The City of Fresno owns the collection system infrastructure within the City’s sphere of influence, an area of approximately 225 square miles.

Wastewater Management Division, through the Collections System Maintenance workgroup, maintains this infrastructure through a comprehensive preventive and corrective maintenance program.
The Collection System infrastructure is comprised of:

- 1,511 Miles of gravity sewer
- 12.1 Miles of force mains
- 23,421 Manholes
- 55 Junction Structures
- 15 Sewer Lift Stations
Collection System Maintenance (CSM) is responsible for the preventive maintenance of the City’s sanitary sewer system. This workgroup consists of 32 budgeted CSM Operators positions trained to operate the various vehicles and equipment necessary to perform day-to-day preventive maintenance and to respond to emergency calls 24/7 to address collection system maintenance issues.

- **Combination Unit (4)**
- **Hydro-Flusher (4)**
- **Mechanical Rodder (2)**
CSM Fleet and Equipment

CCTV Van (3)
Lift Station / Stand By (1)
Construction (1)
First Responder (2)
Dump Truck (1)
Drag Truck (2)
Assessment of the collection system using closed circuit television (CCTV) has changed the way sewer lines are cleaned.

In addition, information gained through daily video inspection and visual inspection from the routine cleaning process give essential information to develop future cleaning schedules and capital improvement projects.
Using Portable Cameras

- CSM uses CCTV to assess the condition of sewer lines providing important information on structure damage, grease blockage or other physical obstructions.

- Staff uses the Pathfinder portable camera to help guide the rodder truck to clean roots and debris that otherwise had to be cleaned blindly. It is also useful in follow up assessment of main line stoppages without calling out the video trucks.

- The Pathfinder can video main lines that the regular video truck cannot go through due to off-sets, broken or partially collapsed lines.
Accomplishments

- Mapping and Managing Databases
- Global Positioning System (GPS/AVL)
- Increase Training and Certification
- Outstanding Safety Record
- Sewer System Management Plan
- Performance Measures
- Helping Neighboring Communities in Need
- Public Outreach
I-View is a web enabled mapping and data viewer developed in-house.

I-View links various databases into a mapping system providing information accessible in one application.

Using ruggedized laptops in the field, CSM Operators can access collection system information using the I-View program and can remotely use applications such as opening and closing service requests, checking maintenance logs, or finding the latest video inspection of a job site.
CSM Operators have required and recommended training to ensure operational consistency and employee development.

NASSCO PACP and MACP, Traffic Control, Equipment and all Safety related training are required for all CSM Operators.

Involvement in CWEA has resulted in an increase of Collection System related training locally and staff is encouraged to participate.

CSM recently implemented a job rotation schedule for new employees to ensure training on all equipment and instruments are properly covered.
The Sewer System Management Plan (SSMP) was developed in-house with existing programs and measures already in place.

The City’s SSMP is an evolving document that adjust according to the assessment of the collection system and the needs of the community.
Performance Measures

- Sanitary Sewer Overflow Type 1
- Sanitary Sewer Overflow Type 2
- Customer Reported- Mainline Blockages
- Average Field Response Time
- Average Cost of Sewer Mainline Cleaned / Foot
- Average Cost of Sewer Mainline Cleaned / Mile
- Sewer Mainline Video Inspected
- Average Cost of Video Inspection
- Field Response- Lift Station Alarms
The number of Sanitary Sewer Overflow (SSO) events are a measure of collection system performance.
SSO Category 1 is a discharge of sewage exceeding 1,000 gallons per event; a discharge that makes its way to waters of the U.S.; or a discharge that enters a storm drain.

- **Target (0 SSOs)**
- **2010**
- **2011**
- **2012**
A Sanitary Sewer Overflow (SSO) Category 2 is a discharge of sewage less than 1,000 gallons in volume that results from a failure in the City’s sanitary sewer system.
Response time to attend an emergency or referral call is expected to be within 35 minutes.

Operators follow cleanup procedures after an SSO to ensure the safety and health of the community.

After an SSO, the main line is assessed to determine the cause for line stoppages.
The City helped the neighboring City of Reedley clear a blockage that was slowing down sewer flow and could have the potential to cause an overflow during a very important event.

The City sent a CCTV van to assess the situation and a hydro-flusher to help break the blockage. CSM Operators were successful and remained until uninterrupted flow was achieved.
Public information is necessary to educate the public of the impact of materials put down the drain.

Best Management Practices posters are provided to food services establishments at the time of their permit inspection.

PSAs during specific holidays remind the community to keep fats, oils and greases away from the drains.
Customer Service Feedback

- Customer satisfaction surveys are provided to residents in the areas serviced after a referral or emergency call.

- All surveys are reviewed to ensure proper customer service.

- Door hangers with recommendations are left when not able to talk to a customer directly after a cleaning event.
Sewer Maintenance Division officially merged with Wastewater Management Division in July 2010.

Challenge: Workgroup temporarily at a location 8 miles from the Division.

Opportunities: Merging administrative, technical services, maintenance and enforcement functions that support the goals of the Collection System Maintenance workgroup.
Fats, Oils and Grease Program

- Data from sewer line maintenance is entered into the “Fog Program 2008-2012” report.

- Information determines trends to help identify cleaning frequency for critical and non-critical areas.

- The City’s Pretreatment Program implements its inspection requirements of food service establishments according to areas of higher maintenance needs or “Hot Spots.”

- The City has legal authority to inspect and enforce Best Management Practice on food service establishments.


## COLLECTION SYSTEM MAINTENANCE

### FOG Program - Sewer Problem Areas

| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 36 | 1 | 7th | 4 | 043 | 046 | 049 | 052 | 055 | 058 | 061 | 064 | 067 | 070 | 073 | 076 | 079 | 082 | 085 | 088 | 091 | 094 | 097 | 100 | 103 | 106 | 109 | 112 | 115 | 118 |
| 35 | 9 | 7th | 31 | 050 | 053 | 056 | 059 | 062 | 065 | 068 | 071 | 074 | 077 | 080 | 083 | 086 | 089 | 092 | 095 | 098 | 101 | 104 | 107 | 110 | 113 | 116 | 119 | 122 | 125 | 128 |
| 36 | 1 | 8th | 11 | 050 | 053 | 056 | 059 | 062 | 065 | 068 | 071 | 074 | 077 | 080 | 083 | 086 | 089 | 092 | 095 | 098 | 101 | 104 | 107 | 110 | 113 | 116 | 119 | 122 | 125 | 128 |
| 37 | 8 | 7th | 28 | 070 | 073 | 076 | 079 | 082 | 085 | 088 | 091 | 094 | 097 | 100 | 103 | 106 | 109 | 112 | 115 | 118 | 121 | 124 | 127 | 130 | 133 | 136 | 139 | 142 | 145 | 148 |
| 38 | 28 | 7th | 19 | 070 | 073 | 076 | 079 | 082 | 085 | 088 | 091 | 094 | 097 | 100 | 103 | 106 | 109 | 112 | 115 | 118 | 121 | 124 | 127 | 130 | 133 | 136 | 139 | 142 | 145 | 148 |
| 39 | 67 | 7th | 28 | 070 | 073 | 076 | 079 | 082 | 085 | 088 | 091 | 094 | 097 | 100 | 103 | 106 | 109 | 112 | 115 | 118 | 121 | 124 | 127 | 130 | 133 | 136 | 139 | 142 | 145 | 148 |
| 40 | 7th | 28 | 070 | 073 | 076 | 079 | 082 | 085 | 088 | 091 | 094 | 097 | 100 | 103 | 106 | 109 | 112 | 115 | 118 | 121 | 124 | 127 | 130 | 133 | 136 | 139 | 142 | 145 | 148 |

*Valuedollar/Projects is ProgressFOG Program 2009-2012: valuedollar seven.*
New development is required to follow the City’s Standard Specifications and Standard Sewer Drawings.

The City minimizes occurrences of SSOs due to hydraulic loading by ensuring current and future sewer flows do not exceed design capacity of sewer lines at peak flow.

CSM Supervisors have the final approval for new development connecting to the City’s mains, ensuring proper connection to minimize future conveyance and maintenance issues.
The City of Fresno Wastewater Collection System Master Plan provides a capital improvement program for new construction and rehabilitation projects.

Collection System Maintenance has a construction crew that performs small repairs, including manhole repairs and spot repairs of broken sewer lines.
Capital improvement projects include rehabilitation of sewer lines, manholes and lift stations, emergency repairs and installation of flow monitoring stations.

FY10 budget allocated $19.8 million for collection system rehabilitation projects.
Long Range Planning

- Wastewater Collection System Master Plan – Revision
- Collection System Maintenance Workgroup Relocation
- Lift Station SCADA Relocation
- Remote Access to Collection System Database
- City of Fresno’s Downtown Revitalization
- Sewer Lateral Connection / Replacement Fund
- Public Education Efforts
- Sewer System Management Plan (SSMP)
QUESTIONS?

Contact Wastewater Management Division
(559) 621-1496
or
(559) 621-5100