



CITY OF OPPORTUNITY

CITY OF OREGON OHIO

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June 29, 2012

RE: Inflow/Infiltration (I/I) Reduction Program – Sanitary Sewer Smoke Testing Phase III

Dear Resident or Property Owner:

This letter is to notify you that the City of Oregon is in the process of implementing an Inflow/Infiltration (I/I) Reduction Program and is planning to start sanitary sewer smoke testing in the North Oregon Sanitary Sewer District within the next thirty (30) days. The program objective is to remove storm water sources from the sanitary sewer system, keep wastewater treatment costs and sanitary sewer rates low, and protect the environment. The I/I Reduction Program is a requirement of the Ohio Environmental Protection Agency (OEPA). See the attached I/I Reduction Program Fact Sheet for further descriptions and information.

Smoke testing is a standard method of detecting sewer defects and storm water cross connections to the sanitary sewer system. Smoke testing consists of placing a high capacity blower on top of a sanitary sewer manhole and forcing “smoke” down into the sewer system. The smoke, under pressure from the blower, travels through the sewer system and escapes through any connections, cracks, leaks, etc. along the way. This quickly reveals sources of I/I within the study area. See the attached Smoke Testing FAQ for commonly asked questions about this process.

The City of Oregon, Department of Public Service will be performing the smoke testing. All City personnel will have proper identification and vehicles will be marked with the City logo. The smoke used for smoke testing is non-toxic and non-hazardous and is manufactured specifically for this purpose. It leaves no residuals or stains, and has no effects on plants or animals. The smoke should not enter your building, but if it does, it will have a distinct odor and should only last a few minutes with proper ventilation. Both the Oregon Police and Fire Departments will be made aware of the smoke testing project areas and schedule. Reminder notices will be given to residents at least 24-48 hours prior to work in the each specific area. **Please note, all plumbing fixture drain traps must be filled with water prior to smoke testing. Please perform the following tasks to ensure smoke does not enter your home:**

Important Instructions for Residents Prior to Smoke Testing:

- **Make sure all drain traps and plumbing fixtures have water in them. Fill seldom used drains (such as basement floor drains, garage sinks, etc.) with water by running the faucet for 30-60 seconds or filling the drain with approximately 3 cups of water**



- **Prepare drains as soon as you receive the 24-48 hour smoke testing notice, this only needs to be done once before testing begins**
- **You do not need to be home during the smoke testing field work**
- **Smoke should not enter your home; however, if it does this could be an indication of a defect in your plumbing system. This defect could allow sewer gases to enter inside your home, which is a potential health hazard. Corrections of such defects on private property are the responsibility of the property owner, and a licensed plumber should be consulted to ensure the proper corrections are made. If smoke does enter your home or building, please notify the field technicians who are conducting the test.**

The information gathered during the smoke testing project will be used to create a prioritized plan to reduce I/I impacts to the sanitary sewer system. Sewer defects will exist on both public and private property and will need to be corrected in a timely manner. After the smoke testing is completed, notices will be sent to those property owners that will need to make corrections. Often times, it can be as simple as removing a connected roof downspout and letting it drain above ground, or replacing a broken or missing lateral cleanout cap in your yard. The Department of Public Service will assist homeowners in determining the best approach in disconnecting I/I sources and re-routing storm drainage. Reducing I/I will keep sanitary sewer rate charges low, while also protecting the environment.

We appreciate your patience and understanding and will make every effort to minimize the inconvenience or disruption this project may have on you. If you have any further questions or concerns regarding smoke testing, please call (419) 698-7047. The City of Oregon is also maintaining a website designated for the I/I Reduction Program. For project updates, project maps, important notices, and more information please visit <http://www.oregonohio.org/Engineering/inflow-infiltration.html>

Sincerely,



Paul Roman, P.E.
Director of Public Service

PR: den

Attachment: I/I Reduction Program Fact Sheet
Smoke Testing FAQ

cc: Michael Seferian, Mayor
Michael Beazley, City Administrator
Oregon City Council
Mike Navarre, Police Chief
Ed Ellis, Fire Chief
Paul Mullen, Assistant Fire Chief
Oregon Dispatch
Marty Wineland, Oregon Street Superintendent
Residents and Property owners within the North Oregon Sanitary Sewer District Smoke Testing Areas



OBJECTIVE

Remove storm water sources from the sanitary sewer system, keep wastewater and sewer rates low, and protect the environment

WHAT IS I/I?

The term I/I is an abbreviation for **Inflow/Infiltration** and is used to describe the sources of storm water (rain and groundwater) that enter into the dedicated sanitary sewer system. Sanitary sewers are pipes located under the street, or City right-of-way, and are strictly designed to transport wastewater from sanitary plumbing fixtures such as toilets, sinks, bathtubs, showers, and lavatories. **Inflow** sources are those that flow directly into the sanitary sewer via a defined route (pipe, etc.) **Infiltration** sources are those that inadvertently enter into the sanitary sewer via cracks, holes, faulty connections, or other openings.

COMMON SOURCES OF I/I

- **Inflow** sources include storm water discharge flow from sump pump connections, roof downspouts, yard and driveway drains, broken/missing sanitary cleanout caps, leaky manhole lids, and storm sewer cross connections
- **Infiltration** sources include storm and groundwater flow from broken lateral sewers, faulty lateral connections, tree root penetration, broken cleanouts, cracked sanitary pipes, faulty pipe joints, and deteriorated manholes
- Sources of I/I that consist of a direct discharge of storm water to the sanitary sewer are deemed illegal by the Codified Ordinances of the City of Oregon, specifically **OMC 925.26 PROHIBITION OF UNPOLLUTED WATER** (See Definitions section)

REASONS TO REMOVE I/I FROM THE SANITARY SEWER SYSTEM

- Excessive I/I results in **sanitary sewer backups** into basements of homes and businesses
- Untreated WWTP discharges and sanitary sewer overflows (SSOs) are **water quality violations** and will result in fines by the OEPA
- The City has been mandated by the OEPA to reduce I/I through a sanitary Management, Operation, and Maintenance program.
- The City of Oregon WWTP is a public (non-profit) utility, which is financed through a combination of user fees and income taxes used to supplement major capital improvements. A future expansion to the WWTP will be mandated by the OEPA to eliminate all overflows. The size of the plant expansion will be dependent upon the success of this program, thus a **smaller expansion equals less cost to taxpayers and wastewater users**

COMPLETED AND ONGOING PROJECTS

- The City has been working for over four years to reduce I/I impacts within the right-of-way:
 - GPS Manhole Inspections – Over 3,800 sewer structures have been inventoried and inspected
 - Repairs have been made to 174 manholes, where deficiencies were found
 - CCTV Sewer Inspection – Has identified problem sewers – ongoing following smoke testing in areas
 - Sanitary Sewer Flow Monitoring – Has identified areas within the City that contribute the most I/I
 - Sanitary Sewer Rehabilitation Project Phase I
 - \$740,000 Ohio Public Works Commission funded project
 - Nearly 9,000 linear feet of sanitary sewer and 51 manholes were lined to stop infiltration leaks
 - Storm Drainage Improvements – An aggressive storm drainage improvement program has been implemented along with I/I Reduction
 - Over 30,000 linear feet of creek/ditch have been debrushed to allow for better flows during rain events
 - Removed over 60 blockages on ditches and creeks
 - Surveyed all three major drainage ditches/systems for use with storm water flow modeling and future drainage improvement design
 - Seaman Road Storm Sewer Improvements – 2012 – The Wolf Creek Relief Ditch is under construction to minimize flooding risks to downstream reaches of the Wolf Creek watershed
 - City is currently in the preliminary design of relief storm sewers and ditches in the watersheds of Otter Creek and Amolsch/Driftmeyer Ditches

WHAT'S NEXT?

- **Sanitary Sewer Smoke Testing**
 - Smokes Testing is used to detect I/I sources such as connected downspouts, driveway and yard drains, foundation drains, faulty connections, and storm sewer cross connections
 - Areas that were identified as contributing the most I/I to the system are being tested first
 - Residents will receive multiple notifications prior to work beginning
 - Testing consists of forcing smoke down into manholes with a blower
 - **Smoke, under pressure from a blower, escapes through any connections, defects, cracks, leaks, etc. along the way**
 - **The smoke is non-toxic, non-hazardous and is manufactured specifically for this purpose**
 - The smoke quickly reveals sources of I/I and results are documented via photographs and sketches
 - Corrections within the Right-of-Way are the responsibility of the City of Oregon
 - Corrections on private property are the responsibility of the property owner
 - The City will give a notice to the property owner explaining the deficiencies found, as well as, ways to correct the issues noted, with a timeline for correction completion

- Often times corrections can be easy, such as disconnecting a downspout from the home's sanitary sewer lateral, or replacing a broken cleanout cap
- More difficult corrections can include fixing a broken lateral connection, lining or replacing a cracked lateral line, removing tree roots. These corrections will be given a longer deadline for completion
- **On going sewer maintenance and CCTV sewer inspections**
 - The City will continue working to identify and correct issues within the right-of-way
- **Future sanitary sewer replacement/repair projects**
 - Sanitary Sewer Rehabilitation Project, Phase II – July 2012 – Replacement of the oldest sewers in Wheeling Street Sewer District, lining of Wheeling Street Interceptor Sewer
 - Sanitary Sewer Manhole Rehabilitation Project, Phase I – 2012 – rehabilitation of leaking/defective sanitary manholes

FREQUENTLY ASKED QUESTIONS

- **What is the difference between a sanitary sewer and a storm sewer?**
 - A sanitary sewer is meant to convey wastes from bathrooms, sinks, bathtubs, showers, and industrial processes to the WWTP for treatment
 - A storm sewer is used to convey excess rain runoff or groundwater from private and public land areas to the nearest ditch, creek, stream, pond, or lake in order to prevent flooding
- **What is a private sanitary sewer lateral?**
 - A sewer line on private property that connects a home or commercial building to the public sanitary sewer system. It is the property owners's responsibility to maintain and repair their own sewer lateral.
- **What is an illegal connection?**
 - Any connection that places storm water or groundwater into the sanitary sewer system is illegal and can include sump pumps, yard/driveway drains, and gutters/downspouts
- **How much water does I/I really add to the City's system?**
 - A single sump pump can contribute over 7,000 gallons of clean water over a 24 hour period
 - During a 1" rain event, a typical 1,500 ft² roof will have approximately 900 gallons of storm water runoff, which would be conveyed to the sanitary sewer if the downspouts are connected
- **Why do we need to fix this now?**
 - Additional treatment costs and a WWTP expansion will likely cause major increases in sewer use rates if I/I is not reduced
 - The City is required to address storm water I/I under the OEPA NPDES permit, effective June 4, 2009, or potentially face fines.
 - Sewer backups will continue during extreme rain events
 - Untreated WWTP discharges and SSOs are water quality violations and are detrimental to the environment
- **How much do typical corrections cost?**
 - It depends on the situation. A simple fix, such as disconnecting a downspout can be around \$10/spout. More difficult corrections, such as lateral replacements or rerouting drainage, can range from \$1,000 to \$3,000 and need to be done by a licensed sewer contractor.
- **How do I remove my I/I sources?**
 - Downspouts and sump pumps can discharge into the yard as long as the discharge is at least 10 feet away from the home. Typically, water in the yard will drain to the public street or rear property line
 - A direct connection to the public storm system is only needed if storm water discharge to the homeowner's yard results in a safety hazard (flooding around the house, foundation, or on a driveway or sidewalk). Otherwise, ponding in a yard is safe as long as the water dissipates within seven days
 - In situations where the home is physically lower than both the public street and the rear property line, a direct connection to the public drainage system may be needed
 - In low elevation situations, the City will give much longer correction periods to provide more time for homeowners to plan and construct the needed storm connection
 - In situations where no public storm system exists, the Finance Department and Department of Public Service will assist the homeowner(s)/neighborhood in the process of petitioning the City for the construction of a new storm sewer system. Please note, new storm sewers are typically assessed to the properties that benefit from the improvements
 - The Department of Public Service can assist each homeowner in determining all alternatives for correction
- **Will the City offer any incentives for fixing I/I deficiencies prior to the correction completion deadline?**
 - The City will waive all permit fees for plumbing or sewer work involving the removal of I/I prior to the completion date on the violation notice

DEFINITIONS

- WWTP – City of Oregon Wastewater Treatment Plant, located on Dupont Road, 8 million gallons per day capacity
- OEPA – Ohio Environmental Protection Agency
- NPDES – Nationally Pollutant Detection and Elimination System, a permitting system used by OEPA
- CCTV – Closed Circuit Television, a method of sewer inspection using a remote controlled camera, identifies cracks, leaks, bad joints in sewer pipes
- **OMC 925.26 PROHIBITION OF UNPOLLUTED WATER – states “No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer.” (Ord. 155-1977. Passed 8-8-1977.)**

The City is always available to answer questions, provide more information, and/or consult with property owners regarding the correction of I/I problems. Please call 419-698-7047 for more information regarding the I/I Reduction Program or visit the Department of Public Service website for project maps, updates, smoke testing information, and general data at:

<http://www.oregonohio.org/Engineering/inflow-infiltration.html>



Inflow/Infiltration (I/I) Reduction Program Smoke Testing FAQ

What exactly is a Smoke Test?

A three-man crew from the City of Oregon will use a high capacity blower technique to test each sewer line with smoke. Smoke blowers are placed on manholes and smoke is blown through the sewer system. Any location where smoke is identified during the test, except plumbing vent stacks, is a potential I/I source for storm water to enter the sewer system. These locations will be documented via pictures and sketches.

What is the benefit to the City for performing a Smoke Test?

Smoke testing is one technique utilized to identify sections of sewers that may exhibit inflow during heavy rainfall. Smoke testing is best used to detect inflow sources such as roof downspouts, driveway, yard and area drains, foundation drains, faulty connections, and storm water drainage system cross connections. It can also detect structural damages and leaking joints in sewer pipes.

How will residents know when Smoke Testing will be performed in their neighborhoods?

Prior to beginning the smoke testing, the City of Oregon will give notices to all homes/buildings on the streets to be smoke tested at least 24 to 48 hours in advance. A smoke testing schedule will also be posted on the City's I/I Reduction Program website, located at

<http://www.oregonohio.org/Engineering/inflow-infiltration.html>

How are City crews recognizable in the field?

City of Oregon personnel are uniformed and carry identification badges. Crewmembers operate from vehicles with proper signage for ease of recognition.

Is the smoke that is used hazardous?

The smoke that comes out of the vent stacks on houses or holes in the ground is non-toxic, harmless. It does not create a fire hazard. The Oregon Police and Fire Departments will be made aware of the test areas and schedule.

Do residents have to do anything to prepare their homes for Smoke Testing?

Plumbing drain traps need to be filled with water to prevent the smoke from entering the building. Run the faucet for 30-60 seconds or pour about 3 cups of water in floor and sink drains, filling the traps. Make sure to check seldom used floor drains and plumbing fixtures in your home. If smoke does enter, the resident should consult a licensed plumber. If smoke from the testing can enter through faulty plumbing, the potential exists for dangerous sewer gases to also enter the home.

Does the resident need to be home when the Smoke Testing is performed?

Homeowners do not need to be home and at no time will field crews need to enter the residence. Field inspectors will be documenting the testing, taking photos and measuring distances so that the defects may be found at a later date and repaired.

What happens after the smoke testing has been completed?

The City will notify residents who need to make corrections with a letter explaining the nature of defect found, ways to correct it, and a list of licensed sewer contractors who can make corrections, if need be. Again, most corrections can be easy fixes, such as disconnecting a downspout from the ground and letting the water flow above ground away from the home.