

SEWER COLLECTION SYSTEM ANNUAL REPORT



2011/2012

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 2011/2012.

Sewer Collection System Annual Report

LANCASTER, CALIFORNIA 2011/2012

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 one sewer lift station. The oldest sewer pipes in the City were installed in 1947; our pipe's average age is 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 10 MILLION GALLONS OF SEWAGE FLOWS THROUGH LANCASTER SEWER PIPES EVERY DAY

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 4 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.

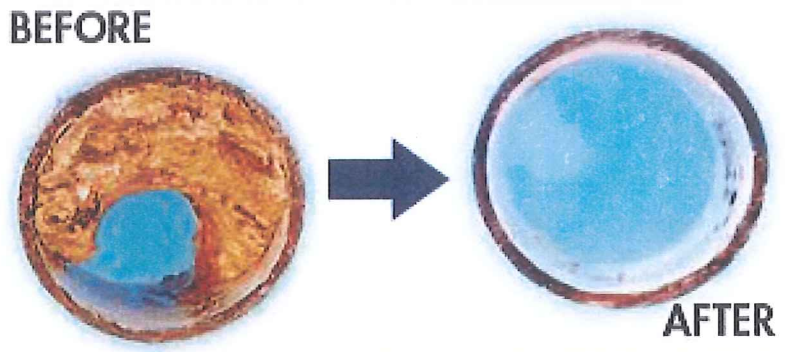
WOULD YOU BELIEVE? SEWER WATER CONTAINS LESS THAN 1% "SOLIDS"

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 are now testing "Smart" manhole lids that are equipped with laser sensors to detect rising water and send a signal to notify workers of the problem.

Prevention Program:

FOG

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

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

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.

In years past, our Division hired contractors to assist with cleaning the sewers. This year we grew by four maintenance staff which enabled us to perform all services in house rather than contracting them out.

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). These organizations provide training and certification to ensure our workers are able to safely and proficiently maintain our system. Staff members completed over 1,000 combined hours of training this year and obtained over 30 new certifications.

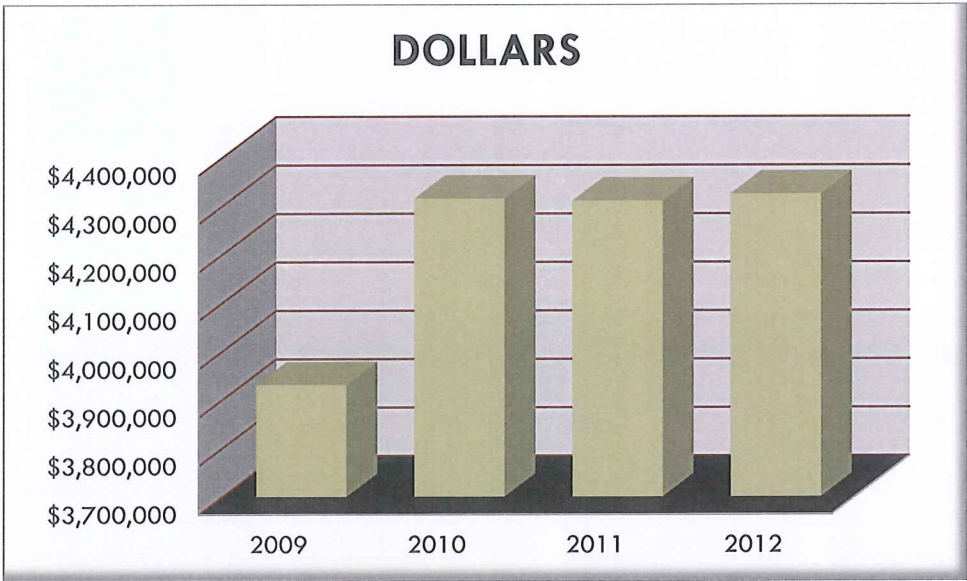


Conclusion:

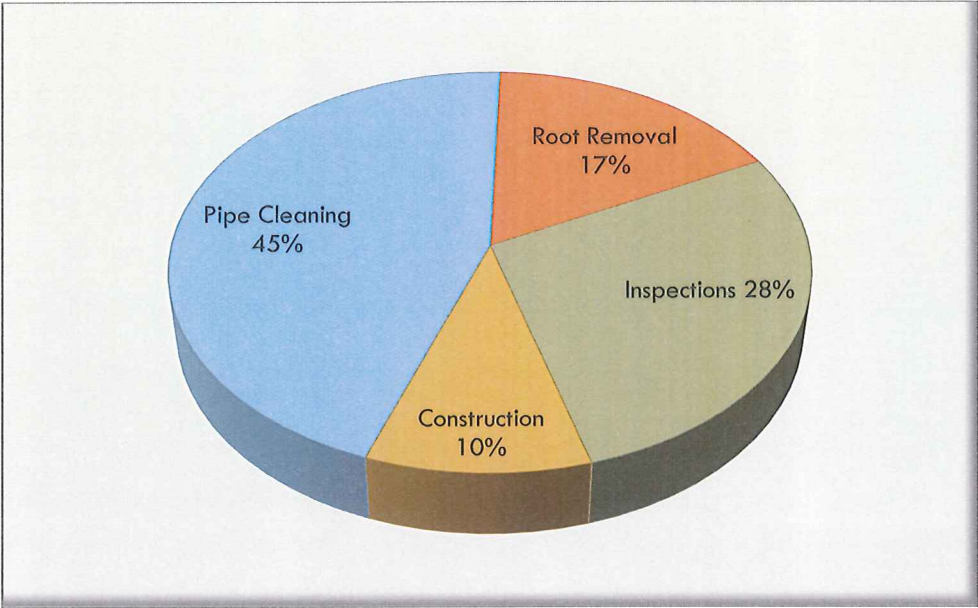
This year has been an exciting year for the City of Lancaster Utility Services Division. We have grown in size and confidence. Our maintenance, investigation, and prevention programs are proving to be successful and our capital program provides assurance that our system will be successful for generations 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:



Sewer System Performance Review:

Sewer System Performance	7/1/08 to 6/30/09	7/1/09 to 6/30/10	7/1/10 to 6/30/11	7/1/11 to 6/30/12
<u>Pipe Cleaning:</u>				
Total Flushed	407,124 LF, or 77 Miles	438,231 LF, or 83 Miles	411,037 LF, or 78 Miles	179,977 LF, or 34 Miles
Planned Flushed Maintenance	402,924 LF, or 76 Miles	419,331 LF, or 79 Miles	368,151 LF, or 70 Miles	161,977 LF, or 31 Miles
Unplanned (Emergency) Flushed Maintenance	4,200 LF, or 0.79 Mile	18,900 LF, or 3.5 Miles	42,886 LF, or 8 Miles	18,000 LF, or 3.4 Miles
Total Mechanical & Chemical Root Removal	350,080 LF, or 66 Miles	76,459 LF, or 14.5 Miles	26,081 LF, or 5 Miles	172,194 LF, or 32.6 Miles
Planned Root Removal	348,688 LF, or 66 Miles	74,803 LF, or 14 Miles	18,792 LF, or 3.5 Miles	160,140 LF, or 30.3 Miles
Unplanned Root Removal	1,400 LF, or 0.26 Mile	1,656 LF, or 0.31 Mile	7,289 LF, or 1.5 Miles	12,054 LF, or 2.3 Miles
Percentage of Planned (non- Emergency) Maintenance	99%	96%	87%	91%
<u>CCTV Inspection:</u>	17,500 LF, or 3 Miles	248,959 LF, or 47 Miles	59,244 LF, or 11 Miles	146,203 LF, or 27.7 Miles
<u>Manholes:</u>				
Inspected	3,771 Ea	2,453 Ea	369 Ea	2,268 Ea
Repaired	36 Ea	40 Ea	18 Ea	5 Ea
<u>Sewer Overflow (SSOs):</u>				
Number of Public SSO Events	5	4	10	4
*SSO Rate (SSO/100 Mi/Yr)	1.28	0.99	2.3	0.93
*Portion of SSO Runoff Contained	95%	100%	98%	97%
*Portion of SSO Runoff to Surface Waters	0%	0%	0%	0%
<u>*Main SSO Causes</u>				
*Grease	80%	100%	90%	95%
*Vandalism	20%	0%	0%	0%
*Roots	0%	0%	10%	5%

*Performance measures required by the City of Lancaster's Sewer System Management Plan (SSMP) dated March 2009.



Observing sewer line using video equipment

2011/2012 Sanitary Sewer System Annual Performance Report



Sewer System Performance	7/1/11 to 6/30/12
<u>Pipe Cleaning</u>	
Flushing	
Planned Maintenance	34 Miles
Unplanned Maintenance	3.4 Miles
Root Cut	
Planned Maintenance	30.3 Miles
Unplanned Maintenance	2.3 Miles
Percent of Planned to Unplanned Maintenance	91%
<u>Video Inspection</u>	27.7 Miles
<u>Manholes</u>	
Inspected	2,268
Repaired/Raised to Grade	5
Number of Public SSO Events	4
SSO Rate, SSOs/100 Mi/Yr	0.93
Portion of SSO Contained	97%
Portion of SSO to Surface Waters	0%
<u>SSO Causes</u>	
Grease	80%
Roots	20%

Citizens' Role:

Citizens of Lancaster can help by:

- ◆ Reporting vandalism, Sanitary Sewer Overflows (SSO), and
- ◆ Properly disposing of fats, oils and grease (FOG).



Never pour grease or oil down a drain; always soak it up with a paper towel and put it in a trash can.

- ◆ Reporting any suspicious activity around manholes, spills, or strong sewage odors to the City of Lancaster at (661) 723-5985 during regular business hours or (661) 810-7000 after hours.

No Drugs Down the Drain

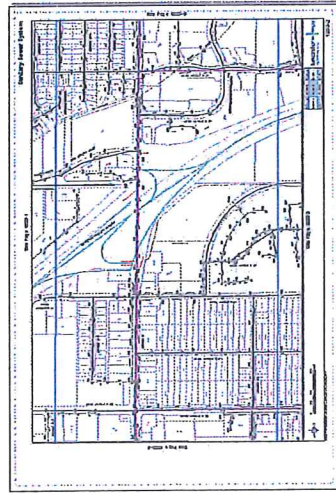
Please do not dispose of medications, other drugs, syringes, or lancets in the sewer system. They can be dropped off at the



Lancaster Sheriff's Station located at: 501 W. Lancaster Blvd., Lancaster, CA, 93534. Telephone: (661) 948-8466.

2011/2012 Sanitary Sewer 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.



City maintains:

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



Goals:

- ◆ Preventing Sanitary Sewer Overflows.
- ◆ Maintaining the existing sewer system to enhance its useful life.
- ◆ Improve sewer system by new construction.
- ◆ Public education to prevent fats, oils & grease (FOG) in sewer lines.



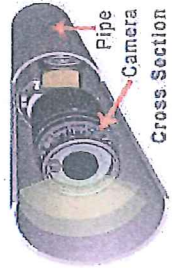
Maintenance Program:

The first step in maintaining the existing system is inspecting for any problems. The City uses a video



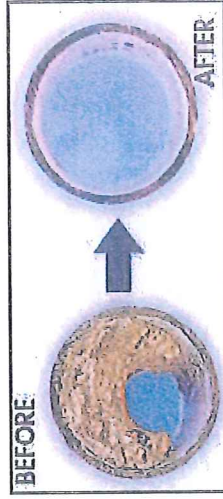
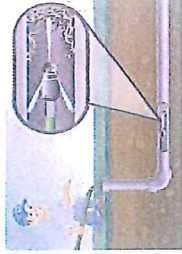
camera, mounted on a robotic vehicle, which is run down the sewer line. It is controlled remotely from the truck. Blockages, roots, cracks, and

damaged pipes are located and maintenance is scheduled.



● Cleaning:

We clean our pipes regularly using high pressure jetting with water and vacuum called hydro-jetting. The high pressure water jet has enough power to break up the toughest blockages and blast debris and grease buildup in the pipes.



● The City has developed a computerized system to prioritize which sections of the network needs to be improved.

● Public education:

Lancaster works with residents & business owners to reduce FOG

