Sewer Overflows In Our Community

Originally published: June 2008
Updated: October 2018
About MSD

Formed in 1954, the Metropolitan St. Louis Sewer District (MSD) is the governmental agency that provides wastewater and stormwater management services for all of the City of St. Louis and approximately 90 percent of St. Louis County. Comprised of 79 separate sewer systems that have been incorporated into one entity over the last several decades, MSD services over 400,000 single-family residential, multi-family residential, and commercial/industrial accounts.

The sewer system MSD manages today is one of the largest and most complex systems in the United States. In terms of wastewater sewers alone, MSD manages the 4th largest system in the nation. To give some perspective on what “4th largest” means for our community, consider that MSD’s wastewater system is approximately the same size as the wastewater system in Los Angeles, California. Although the two systems are approximately the same size – as measured in miles of sewers that handle wastewater – system upgrades and operational costs in Los Angeles are shared by over 5 million people versus approximately 1.3 million in St. Louis.

Overall, MSD maintains approximately 6,500 miles of sewers that handle wastewater. Within MSD’s service area are two distinct sewer systems that handle wastewater: A combined sewer system that handles both wastewater and stormwater within the same sewer pipe; and a separate, stand alone, sanitary sewer system that is designed to handle only wastewater within the sewer pipe. Depending on what part of MSD’s service area you live in, you are either served by a combined sewer system or a separate sewer system.
This labyrinth of sewers leads to 7 wastewater treatment plants that combined treat, on average, over 350 million gallons of wastewater per day. In addition to sewers that in some manner handle wastewater, MSD maintains over 3,000 miles of sewers that handle only stormwater and are not a part of the wastewater collection and treatment system.

Throughout MSD’s service area, there are hundreds of points where a combination of rainwater and wastewater discharges into local waterways from the sewer system during moderate to heavy rainstorms. These sewer overflow points act as relief valves when too much rainwater enters the sewer system – without them our community could experience thousands of basement backups and/or extensive street flooding. (Even with these overflows points, basement backups can number in the dozens to hundreds during particularly heavy rains.) Depending on where sewer overflows are located within MSD’s system, they are classified as combined sewer overflows --or-- constructed separate sewer overflows. Many of these overflows are a legacy of the way our wastewater systems were first built. Though most overflows predate the District’s creation in 1954, they are still MSD’s responsibility and efforts to address the problem must continue.

The issue of overflows has been a significant focus of MSD’s work for many years. For example, from 1992 to 2012 MSD spent approximately $2.7 billion to eliminate over 380 overflows. Today, our work to address sewer overflows and improve water quality continues through the Consent Decree. This work, also known as MSD Project Clear, calls for $4.7 billion in spending over 23 years. MSD Project Clear began in 2012 and addresses our community’s
wastewater collection and treatment capabilities on a system-wide basis. This program is a mammoth undertaking that will benefit St. Louisans – and our environment – for generations to come.

History of Sewer Systems in St. Louis

When combined sewers were first built in the St. Louis area in the 1850s, they were considered a major advancement in protecting the public’s health and safety. For the first time, wastewater and rainwater could be carried away from major population centers. This in-turn would help protect the community from diseases – such as cholera – that were common in the 19th century.

During the early to mid-1900s, the construction of combined sewers was phased out in favor of separate sewers, so that rainwater and wastewater could be carried in separate sewer pipes.

Early sewer systems drained directly into local rivers and streams. However, by the middle to latter part of the 20th century, the use of wastewater treatment plants started to become standard throughout the United States, including St. Louis. Wastewater – that years earlier would have been discharged directly into local waterways – now went to treatment plants to be cleaned and returned to the environment. In spite of modern-day wastewater treatment plants being the standard, both combined and separate sewers still present challenges for our community – challenges faced by many cities across the country.

When combined sewers were built, they were built with a finite
capacity to handle wastewater and rainwater at the same time. (This is true of separate sewers and stormwater sewers as well – all sewers have a capacity limit.) As our St. Louis community developed and grew, valuable green areas were paved over to make way for roads and buildings. These green areas that contained trees, bushes, grass, and other natural surroundings, were no longer available to soak up rainwater during storms – in their place was hard concrete or blacktop that cannot absorb rainwater. Thus, the elimination of green space and natural areas has caused combined sewers to handle more and more rainwater and has put additional capacity demands on the system. During rainfalls, so much rainwater can sometimes enter a combined sewer that it becomes overcharged. An overcharged sewer occurs during moderate to severe storms, when high volumes of rainfall during a short period of time.

To avoid potentially thousands of basement backups and/or severe street flooding when combined sewers overcharge, the system will discharge a combination of rainwater and wastewater into local waterways. These overflow points in the combined system are known as combined sewer overflows.

The wastewater portion of the separate sewer system was not designed to handle stormwater flows. However, due to a condition known as inflow and infiltration, stormwater can enter portions of the separate sewer system designed to handle wastewater only. This inflow and infiltration of water into the wastewater system can occur through weakened joints that connect sections of sewer pipe and have deteriorated over time. Water can also enter the wastewater system through cracks in the sewer pipe itself that develop with standard usage and age. Additionally, when downspouts and drains meant to handle stormwater runoff from
private property are inappropriately connected to the wastewater portion of the public sewer system. When too much rainwater enters a wastewater only sewer, the capacity of the system can easily be exceeded and basement backups may occur. To help alleviate these and other capacity issues, overflow points were constructed as part of the separate sewer system. These overflow points in the separate system are known as constructed separate sewer overflows. Constructed separate sewer overflows exist throughout our St. Louis area’s separate sewer system and were built to act as relief valves for the wastewater portion of the system during moderate to heavy storms.

If an overflow discharges or not is dependent upon a number of factors, including how much rain falls over a given period of time. The result is that not all overflows discharge every time it rains – in fact, some overflows will go months or years without discharging. Though both types of overflow points generally have the same function, the distinction between combined sewer overflows and constructed separate sewer overflows is made for engineering and regulatory purposes.

What MSD Has Been & Will Be Doing

Sewer overflows are perhaps the biggest challenge facing MSD today. MSD spent approximately $2.7 billion between 1992 - 2012 to remove more than 380 overflows. Today, MSD Project Clear has committed $4.7 billion over 23-years to address remaining sewer overflows – thereby improving water quality for everyone.
MSD is aggressively working to remove each and every constructed separate sewer overflow. However, we must be careful that we do not cause additional basement backups when removing this type of overflow. Therefore, in addition to the construction projects we have completed and are currently building to remove constructed separate sewer overflows, we are thoroughly investigating and planning out the long-term capacity needs of the separate sewer system. It’s important that we build the right solution for each and every overflow.

Overflows in the combined system are more complicated – and possibly more costly to address. Due to engineering and cost limitations, and in accordance with environmental regulations, not all combined sewer overflows will be removed. As such, controlling these overflows is the goal. An example of controlling combined sewer overflows would be to reduce their number and how many times they discharge in a given timeframe.

As part of the $4.7 billion in projected spending for MSD Project Clear, $100 million will go toward green infrastructure projects, including partnerships with municipalities, local government agencies, schools, community development organizations, and private developers through rainscaping grant programs. Green infrastructure within the grant program area specifically helps address water quality in the Mississippi River when overflows do occur. Additionally, by lowering the amount of stormwater runoff entering the sewer system, rainscaping can help to alleviate basement backups and sewer overflows.

Throughout the United States, hundreds of communities are dealing with the challenges of combined sewer overflows. As required by
federal and state regulations, MSD developed a Long-Term Control Plan, which serves as a blueprint for how combined sewer overflows are controlled. During its development, MSD reviewed what other communities have done to control their combined sewer overflows, while recognizing that the engineering that worked in other communities, may not work in ours – ours is a very unique system that requires very unique solutions.

In 2009, MSD submitted its Long-Term Control Plan to regulators. The plans received approval in 2011. To develop this plan, MSD engaged the public through open houses; presentations to business, community, environmental and municipal groups; meetings with key stakeholders; and many other activities. The plan submitted to regulators reflected the feedback obtained from these stakeholders.

The plan calls for reducing the number of combined sewer overflows along the Mississippi River’s tributaries – such as the River des Peres and Maline Creek – and for enhancing green infrastructure in areas where combined sewer overflows discharge directly into the river.

Implementing the Long Term Control Plan requires tremendous effort that will only be matched – if not outpaced – by a concurrent, yet separate program, to remove our system’s constructed separate sewer overflows. These are the overflows that are located in the part of the system where the wastewater and stormwater systems are separate. Addressing overflows in the separate area is more straightforward than addressing overflows in the combined area – the Federal Clean Water Act of 1972 is very clear in that all constructed separate sewer overflows must be eliminated. The challenge in this part of our system is again capacity related; but green infrastructure and other options used for combined sewer
overflows are not the solutions. Overflows in the separate system are addressed through the sealing of weakened joints connecting sections of sewer pipe; rehabilitation of cracked and aging pipes; and disconnection of downspouts and stormwater drains from the separate sanitary system. In short, stopping rainwater from entering the separate sanitary sewer system leads to the elimination of separate sewer overflows and – because the solution is the same for both – addresses basement backups.

**Legal Agreement**

In June 2007, the State of Missouri and the United States Environmental Protection Agency (EPA) filed a lawsuit against MSD over the status of the overflows just described. The State of Missouri and EPA were later joined by the Missouri Coalition for the Environment.

In August 2011, the EPA announced a settlement agreement, and on April 27, 2012, the US District Court for The Eastern District of Missouri entered the Consent Decree, thus concluding the litigation of United States And State Of Missouri V. Metropolitan St. Louis Sewer District; Case No. 07-1120.

The Consent Decree requires the District to spend approximately $4.7 billion, in 2010 dollars, over a 23-year period. Throughout this period, improvements will be made to MSD’s separate sewer system, combined sewer system, and wastewater treatment plants. When complete – and aside from sustaining or creating tens of thousands of
local jobs – this work will help protect our natural environment and local community from a combination of rainwater and sewage that is discharged into area waterways during moderate to heavy rains – a discharge that can annually measure in the billions of gallons.

MSD’s spending of $2.7 billion between 1992 and 2012 to eliminate over 380 sewer overflows, reflects an understanding that there has never been any question about the need for continued work to upgrade and modernize the nation’s 4th largest sewer system. Rather, the true question is how quickly this work is completed – which, in-turn, is the driver behind continued increases in monthly sewer bills. While spending $4.7 billion over 23-years as a part of the Consent Decree is a very fair agreement when compared to the dozens of other cities across the nation that have been sued by the Federal Government, the fact remains that this is billions of dollars that will come from the pocketbook of St. Louis ratepayers – with little to no state or federal assistance – and will be unavailable for other critical needs in our community.

To assist those struggling with their bills, MSD has in place a Customer Assistance Program for qualified low-income, elderly, and disabled customers. This program includes tenants of rental properties who are responsible for the MSD bill. Qualified customers receive a rate reduction equal to 50 percent of the current charges on their monthly sewer bill.

Beyond the regulatory issues, the St. Louis sewer system – like much of the infrastructure in our region – is very old and in need of investment and upgrades. As MSD works to implement the requirements of the Consent Decree, we will seek to highlight the need for renewed investment in all types of infrastructure, so that
future generations may reap the same, if not greater, benefits that current and past generations have enjoyed.

The Public’s Role

It is important that the public be made aware of sewer overflows and their impact on our environment. Regardless of where one lives within MSD’s service area, we all share the same environment. And we all have the same concerns and goals for the type of environment that we leave for future generations.

MSD is working to educate the public on the issue of overflows. Part of this education is the placement of signs in multiple areas that could be impacted by active overflows.

Required by the EPA, the signs clearly state that the structure the placard is attached to is an overflow point and during rainfalls a combination of wastewater and stormwater may discharge into a nearby waterway. For overflow points where no easily identifiable structure exists, the signage is posted nearby.

As part of these ongoing efforts to educate and inform the public, MSD will also be introducing new features from time to time on its website at www.stlmsd.com. These features will be part of larger community outreach efforts designed to engage the public on wastewater and stormwater issues that affect our entire community.
If you have any further questions about sewer overflows in our community or this brochure, please contact MSD’s Customer Service Center at (314) 768-6260 or visit www.stlmsd.com.