

**What is CMOM?**

5-1 → 5-2  
300

# Capacity, Management,

Debris (grease), 5 % cross-sectional area  
loss, from 08 to 05 o'clock

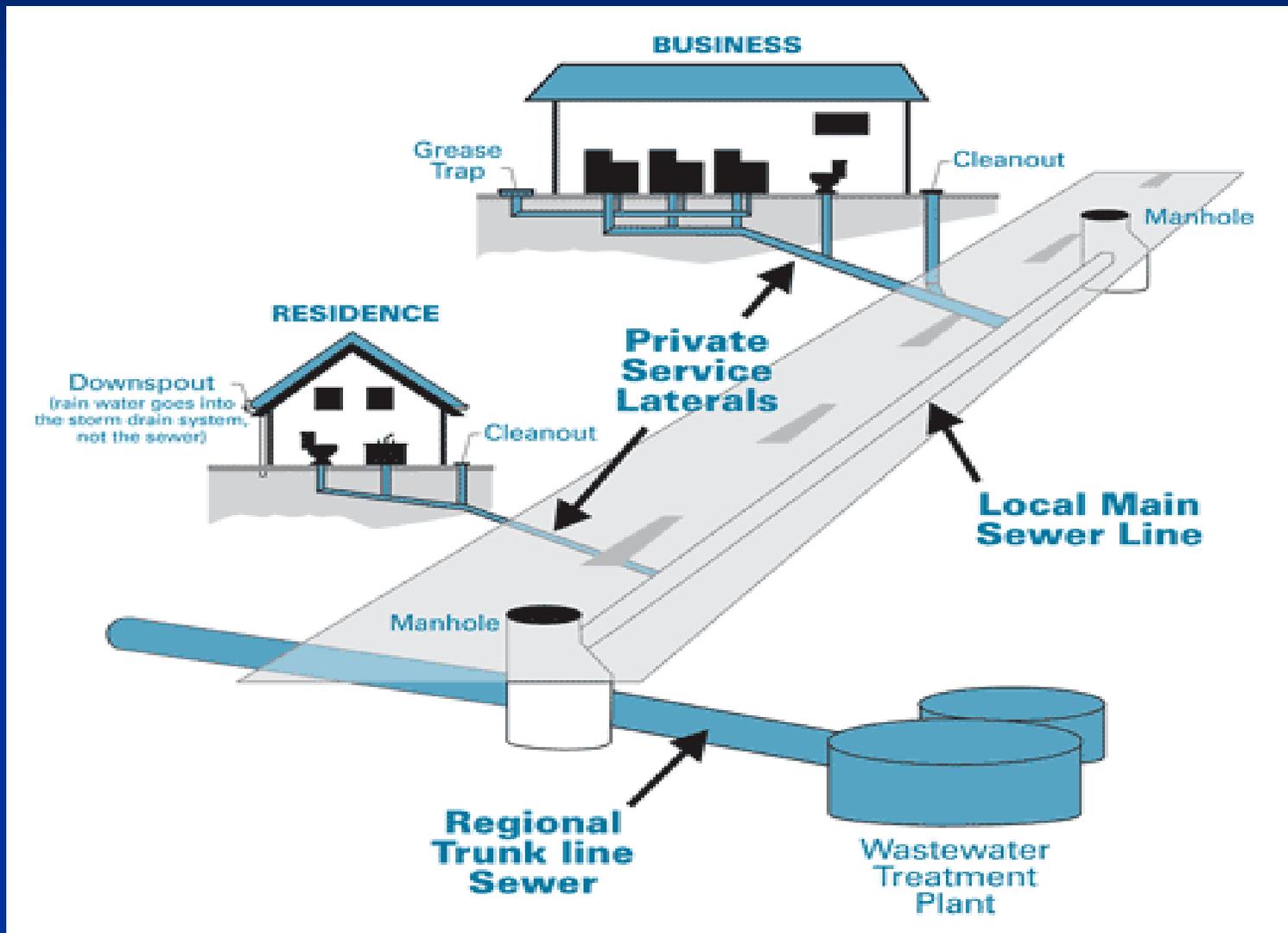
# Operation & Maintenance

2002-02-04

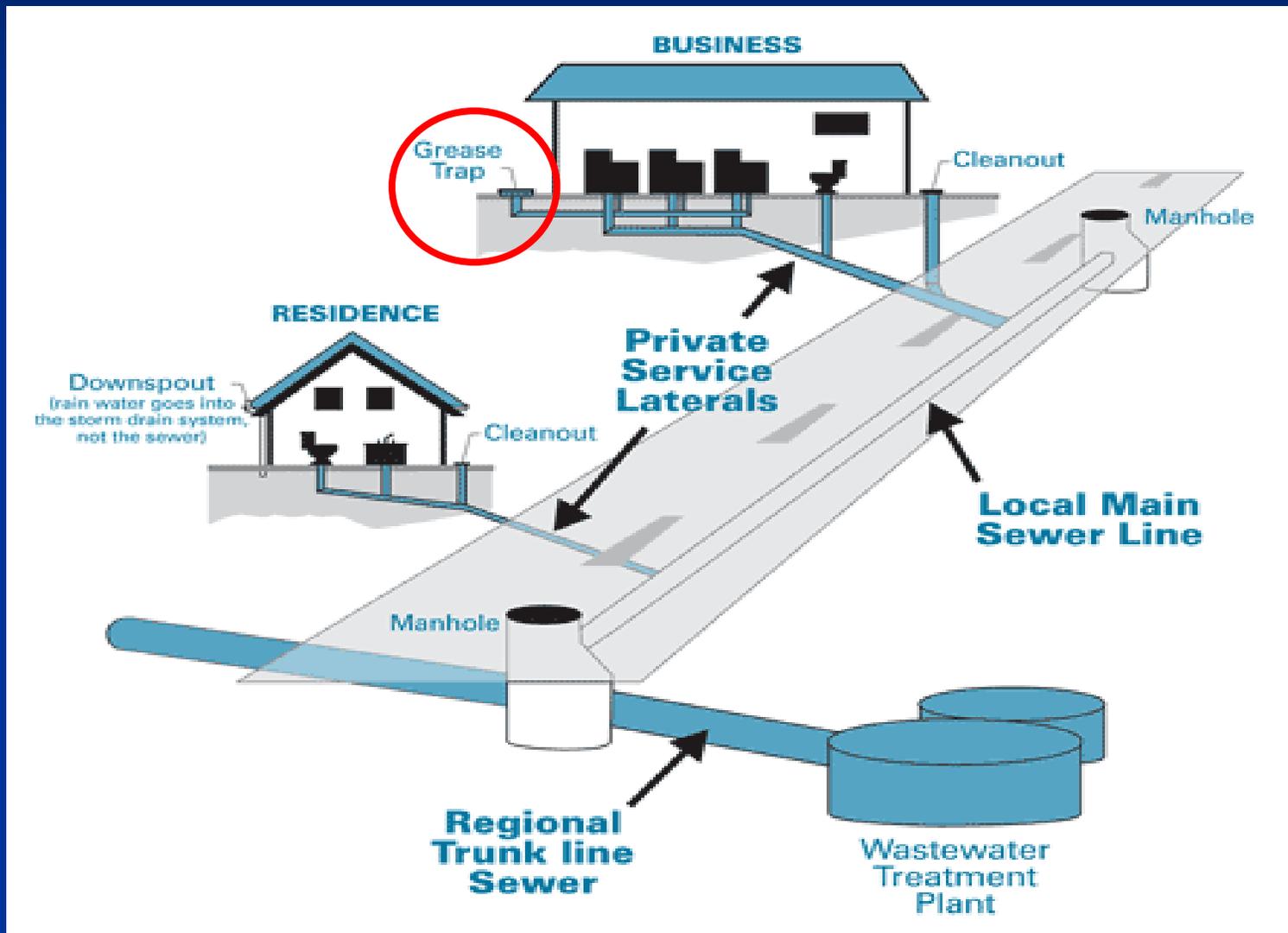
of Collection Systems

78.01m

# Typical Sewer Collection System



# Typical Sewer Collection System



# The Bottom Line

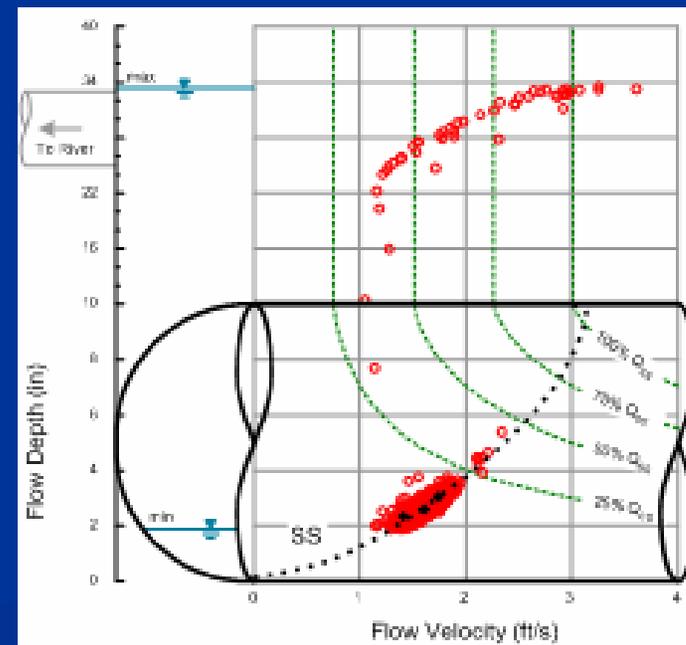
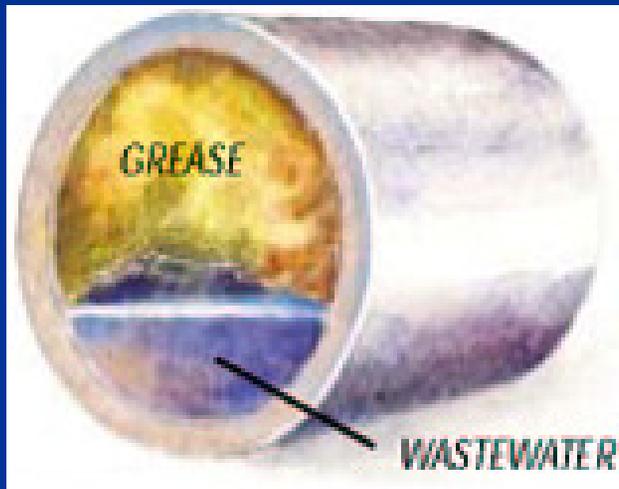
## Prevent Overflows and Backups



# CMOM

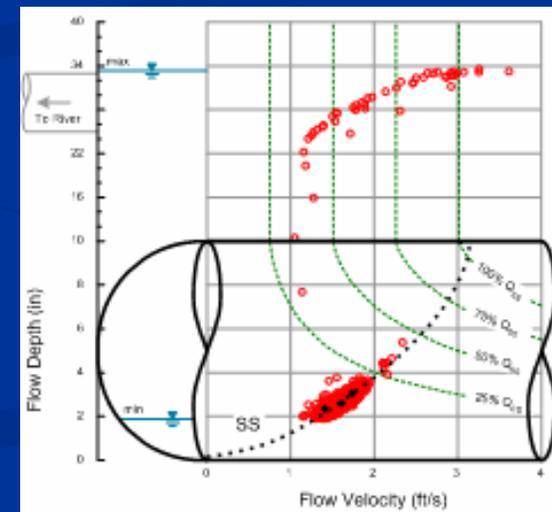
## C is for Capacity

### Capacity to Carry Flow



# Sewer System Capacity; Assuring Capacity

- Evaluation -Testing and Inspection
- Flow Monitoring
- Sewer System Testing
- Sewer System Inspection
- Sewer System Rehabilitation

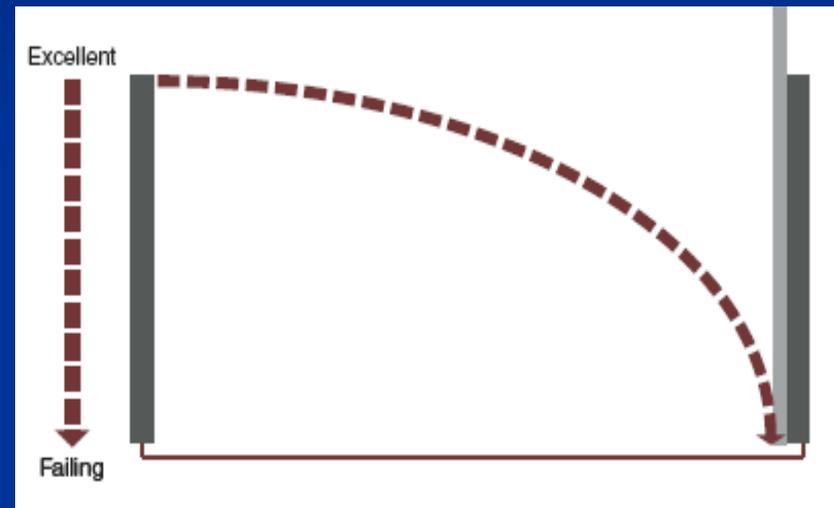


# Collection System Management

- Organizational Structure
- Training
- Internal Communication
- Customer Service
- Management Information Systems
- SSO Notification Program
- Legal Authority
- Budgeting

# Management: Manage your buried infrastructure

- Inventory
- Condition and Criticality Assessment
- CMMS
- Preventive Maintenance
- Emergency Response Planning
- Asset Management



# Manage your system

## Develop Programs



**E.g., FOG PROGRAM**

“Requirements for Commercial Food Service Establishments (FSE) such as: Restaurants, Cafeterias, Buffets, Dining Halls, CStands, Caterers, Bakeries, Delicatessens, Lunch Counters and Food Shops that prepare and serve food items such as Ice Cream, Bagels, Cookies, Pretzels, Hot Dogs, et cetera.”



New program helps keep fats, oils and greases out of sewer

# Management, Legal Authority Sewer Use Ordinance

- General Prohibitions. No user shall introduce or cause to be introduced into the POTW any pollutant or wastewater that causes pass-through or interference. These general prohibitions apply to all users of the POTW whether or not they are subject to categorical pretreatment standards or any other federal, State, or local pretreatment standards or requirements.

# Sewer Use Ordinance, Prohibit FOG

## ■ Specific Prohibitions.

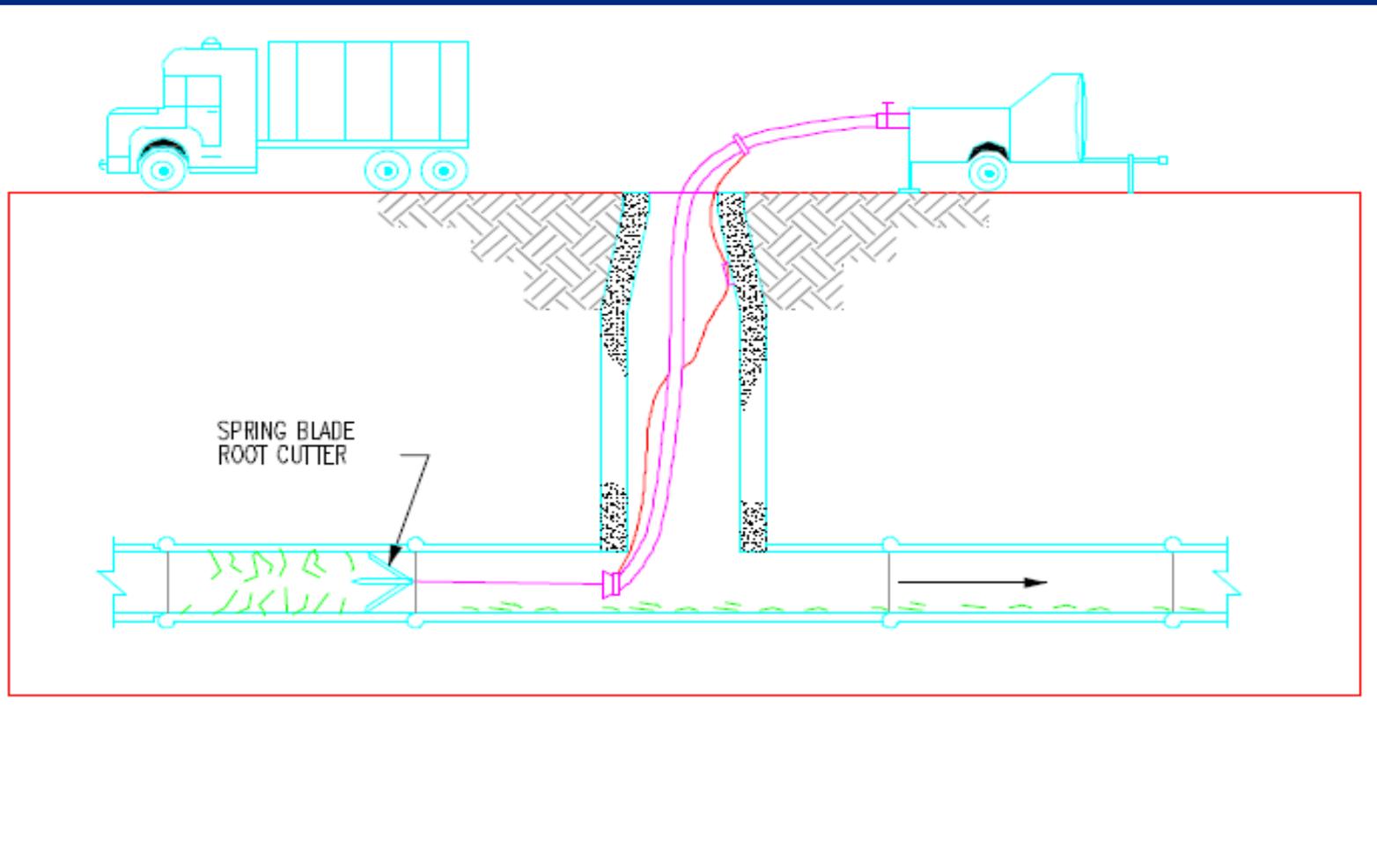
-Solid or viscous substances including water or wastes containing fats, wax, grease, or oils, ... that may solidify or become viscous .. in amounts that will cause obstruction of the flow in the POTW resulting in interference



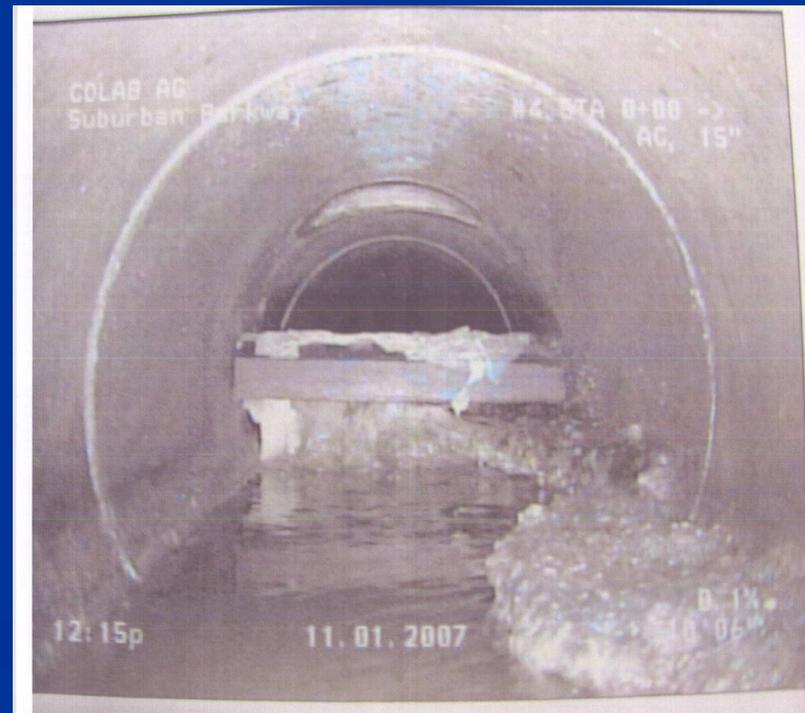
# Collection System Operation

- Budgeting
- Monitoring (including corrosion control)
- Safety
- Emergency Preparedness and Response
- Mapping
- New Construction
- Pump Stations

# Operate & Maintain: Monitor



# Monitor to Prevent Overflows and Backups



# Collection System Maintenance

- Planned and Unplanned Maintenance
- Maintenance Budgeting
- Sewer and Equipment Maintenance
- Sewer Cleaning
- Parts and Equipment Inventory



# Prevent Overflows and Backups

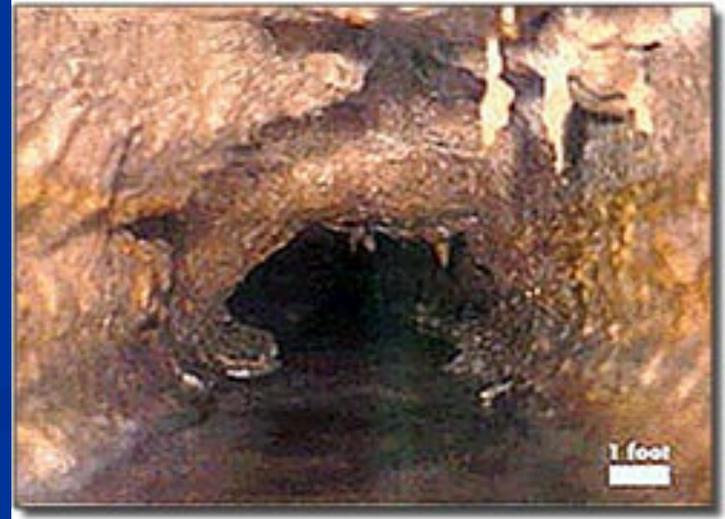


Assessment

FOG control

Root Control

I/I Control



# What Drives a Community to Perform Sewer Investigations?

- Excessive Infiltration or Inflow
- Overflows or Backups
- Community Growth
- Key Staff Retiring
- Enforcement
- Permit Requirements

# Permit Requirements

## Treatment Plant and Collection System

### Part I.B. **Unauthorized Discharges Prohibited**

The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the Outfall listed in Part I.A.1 of this permit.

Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported in accordance with Part II, Section D.1.e. of the General Requirements of this permit (twenty four hour reporting).

# NH “CMOM”

## Permit Requirements:

### Collection System Mapping

- a. All sanitary sewer lines and related manholes;
- b. All combined sewer lines, related manholes, and catch basins;
- c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combined manholes);
- d. All outfalls, including the treatment plant outfall(s), CSOs, combined manholes, and any known or suspected SSOs;
- e. All pump stations and force mains;
- f. The wastewater treatment facility(ies);
- g. All surface waters (labeled);
- h. Other major appurtenances such as inverted siphons and air release valves;
- i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
- j. The scale and a north arrow; and
- k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

# Permit Requirements

## Operation & Maintenance Plan (General)

### **1. Maintenance Staff**

The permittee and co-permittees shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. This requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

### **2. Preventative Maintenance Program**

The permittee and co-permittees shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. This requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

# Permit Requirements

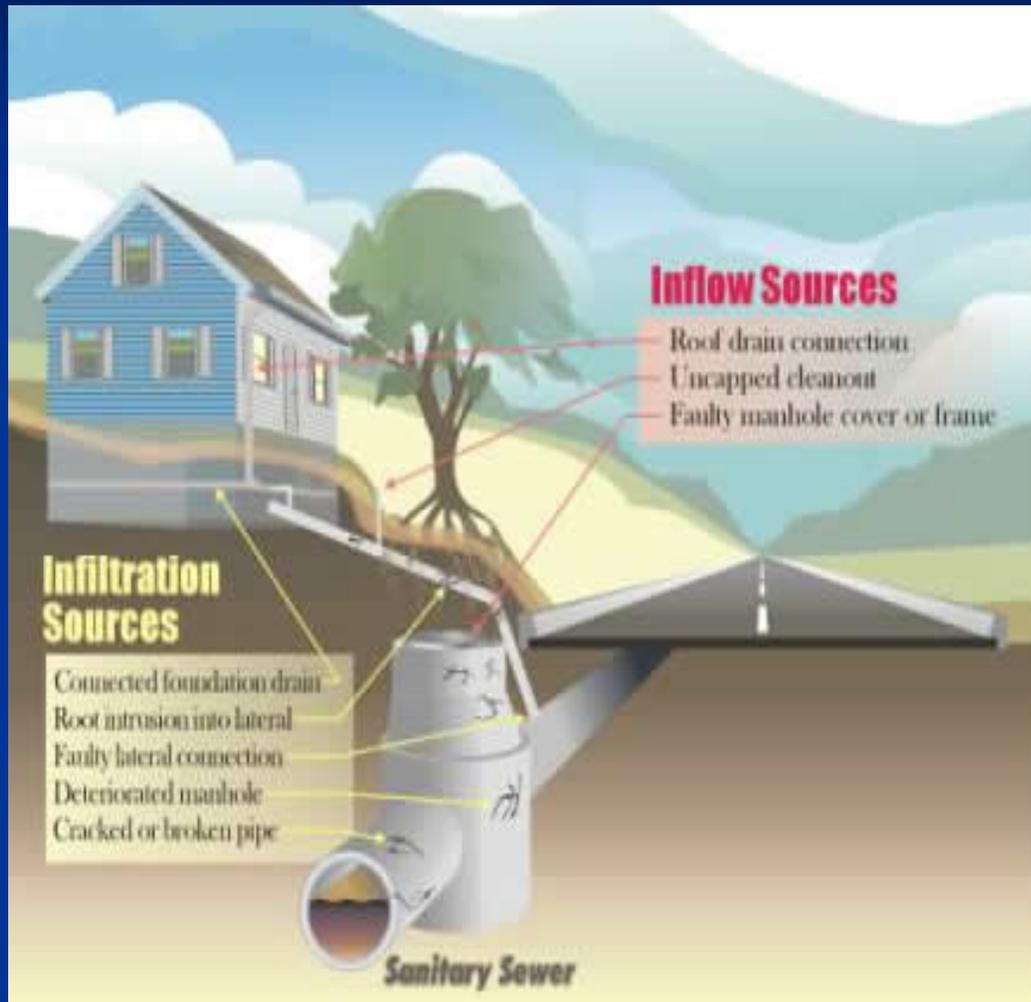
## Operation & Maintenance Plan (General)

### 3. Infiltration/Inflow

The permittee and co-permittees shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

# I and I

# Infiltration



Private laterals may represent 60% of wet weather flow



# Inflow



# Permit Requirements

## Operation & Maintenance Plan (part 1)

1. A description of the collection system management goals, staffing, information management, and legal authorities;
2. A description of the overall condition of the collection system including a list of recent studies and construction activities; and
3. A schedule for the development and implementation of the full Collection System O & M Plan including the elements in paragraphs b.1. through b.7. below.

# Permit Requirements

## Operation and Maintenance Plan (part 2)

1. The required submittal part 1, updated to reflect current information;
2. A preventative maintenance and monitoring program for the collection system;
3. Sufficient staffing to properly operate and maintain the sanitary sewer collection system;
4. Sufficient funding and the source(s) of funding for implementing the plan;
5. Identification of known and suspected overflows and back-ups, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
6. A description of the permittees and co-permittees programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
7. An educational public outreach program for all aspects of I/I control, particularly private inflow.

# What's the purpose of an O&M Plan?

- Properly manage, operate and maintain all portions of the wastewater collection system
- Establish written protocols
- Evaluate adequate resources
- Provide adequate capacity to convey peak wastewater flows
- Minimize frequency of SSOs
- Mitigate impacts of SSOs that may occur
- Meet all notification and reporting requirements



## PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

- 1. Proper Operation and Maintenance The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. ...
- 3. Duty to Mitigate The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

# A **CMOM** Program

- Protects the **C**apacity of the collection system to convey wastewater
- **M**anages the system cost-effectively
- **O**perates the system efficiently
- **M**aintains the system to prevent problems

# Don't let this happen to you

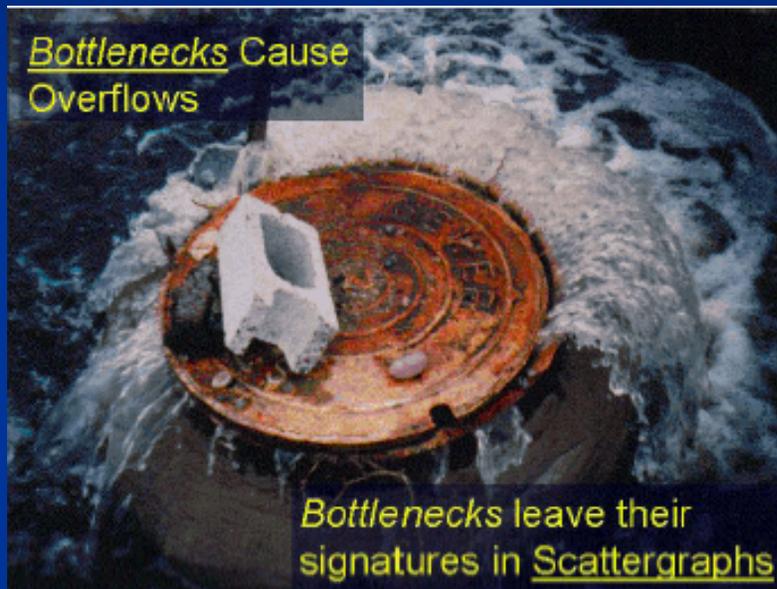


Photo by ADS

## A Good Preventive Maintenance Program Helps Keep the Sewage in the Pipes

# Questions?

Contact:

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💧 US EPA website:

<http://www.epa.gov/region1/sso>



***Every Journey Begins with the  
First Step***

