

# SANITARY SEWER COLLECTION SYSTEM ANNUAL PERFORMANCE REPORT



2012-2013

City of Lancaster



A report of the history, current assessment, budget, activities, and the achievements of the Lancaster, California Sewer Collection System in Fiscal Year 2012-2013.

# SANITARY Sewer Collection System Annual PERFORMANCE Report

LANCASTER, CALIFORNIA 2012-2013

## System Overview:

A Sanitary Sewer Collection System is a series of pipes, manholes, and lift stations that convey waste water from homes and businesses to a treatment plant. The City of Lancaster's sanitary sewer collection system consists of a network of 429 miles of sewer lines, 9,008 sewer manholes, and 1 sewer lift station. The oldest sewer pipes in the City were installed in 1947; our pipe's average age is over 30 years old. The estimated value of our sewer collection system is in excess of 300 million dollars. Our goal is to properly manage, operate, and plan for the system to ensure it is a valuable asset for many years to come.

## City of Lancaster Sanitary Sewer System Collection History:

The City assumed responsibility for the operation and maintenance of its sanitary sewer system from the County of Los Angeles Consolidated Sewer Maintenance District on July 1, 2008. At that

**DID YOU KNOW? OVER 12 MILLION GALLONS OF SEWAGE FLOWS THROUGH LANCASTER SEWER PIPES**

time the City of Lancaster formed Utility Services, a Division of Public Works. Our goal was to reduce the number of sewer overflows and to develop a program for the sustainability of the system. Working with the State and the

County Sanitation District, we developed a maintenance program where we would systematically clean the sewer pipes and inspect them both visually and with cameras. We also developed a program to reduce the amount of harmful materials being discharged into the pipes. With these efforts we have greatly reduced the number of overflows and feel we have a reliable plan to prolong the life of our pipes and manage its orderly growth. We are able to accomplish this while keeping costs low to ensure property owners are paying only their minimal fair share for the services provided.

## Sanitary Sewer Overflow:

A collection system's greatest concern is a sanitary sewer overflow (SSO); this is where a pipe is plugged and raw sewage water flows out of a manhole. SSO's are typically caused by roots growing into the pipes or a buildup of grease. Before the City maintained the system, Lancaster suffered 20 or more SSO's every year. Through following our proactive plan, we experienced only 3 SSO's last year. This is less than one quarter of the state wide average rate of overflows.



**Maintenance Program:**

*Cleaning*

We clean our pipes regularly using Hydro-Jetting, or high pressure jetting, with water and vacuum. This removes grease buildup as well as minor roots and debris to enable the waste water to flow freely through the pipes. Blocked waste water causes odors, SSO's, and damages pipes. Roots are also removed by a mechanical cutting rodder or treated with environmentally safe foam. The majority of our maintenance budget is spent on cleaning lines. We clean every pipe at least once every four years and clean trouble spots much more often.



*Inspections*

Waiting for damages or blockages to present themselves is an expensive maintenance strategy. Therefore, we follow a strict inspection schedule to identify problems before they result in SSO's or expensive repairs. The City owns a closed circuit television (CCTV) truck. Our operator sends a camera on a small wheeled vehicle through the sewer lines. It is controlled remotely from inside the truck and the video is stored for further analysis. Blockages, roots, cracks, and damaged pipes are located and cleaning or repair is scheduled. CCTV greatly enhances the planning of the maintenance and repair programs.

When waste water is blocked in a line it will slowly rise and fill a manhole. We have identified the locations where blockages are common. We visually inspect these manholes on a regular basis to look for impending overflows. We have installed "smart" manhole covers which have sensors on the underside of the manhole covers to measure water levels. If there's a dangerous spike, a utility services sewer maintenance crew member is alerted and a repair crew sent out. This prevents costly and messy sewer overflows. Smart manhole covers are currently installed at three locations within the City which previously experienced sewer overflows.

**WOULD YOU BELIEVE? SEWER WATER CONTAINS LESS THAN 1% "SOLIDS"**

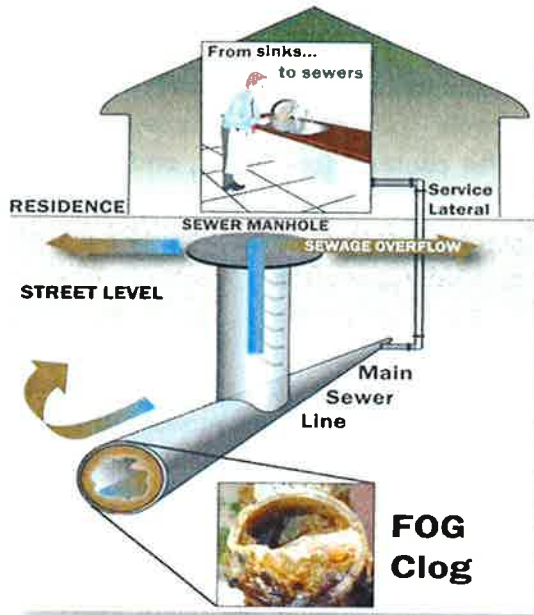
**Prevention Program:**

*Fats, Oils, and Grease (FOG)*

Keeping harmful substances from going into the sewer is much easier than trying to get them out. Fats, Oils, and Grease are harmful to sewers. FOG feeds the bacteria that create hydrogen sulfide gas.

**YOU CAN HELP:  
NEVER POUR GREASE DOWN THE DRAIN.  
PUT IT IN A CAN OR SOAK IT UP IN A PAPER TOWEL AND PUT IT INTO THE TRASH**

Hydrogen sulfide causes a rotten egg smell, is a health risk, and deteriorates sewer pipes. FOG builds up in clumps in pipes and leads to blockages and SSO's.



Food service establishments (restaurants, cafeterias, etc.) produce a significant amount of FOG. Lancaster is among many cities that work with restaurants to reduce the amount of FOG they send down the drain. Minimally, a business will maintain best management practices to prevent FOG discharge like wiping off of pans and dishes into the trash before they go in the sink. Ideally, a business will have a grease removal device like a grease interceptor or trap. We are working to educate businesses on how to best reduce their FOG impact on the sewer system.

*Industrial Waste Water Discharge*

Some businesses manufacture or generate harmful chemicals that pose a health risk and damage sewer pipes if not properly disposed

of or treated. Lancaster is beginning a program to help businesses identify their hazards and ensure they are mitigated.

**Capital Improvements:**

A capital improvement program helps turn expensive emergency repairs into planned affordable improvements. With an investment as large as our sewer system, financial reserves and good planning are crucial.

As sewer pipes age or are exposed to chemicals, they can wear, crack, or collapse resulting in waste water flowing out and ground water seeping into the pipe. Once we have identified the sites in need of repair or replacement we develop a plan to fix them in the most cost effective manner. New methods such as cured in place lining using trenchless technology to rehabilitate pipes are proving to be an economical solution to digging up streets and installing new pipe. Lancaster is utilizing these and other cutting edge techniques to stretch our capital budget. Our trucks, equipment, and pumps require regular overhauls or replacement. We have developed, and are constantly enhancing, our long-term capital improvement program to ensure that major expenses are identified early and financial reserves are established.

**Staffing:**

The Utility Services Division currently consists of a staff of 26, including the Utility Services Manager, Assistant Manager, Associate Engineer, Assistant Engineer, Sr. Technician, Technician II, GIS Technician, three Inspectors, Secretary II, Public Works Supervisor, two Lead Maintenance Workers, seven Maintenance Worker II's, and five Maintenance Worker I positions.



The Division currently has the need for adding a construction crew, an additional cleaning crew, and a Systems Analyst in order to operate the sewer collection system most efficiently.

**Training:**

Our staff holds memberships in organizations such as the National Association of Sewer Service Companies, Inc. (NASSCO), Water Environment Federation (WEF), American Water Works Association (AWWA), and California Water & Environment Association (CWEA), American Public



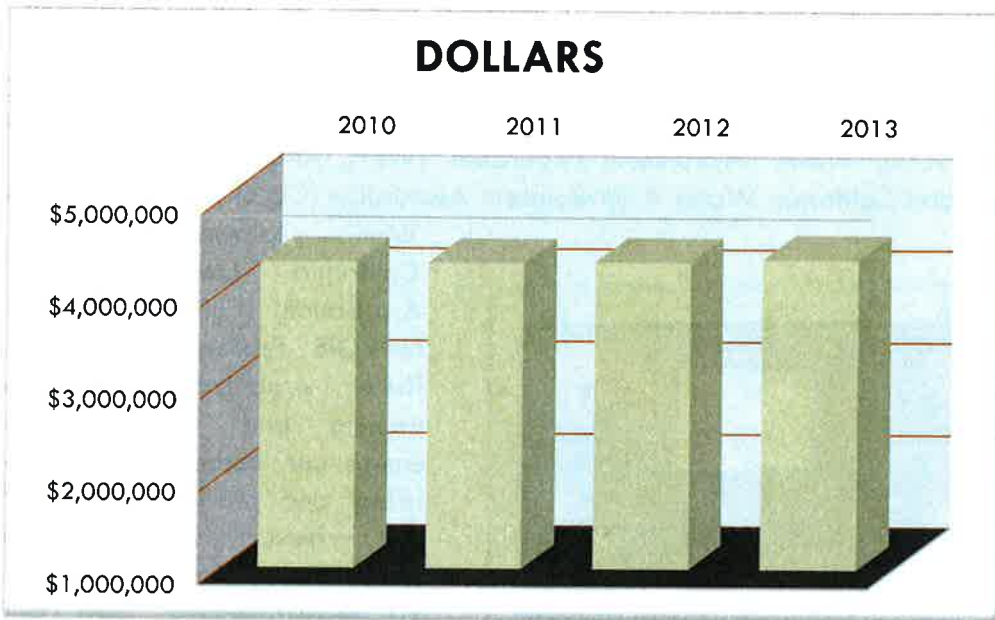
Works Association (APWA), California Land Surveyor's Association (CLSA), Association for GIS Professionals (URISA). These organizations provide training and certification to ensure our workers are able to safely and proficiently maintain our system. Staff members received 4 new certifications and 10 re-certifications. Two staff members obtained Bachelor of Science degrees, one in Environmental Management and one in Business Management.

**Conclusion:**

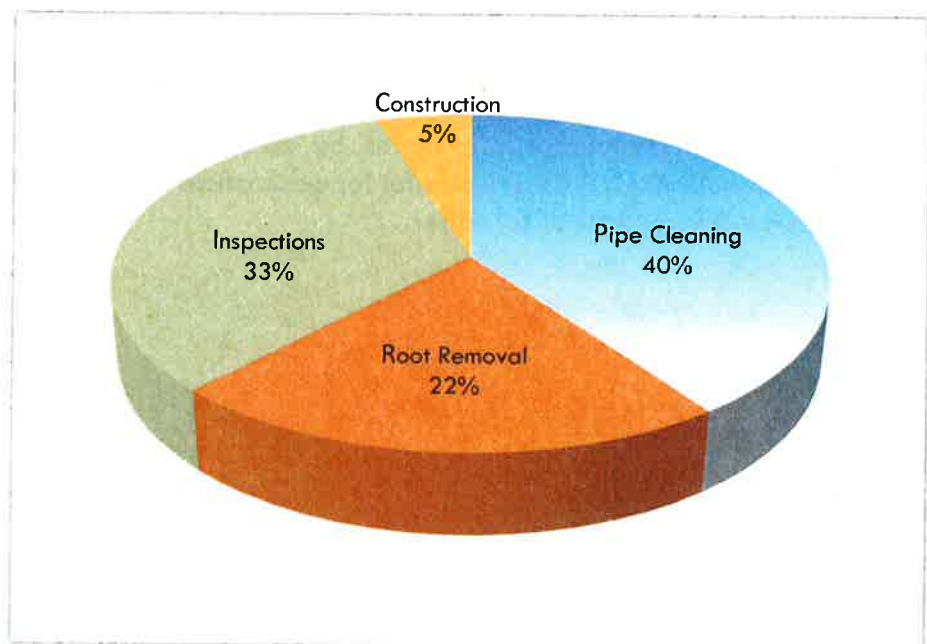
This year has been an exciting year for the City of Lancaster Utility Services Division. The confidence of the crews has grown as we enter our sixth year. Our maintenance, investigation, and prevention programs are proving to be successful and our capital program provides assurance that our system will be successful for generations to come. We enjoy our work and are proud to serve the residents of Lancaster.

**Sewer District Revenue:**

The City collects fees from owners of properties connected to the sewer system.



**Expenditures at a Glance:**



**SANITARY Sewer Collection System Annual PERFORMANCE Report**

**Sewer System Performance Review:**

<b>Sewer System Performance</b>	<b>7/1/09 to 6/30/10</b>	<b>7/1/10 to 6/30/11</b>	<b>7/1/11 to 6/30/12</b>	<b>7/1/12 to 6/30/13</b>
<u>Pipe Cleaning:</u>				
Pipe Flushing	438,231 LF, or 83.0 Miles	411,037 LF, or 77.8 Miles	179,977 LF, or 34.1 Miles	209,616 LF, or 39.7 Miles
Root Removal	76,459 LF, or 14.5 Miles	26,081 LF, or 4.9 Miles	172,194 LF, or 32.6 Miles	155,967 LF, or 29.5 Miles
<u>Closed-Circuit TV Inspection:</u>	248,959 LF, or 47.2 Miles	59,244 LF, or 11.2 Miles	146,203 LF, or 27.7 Miles	167,851 LF, or 31.8 Miles
<u>Manholes:</u>				
Inspected	2,453	369	2,268	1,507
Repaired	40	18	5	9
<u>Sewer Overflow (SSOs):</u>	4	10	4	3
Annual SSO Rate (SSO/100 miles of pipe)	0.99	2.3	0.93	0.69
Portion of SSO Runoff Contained	100%	98%	97%	95%
<u>Main SSO Causes:</u>				
Grease	100%	90%	95%	100%
Vandalism	0%	0%	0%	0%
Roots	0%	10%	5%	0%

**Your Role:**

Help keep costs down:

- ◆ Never put food in a drain; soak up grease and oil in a paper towel and put it in the trash or pour into a container and drop it off at the City Yard at Ave H & BYD Blvd. (7th Street West).



◆ Report spills, strong sewage odors, or any suspicious activity around manholes to the City at (661) 723-5985 or after hours at (661) 810-7000.

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**Wipes Clog Pipes!**

Only water, human waste, and toilet paper belong in the toilet, anything else -including items labeled "flushable"- may clog pipes and should never be flushed.

**No Drugs in the Drain**

Drop off medications, syringes, or lancets at the Sheriff's Station located at: Sierra Highway & Lancaster Blvd., (661) 948-8466.



<b>Sewer System Performance</b>	<b>7/01/12 to 6/30/13</b>
<u>Pipe Cleaning</u>	Flushing 39.7 Miles Root Removal 29.5 Miles
<u>CCTV Inspection</u>	31.8 Miles
<u>Manholes</u>	Inspected 1,507 Repaired 9
<u>Number of Sanitary Sewer Overflows (SSOs)</u>	3
Annual SSO Rate: SSOs/100 miles of pipe	0.69
Portion of SSO Contained	95%
<u>SSO Causes</u>	Grease 100% Vandalism 0% Roots 0%



Preparing for pipe cleaning with hydro-jetting

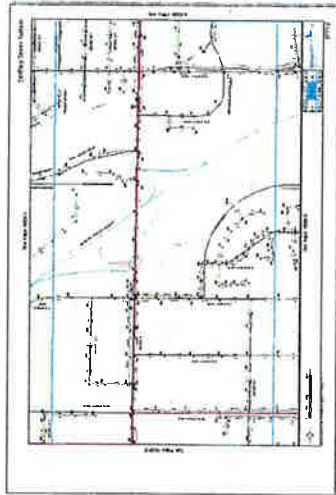
**2012-2013  
Sanitary Sewer  
Collection System  
Annual  
Performance Report**





# 2012-2013 Sanitary Sewer Collection System Annual Performance Report

The Public Works Department, Utility Services Division, is responsible for operating and maintaining the sewer collection pipe system. Estimated value of the City's sewer system is in excess of \$300 million.



## Sewer System Includes:

- ◆ 429 miles of sewer lines
- ◆ 9,008 sewer manholes
- ◆ 1 sewer lift station



## Goals:

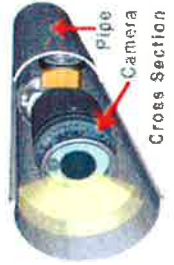
- ◆ Prevent Sanitary Sewer Overflows.
- ◆ Maintain the existing sewer system to lengthen its life.
- ◆ Improve sewer system with new construction.
- ◆ Public education to prevent fats, oils & grease (FOG) in sewer lines.



## Maintenance Program:

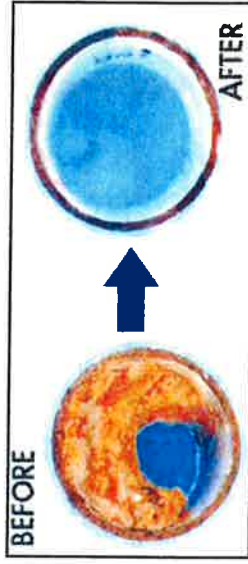
We inspect the system for any problems. We use a video camera mounted on a robotic vehicle, which is run down the sewer line. It

is controlled remotely from the truck. Blockages, roots, cracks, and damaged pipes are located and maintenance is scheduled.



## Cleaning:

We regularly hydro-jet our pipes using high pressure jetting with water and vacuum. The hydro-jet has enough power to blast through debris and grease build-up in the pipes.



## Repair:

We use a computerized system to prioritize which sections of the network need to be fixed.



## Public Education:

Lancaster works with residents and business owners to reduce FOG in the sewer.

