

## DEPARTMENT OF PUBLIC WORKS

### IT TAKES TEAMWORK TO PROTECT THE BAY

#### ELIMINATING INFILTRATION AND INFLOW TO SAVE YOUR SEWER SYSTEM AND PROTECT THE BAY

DPW is committed to providing environmentally sensitive wastewater treatment and to sharing in the responsibility to protect the health of the Chesapeake Bay and its tributaries now and for future generations. In conjunction with this mission, DPW Utility Operations Bureau performs continual evaluation and rehabilitation of the public wastewater system. A comprehensive program of on-going investigation and preventative maintenance maximizes system performance and is more economical than expensive and inconvenient emergency repairs. One goal is to minimize infiltration and inflow (I&I) of stormwater, which is costly to convey and treat and decreases the effectiveness of the system.

#### What is Infiltration and Inflow?

Infiltration and inflow are terms used to describe the ways that groundwater and stormwater enter the sanitary sewer system.

Inflow is rainwater discharged into the sanitary sewer system from such surface sources as roof drains, area drains, manhole covers, service line cleanouts, etc.

Infiltration is groundwater which enters the sanitary sewer through such means as defective sewer mains, manhole walls, service line pipes, etc.

During heavy rainfalls, the water can rise to a higher elevation, allowing water to find its way into the sanitary sewer system. This rainwater induced infiltration is especially common in low lying areas and near wetlands.

Inflow enters the sewer very soon after rain begins and stops soon after the rain stops. Infiltration enters the sewers after the stormwater has seeped through the ground to the level of the sewer. It continues until the groundwater table falls below the level of the sewer line.

#### *Helping your sewer system work properly and be cost effective...*

### Mayo Wastewater Service Area and I&I

The Mayo wastewater system, including the Mayo Water Reclamation Facility, plays a vital role in DPW's commitment to the Bay. The Mayo area wastewater system uses a combination of on-site systems, cluster systems and communal treatment facilities. A majority of properties are served by the Septic Tank Effluent System (STEP). In the STEP system each property has an on-site tank for solids removal. The effluent (liquid) flows by gravity or is pumped to a collection system and is transported to the Mayo Water Reclamation Facility where pollutants are removed before it is discharged to the Chesapeake Bay.

In order to preserve and protect this system, to avoid overloading the system, and to avoid costly expansions to the conveyance and treatment facilities, it is important to understand and use the system properly. One of the major contributing factors to the overload of the Mayo wastewater system is infiltration and inflow, known as I&I. This fact sheet explains what I&I is, how it affects the sewer system and how you can help stop it.

The Bureau of Utility Operations Systems Evaluation and Rehabilitation (SER) Unit is working to eliminate I&I in the

Mayo area. SER investigates I&I by visual inspections, smoke testing of tanks and piping, flow metering at sewage pump stations and internal TV of piping. These tests reveal that tank lids, risers and cleanouts are the major sources of inflow. SER also found that numerous problems exist on individual homeowners' property, such as improperly abandoned septic systems, broken and collapsed sewer laterals and illegally connected roof drains, sump pumps and poor internal plumbing.

SER, in addition to identifying problems, also corrects some problems such as cleanouts. However, SLR (Sewer Line Repair) performs repairs on laterals, cleanouts and standpipes and replaces tank risers.

Many on-property sources of inflow have been eliminated through the cooperation of homeowners. These included roof leaders, foundation drains, sump pumps, crawlspaces and abandoned septic systems still connected. Although there has been some improvement to the amount of inflow flooding the wastewater system, your help is still needed. Please read the important information about I&I in this fact sheet to determine how you can help make your wastewater system work efficiently, be cost effective and perform well into the future.

operated by the county, the Mayo plant, was too small to be considered for recognition.

### ***Common Causes of System***

***Problems*** Despite proactive efforts to maintain the system, operational complications may sometimes occur. Some of the common causes of system problems include:

\*Using the drain to dispose of items such as grease, paper, garbage or household hazardous waste

\*Vandalizing the system by putting foreign or incompatible materials in the system or down manholes

\*Blocking of the system by tree or shrub roots seeking water and entering the system

In order to maintain our wastewater system and to keep it functioning properly, our Wastewater Division utilizes the following preventative maintenance procedures:

***Visual Inspection*** Maintenance crews periodically check manholes, frames, and covers to look for cracks, breaks or missing parts which may prevent them from maintaining airtight integrity. Replacement and maintenance is scheduled as necessary.

***TV of Lines*** Sewer lines are inspected internally with a special closed circuit TV camera which is lowered into a manhole and pulled through the line. Testing and repair equipment used in conjunction with the camera will determine if there are areas of weakness in the joints and pipes and look for leakage. If the line is in poor condition and cannot be repaired, it will be scheduled for replacement.

***Smoke Testing*** By blowing smoke into a sewer line, crews can determine areas of breaks, improper connections and other system problems which can then be scheduled for repair or replacement. This procedure sometimes identifies problems on the property owner's side of the system.

**In these cases, the property** owners are notified and advised to make the appropriate repairs.

**Chemical Root Treatment** - In some areas, workers may find it helpful to use a foaming chemical root treatment. This foam is pumped into selected sewer mains to kill existing roots and to inhibit their regrowth.

**Jet Washing and Root Cutting** - Sewer lines are often rotted to remove roots or other material then cleaned with high-pressure water using a combination jet vacuum system.

**Sewer Main Relining Program** - Some sewer lines can be rehabilitated by installing PVC plastic liners. The lining extends the structural life of the pipes, inhibits root growth and reduces ground water leakage into the sewer pipes.

**Sewer Service Replacement** - Sewer "services", which are the lines that run between the property line and the main line, are periodically checked for structural and operational soundness. If found to be in poor condition, the pipes are replaced.

Although our Wastewater Division utilizes a number of methods to evaluate and maintain our sewer system, there may be a time when you could experience a stoppage. If this occurs, be sure to call our 24 hour emergency services staff at 410.222.8400 or 410.451.4118 (south county). If the sewer cleanout is accessible, an emergency crew will be dispatched to assess the situation. If the blockage is in the county line, the crew will break the blockage to end the backup. If there is no cleanout, or if the cleanout can not be located, you will need to call a plumber.