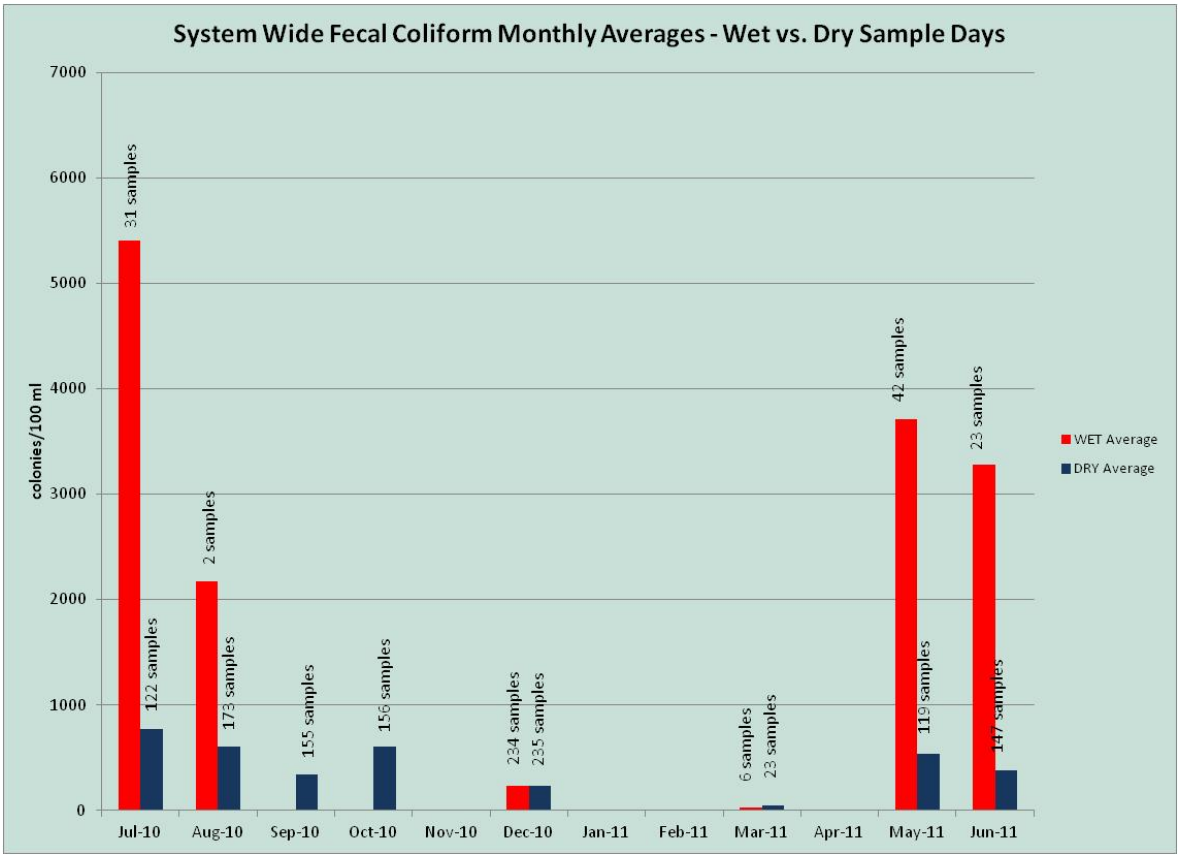


5.12 Trends of Pollutants of Concern (POC)

The specific pollutants of concern in 303(d)-list impaired streams that have numeric water quality criteria historically included Cadmium and Fecal Coliform as discussed in the Impaired Streams subsection above. Ammonia is listed as an impairment on certain stream reaches based on older data in the Pond Creek watershed. Dissolved Oxygen has been a concern in the stagnant lower reaches of the main stem of Beargrass Creek during low water. In addition to CSS discharges, backflow and sediment deposits from the Ohio River contribute to water quality impacts in that reach.

Fecal Coliform

Samples were collected on at least five days per month at each of the LTMN locations and analyzed for fecal coliform during the recreational contact season from July-October 2010 and May-June 2011 for the report year. Fecal coliform is a blanket term for a number of species of symbiotic column-shaped bacteria that assist in the digestion of food in warm-blooded animals. Because these bacteria live in the gut of birds, marsupials and mammals they are found at high concentrations in fecal material from all warm-blooded animals, and fecal coliform can also survive and reproduce in wet soil and in sediment in streams and storm drains. Fecal coliform concentrations in streams rise and fall with rainfall and stream flow, as seen in the following graph of wet vs. dry averages of all fecal coliform samples collected during the report year.



Fecal coliform continues to exceed the Kentucky criteria in most wet weather samples and sometimes exceeded the criteria during dry weather. Few locations indicate consistently high fecal coliform counts. Determining the source of fecal coliform exceedences in MS4 receiving streams during dry weather will require further investigation, including correlation of the LTMN monitoring dates with previously-reported SSO or package plant sewer overflows.

Due to elevated levels of bacteria during wet weather, signs are posted along streams throughout MSD's sewer service district that warn the public against coming into contact with the water in all streams during and for 48 hours after rain events.

Until 1986, EPA had recommended fecal coliform as a water-quality analyte to determine if surface waters were safe for swimming, which EPA defined as primary contact recreation that included full-body immersion with a high probability of swallowing water. Up until 1986 it was thought, based on studies performed in the 1950s and 1960s at public beaches near sewage treatment plants, that fecal coliform was a valid indicator of the presence of human illness-causing microorganisms (pathogens) in water. In 1986, EPA summarized new epidemiological studies and found no correlation between fecal coliform concentrations and subsequent illness in swimmers at public beaches. Concentrations of other bacteria, E. coli and Enterococcus, were demonstrated by that research to be relatively reliable indicators of the potential for

swimmers who had entirely submerged themselves in the water at a public beach, to get sick afterwards. EPA recommended at that time that E. coli or enterococcus be adopted by the states as the recreational contact criteria for water quality. In 2004 EPA again reviewed the criteria and recommended E. coli or enterococcus as the preferred recreational contact criteria. EPA published new epidemiological studies of swimmers and non-swimmers at public beaches in December 2010 and is currently reviewing recreational contact criteria for beaches based on that research. E. coli and enterococcus were included in that research. Fecal coliform was not included, and no epidemiological research was conducted in flowing streams. The research was performed at public swimming beaches used by more than 1000 people per day. EPA is required to publish new recreational contact criteria for public beaches in October, 2012, and has indicated that the public beach criteria will also be recommended for streams, and will most likely recommend a seasonal geometric mean criteria for E. coli as the recreational contact criteria in freshwaters.

MSD historically sampled for fecal coliform, not E. coli, at the LTMN locations in order to compare the results to the Kentucky recreational contact criteria. A review of the annual geometric mean calculated for each sites over a period of seven years was included in the MS4 Annual report in a previous year. The review indicated that no patterns were observable other than a general tendency for the annual geometric mean for fecal coliform to reflect the annual precipitation. MSD has added E. coli monitoring to the recreational contact sampling as required by the MS4 permit and will discuss trends in that data in future annual reports.

E. Coli

E. Coli sampling was not required by the permit that was in effect during this annual report period. This analyte has been added to the sampling requirement on the MS4 permit that became effective on 8/1/11 and will be reported on future annual reports.

Cadmium

KDOW reviewed recent data and determined that Cadmium impairments of WAH in Louisville Metro streams could not be confirmed and should be delisted. The analyses performed on MSD samples during this report year confirm KDOW's finding. No Cadmium was detected at levels that exceed the water quality criteria at any of the LTMN locations during any quarter.

Ammonia

Ammonia-N was analyzed and Field pH and Temperature were recorded for each of the quarterly samples. Only 25 of the 115 samples had results greater than the detection limit. The maximum concentration at any location was 1.4 mg/L total Ammonia-N. The water quality criteria for ammonia is for the un-ionized form. The criteria is calculated for each sample based on the formula found in Kentucky surface water standards in 401 KAR 10:031 at http://www.lrc.state.ky.us/kar/401/010/031.htm. None of the samples at any location were in exceedence of the formula-derived water quality criteria for un-ionized ammonia.