



MSD

OUR WATERWAYS

IT'S TIME TO IMPROVE THEM

The past year, 2006, was one of the busiest in MSD's history, and 2007 promises to be even busier. This year MSD is focusing attention on our three core businesses: waste water collection and treatment; stormwater drainage services; and flood protection, with special emphasis on our recent signed Consent Decree to improve local water quality.

Current and future MSD initiatives include:

Project DRI (Drainage Response Initiative) – Project DRI is a cooperative effort between Metro Mayor Jerry Abramson, Metro Council members, local State Legislators and MSD to eliminate neighborhood drainage problems. Since January 2003, over \$100 million has been invested in both Phase I and II of Project DRI, which includes over 700 neighborhood projects. Plans for Phase III of Project DRI are currently underway.

Consent Decree – In August 2005, Louisville Metro and MSD entered into a consent decree with the Kentucky State Division of Water and the United States Environmental Protection Agency. The consent decree is a 19-year program that requires Louisville to minimize combined sewer overflows and eliminate sanitary sewer overflows, while rehabilitating our community's aging sewer system. This will be the single largest public works initiative in Louisville's history and has been named Project WIN (Waterway Improvements Now).

Almost every major city east of the Mississippi River is under similar orders; however, Louisville's Consent Decree allows a more innovative approach to water quality solutions. The difference will be in cost. We estimate Louisville's total program cost to be approximately \$800 million over 19 years.

The following are regional cities under federal consent decrees, with their projected 2007 average monthly residential sewer charge:

Atlanta, GA	\$48.09
Birmingham, AL	\$43.50
New Albany, IN	\$39.23
Cincinnati, OH	\$35.91
Louisville, KY	\$28.12

Keep in mind, federal consent decrees are unfunded federal mandates. The costs will be borne by local ratepayers. Although sewer rates will go up, as will the rates of the other cities listed above, ours will stay well below the national average



for residential, commercial and industrial customers. To date, We have met with over 140 local community groups to discuss the conditions and the costs of the consent decree. In addition, we have sent each MSD customer a detailed mailing describing Project WIN, its obligations and the goals for meeting clean water standards.

Louisville Green – MSD is in its second year of marketing Louisville Green, an all-purpose fertilizer made from sewage solids. It can be applied for food crop production, lawn applications and as a soil amendment as the U.S. EPA has rated it a "Class A" fertilizer. In 2006, MSD produced an average of 73 dry tons of fertilizer per day. The landfill savings were \$360,428. Last year's revenue from sales exceeded \$81,000, which was applied to MSD's operations and maintenance budget.

Flood Protection – MSD continues to work with the U.S. Army Corps of Engineers to construct flood storage basins along our major streams and in flood prone areas. Three large basins have been constructed in the Okolona/Fairdale area, with an additional eight basins completed or under construction in the Hikes Point/Buechel/Newburg area. During the most recent flood on September 22-23, 2006, up to ten inches of rain fell in many areas of Louisville Metro. The new basins stored almost one billion gallons of water. That water would have flooded thousands of homes. Of equal importance, the new

flood storage basins and channel improvements have removed over 4,000 properties from the floodplain, saving ratepayers thousands of dollars in flood insurance.

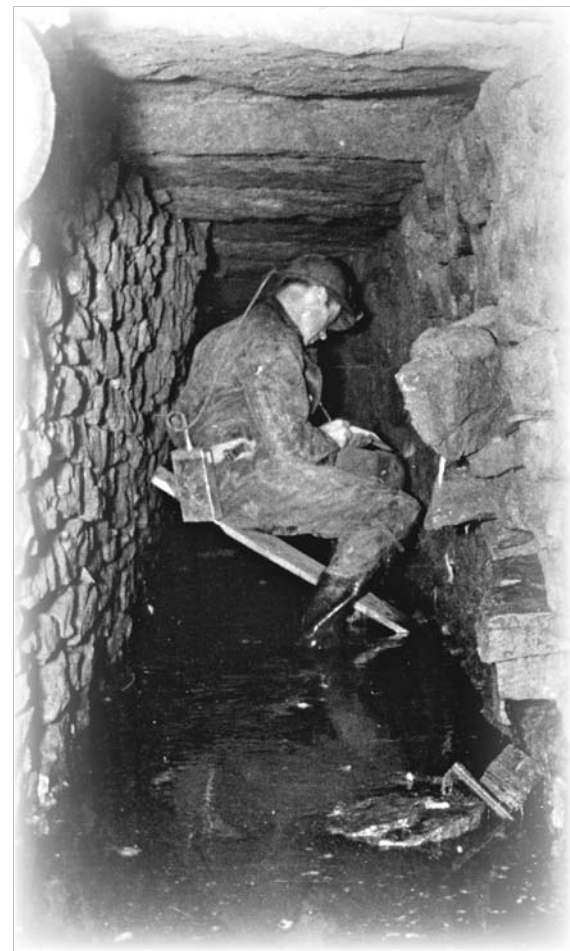
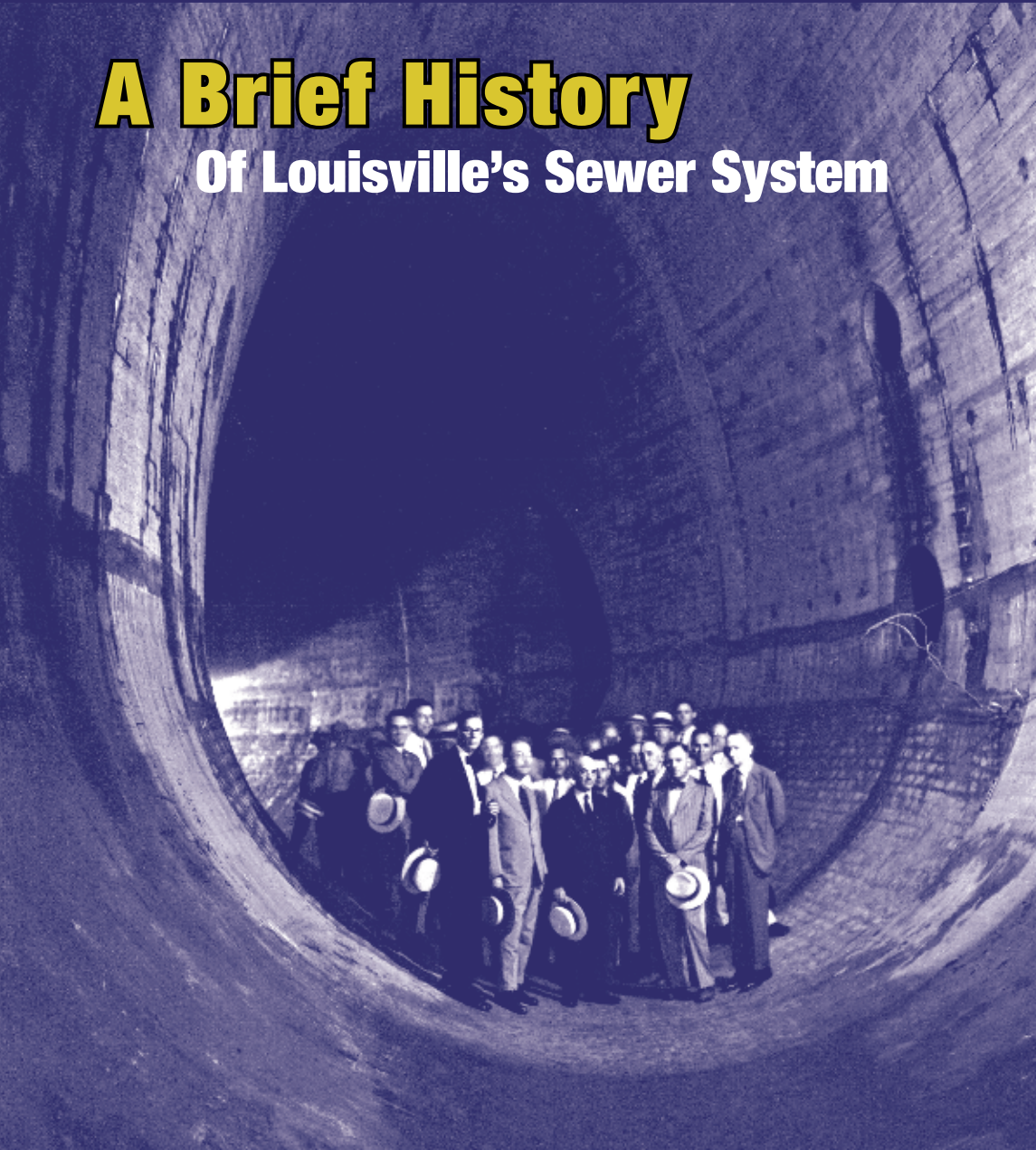
Wastewater Treatment Plants – MSD operates and maintains six regional wastewater treatment plants and 17 smaller plants. Elimination of the smaller plants is scheduled with future trunk sewer extensions. Two small plants, Watterson Woods and Polo Fields were eliminated in December, 2006. The six regional plants have all been expanded and upgraded to meet more rigid water quality standards and future growth potential. All of MSD's wastewater treatment plants are operated to meet state and federal water quality standards.

As always, if you have questions or suggestions, please feel free to call. Our primary goal remains the highest level of service to our customers, while keeping sewer and drainage costs below the national average. With your continued support, we can do both.

H.J. Schardein, Jr.
Executive Director

Beverly A. Wheatley
MSD Board Chair

A Brief History Of Louisville's Sewer System



Above: The Second Street sewer downtown is an example of Louisville's earliest underground sewers — a stonelined ditch capped by slabs of stone. Little has changed since this photo was taken in 1937 for the Commissioners of Sewerage.

Left: One of the Commissioners of Sewerage's proudest accomplishments was the Southwestern Outfall, constructed in the 1920s and early 1930s. The commissioners and other local dignitaries gathered in a 16 by 24-foot section of the sewer for its dedication in August 1932.

Louisville's first underground sewer was built before 1850 and was comprised of a stone-lined ditch covered with stone slabs. The sewer was designed to flow directly into area streams and the Ohio River.

As Louisville continued to grow, the system had expanded to 99 miles of sewer by the beginning of the 20th century. The first trunk sewers were designed to intercept and route some of the raw sewage away from Beargrass Creek and direct it to the Ohio River. During this time, the Commissioners of Sewerage, MSD's predecessor, constructed many sewers to transport both wastewater and stormwater in the same pipe to local waterways. Since there was no sewage treatment method used at the time, this was considered an

efficient and effective way to construct sewers in many areas of the midwestern and northeastern parts of the country.

A state law passed in early 1946 allowed for the creation of the current Metropolitan Sewer District. The new MSD was tasked with the operation, maintenance and expansion of Louisville's sewer system. MSD's first wastewater treatment plant began operation in 1958. Although sewage was then being treated before entering the Ohio River, a combined flow of sewage and stormwater would still overflow from the sewer system during heavy rains. The combined sewer overflow was an acceptable way to release pressure on an overwhelmed system. It wasn't until the latter part of the century that the impact these overflows had on local waterways was realized.

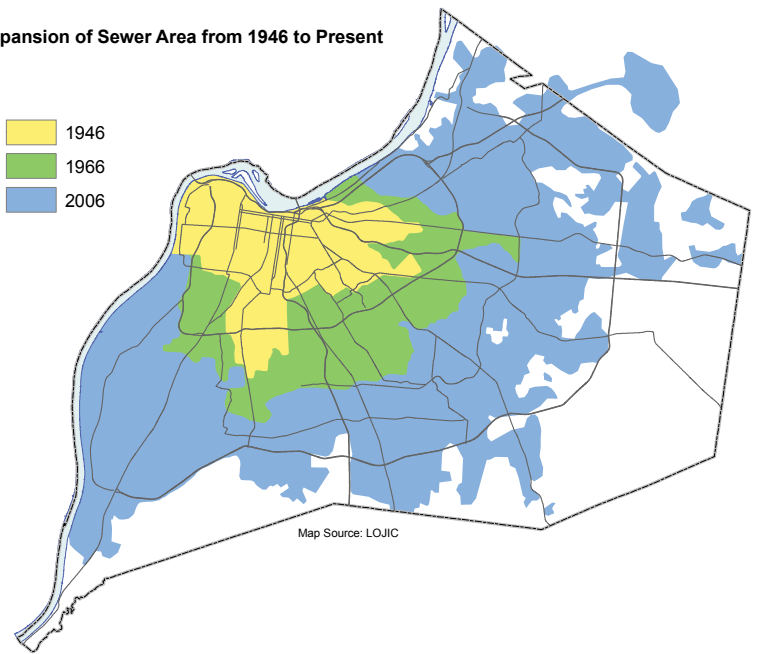
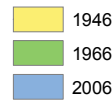
In contrast, flows from sanitary sewers are not designed to overflow. When they do, the overflows are usually the result of stormwater entering into the separate sanitary-only sewer system, either from old, cracked pipes that allow water to seep into the sewer or illicit downspouts or sump pumps that have been connected to the sanitary sewer. Since sanitary sewers are designed to handle only sewage flow, the additional water in the system pushes the sewer beyond its capacity. As MSD's service area continued to grow, privately constructed sewer systems were acquired and added to MSD's sewer network. Most of these private systems were not constructed to MSD's quality standards. As MSD continues to assess these old sewer systems, problem areas will be corrected to improve quality of life for the community.

Sewer System Grows With the Community

What we have **ACCOMPLISHED**

- ✓ *MSD has already completed more than \$1.4 billion in capital expansion and upgrades to wastewater and stormwater facilities.*
- ✓ *Eliminated 300 combined sewer and sanitary sewer overflow points*
- ✓ *Installed solids and floatable controls at 90% of CSO locations*
- ✓ *Separated 66,000 feet of combined sewers into separate lines for wastewater and stormwater*
- ✓ *Eliminated 40,000 septic tanks*
- ✓ *Eliminated 275 small package plants and pumping stations by converting flows to one of our six major Wastewater Treatment Facilities.*
- ✓ *Rebuilt and/or expanded hundreds of small pump stations to serve larger service areas and to provide better treatment of wastewater from homes, businesses, and industries.*

Expansion of Sewer Area from 1946 to Present



Map Source: LOJIC

By the early 1950s, a footprint of the combined sewer service area was well established. Driven by plentiful and inexpensive land, a poorly regulated post World War II building boom drove large commercial and industrial development out into the unsewered portions of the County. Residential developers acquired inexpensive property to fulfill the need for new housing, producing dozens of small independent sewer districts and poorly performing package wastewater treatment plants, along with thousands of septic systems.

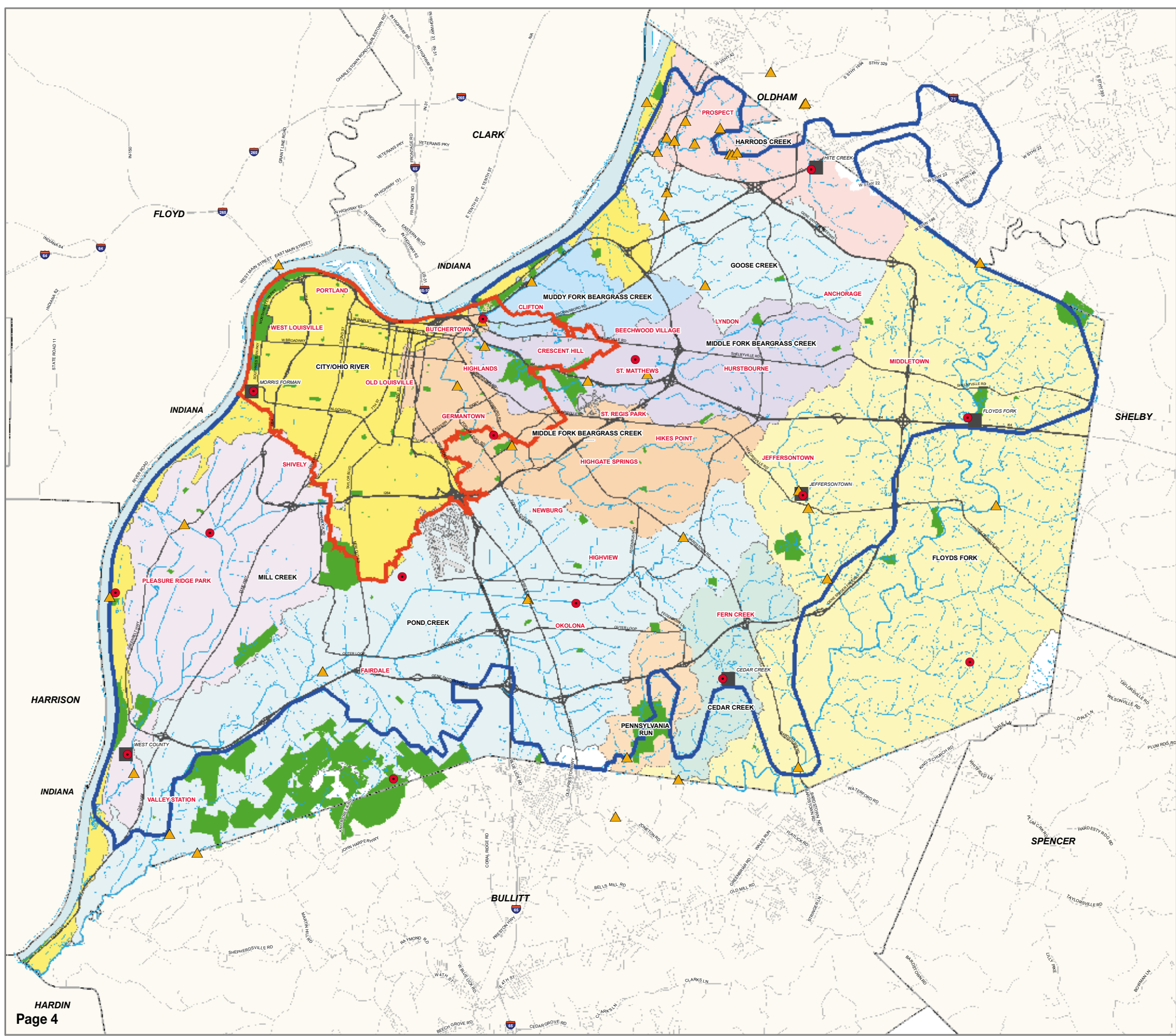
By 1964, the Jefferson County sewers included an independent sanitation district in the City of St. Matthews, five incorporated cities each with independent sewer systems, nine small sewer construction districts, 27 subdivisions with independent sewer systems, and 11 private or institutional sewer systems in addition to MSD's combined sewer service area. By 1972, there were about 350 small treatment plants in Jefferson County. Three hundred twenty-six of them had received at least one poor rating by the health department. These small systems were poorly maintained and they slowly began to cripple water quality in the county's waterways and streams. By the late 1970s and early 1980s, water quality in the county's streams had reached a critical point. Many waterways were unable to sustain aquatic life and were unsafe for human contact.

This was a national environmental crisis in the 1970s and 1980s, similar to the sewer overflow problem we face today. The solution was no less overwhelming. The problem affected every watershed in Jefferson County and the resolution required the planning and

construction of a comprehensive sewer system. Even then, accomplishing the task would take decades of work and an unprecedented financial investment. By 2006, MSD had eliminated over 40,000 failing septic tanks and 275 package treatment plants.



An MSD crew constructs a baffle in a combined sewer under Shawnee Park. The baffle will reduce the amount of solids and floatables that overflow into the waterways.



COMBINED AND SANITARY SEWER SYSTEM BOUNDARIES

- LEGEND**
- Rain Gauges
 - ▲ Sampling Sites
 - Streams
 - Regional Wastewater Treatment Plants - (6)
 - Airports
 - Sanitary Sewer Service Area
 - Combined Sewer Service Area
 - CEDAR CREEK WATERSHED
 - CITY/OHIO RIVER WATERSHED
 - FLOYDS FORK WATERSHED
 - GOOSE CREEK WATERSHED
 - HARRODS CREEK WATERSHED
 - MIDDLE FORK BEARGRASS CREEK WATERSHED
 - MILL CREEK WATERSHED
 - MUDDY FORK BEARGRASS CREEK WATERSHED
 - PENNSYLVANIA RUN WATERSHED
 - POND CREEK WATERSHED
 - SOUTH FORK BEARGRASS CREEK WATERSHED
 - Parks

Scale: 1" = 6000'

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Louisville/Jefferson County Information Consortium (LOJIC), a Jefferson County, Kentucky, based cooperative project of: Louisville Water Company, Metropolitan Sewer District, Property Valuation Administrator

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What is a watershed?

A **watershed** is an area of land where all water running off the land drains to a particular location. This location can be a stream, river, lake, wetland or ocean. No matter where you live, work, or play, you are in a watershed. All eleven watersheds in Jefferson County eventually drain to the Ohio River.

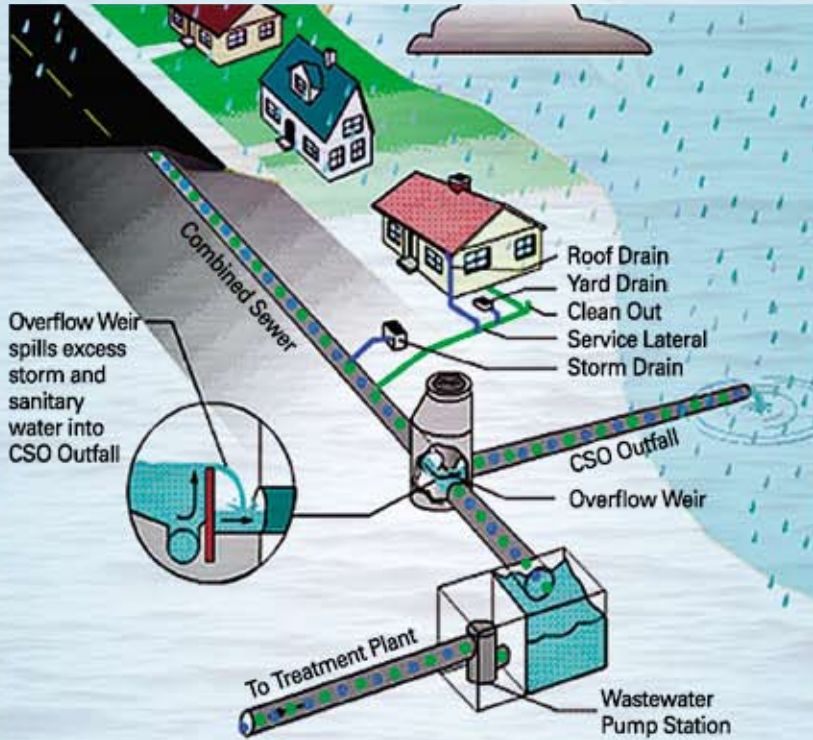
Public Meeting Announcement

Help us spread the word, and make plans to attend one of the upcoming scheduled public meetings to learn more about Project WIN, how you can help make a difference, and other initiatives related to improving our waterways.

MEETING NUMBER	DATE AND TIME	LOCATION
1	Tuesday, April 24, 2007 6:00- 8:00 PM	Southwest Government Center 7219 Dixie Highway
2	Thursday, May 10, 2007 6:00- 8:00 PM	NIA Center 2900 West Broadway
3	Monday, May 14, 2007 6:00 - 8:00 PM	East Government Center 200 Juneau Drive
4	Wednesday, May 16, 2007 6:00 - 8:00 PM	Central Government Center 7201 Outer Loop
5	Thursday, May 24, 2007 6:00 - 8:00 PM	Kentuckiana Girl Scouts Building 2115 Lexington Road

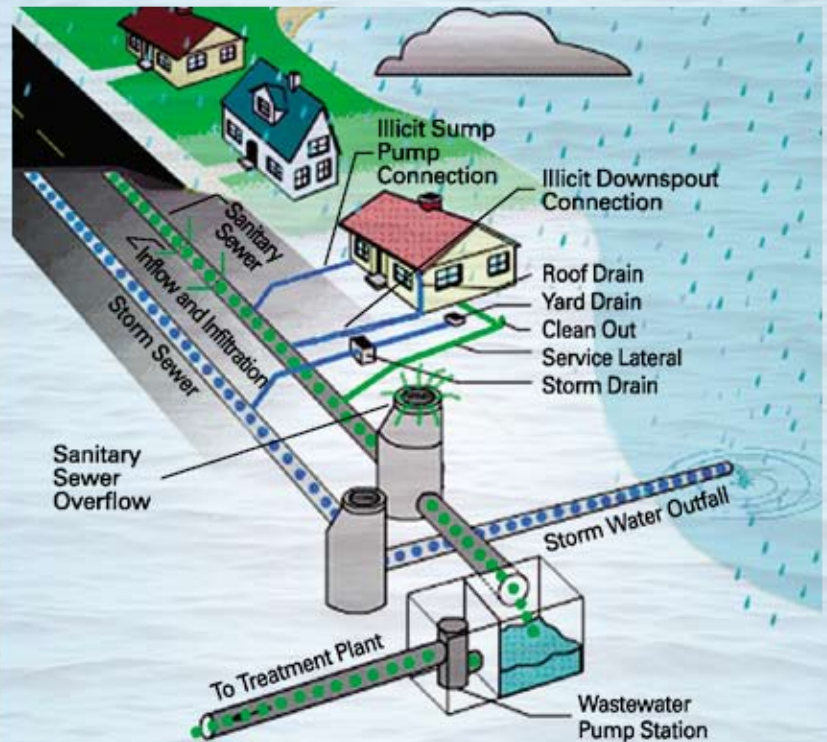
For more information, please contact our 24-Hour Customer Relations Department at 587-0603, or visit our website at www.msdlouky.org.

What is a CSO?



A separate sanitary sewer system is designed to carry only wastewater to a wastewater treatment plant; a separate stormwater system is designed to carry only stormwater that is transported to ditches and streams. In a combined sewer system, both wastewater and stormwater are carried in the same set of pipes to the treatment plant. During nearly every rain, stormwater gets into these sewer systems resulting in untreated sewage overflowing into area streams and the Ohio River. When these overflows occur in the combined sewer system, they are known as CSOs.

What is an SSO?



When overflows occur in the separate sanitary sewer system, they are known as SSOs. These overflows are generally caused by aging sewers or illegal stormwater and groundwater connections to the sanitary sewers and can contribute to water quality problems in our streams.

Adapted from graphic by The City of Bremerton, WA

Clean Waterways Are Everybody's Business

SEWER OVERFLOWS

Here are some things you can do to help reduce sewers from overflowing during rain storms. You can begin to make an immediate difference by taking the following steps:

- Minimize water using activities, such as clothes-or dishwashing, bathing, etc., as much as possible during storms.
- Disconnect downspouts, driveway or foundation drains, groundwater sump pumps or any other stormwater connection from the sanitary sewer system. Re-direct these facilities into your lawn or garden rather than going into the sewer. Call MSD Customer Service at 587-0603 and inquire about participation in the Plumbing Modification Program to help with these expenses.
- Have the line that connects your house with the public sewer line (called a house lateral) inspected. Repairing broken laterals, which is the homeowner's responsibility, can reduce stormwater from leaking into pipes and prevent sewer backups into your home.

Keep storm drains clear of yard clippings, leaves and litter

In the combined sewer system, catch basins drain into the combined sewer when it rains. When yard clippings, leaves and/or litter make their way into catch basins, it can cause street flooding if it doesn't flush through the basin itself. If it does flush through into the

combined sewer, then the debris may not make it to the wastewater treatment plant for removal. Instead, it may exit the system into Beargrass Creek or the Ohio River through combined sewer overflows. In the separate sanitary sewer system, catch basins drain straight to the waterways through the storm drain system. Again, the debris that passes through the catch basin will flow into the creek that it is connected to.

Not only will keeping these areas clear for proper drainage help prevent flooding, it will also protect our creeks and the river from unsightly debris buildup.

Here's what you can do:

- Remove leaves from the drainage ditches and catch basins, and properly dispose of them
- Keep tree limbs and other yard debris from obstructing driveway and street culvert pipes
- Pick up litter that may catch on drainage facilities and obstruct the flow of water
- Compost or properly dispose of grass clippings and leaves

Keep fats, oils and greases out of the sewer system

One of the most common causes of basement backups and sewer overflows is sewer pipes blocked by fats, oils and grease — or FOG. Grease gets into the sewer from household drains and from poorly maintained grease traps in restaurants and other businesses.

Grease sticks to the insides of sewer pipes under your property and under the streets. Over time, the grease can build up and block the entire pipe, flooding homes, yards and streets with sewage. By following these simple guidelines, you can help protect your home from sewer backups due to grease buildup and help keep the community's sewer system operating properly.

- Never pour grease down sink drains or into toilets. If it doesn't stick to the pipe in your house, it will eventually cool down and stick to the sewer before reaching the wastewater treatment plant.
- Scrape grease and food scraps from trays, plates, pots, pans, utensils, and grills and cooking surfaces into a can or the trash for disposal or recycling.
- Put baskets/strainers in sink drains to catch food scraps and other solids, and empty them into the trash for disposal.
- Do not put grease or greasy foods down garbage disposals.



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A Few Things to Remember

While Enjoying Our Waterways

During heavy rains, sewers carrying stormwater and sewage can become overloaded and overflow into our creeks, streams and rivers. Sewage contains harmful bacteria. Urban creeks and streams are also contaminated by polluted runoff. This runoff contamination comes from rainwater flowing quickly across hard surfaces, picking up pollutants -- from pet and animal feces, pesticides, fertilizers, chemically treated lawns, gas, oil and other types of residue that flow off industrial sites, roads, buildings, and parking lots. All Jefferson County waterways are affected during rain storms. As the recreation season gets into full swing, MSD wants to ensure your health and safety by reminding you of a few safety tips to practice to keep you, your family and pets safe while using the community's waterways this summer.

Pay special attention to keeping children and pets away from drainage ditches, creeks, streams, ponds and rivers during and 48 hours after a rain storm.

Don't swim, fish, or participate in activities during which water could be swallowed until at least 2 days after rain has ended to allow time for the pollutants to travel downstream or settle out of the water.

If you do come in contact with a body of water during or after a rainfall, simply wash your hands thoroughly in warm, soapy water before handling food or touching other persons or surfaces.



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