

CITY OF DE PERE
ENGINEERING DEPARTMENT



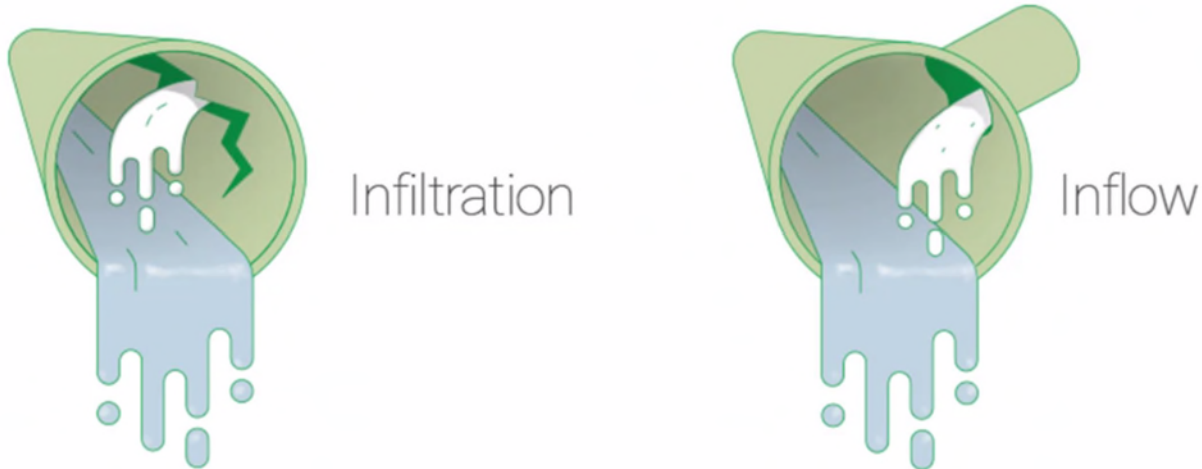
DRAFT FULL LATERAL REPLACEMENT POLICY

October 7, 2024

DEFINITIONS

Inflow and Infiltration (I&I)

Inflow is water that enters the sanitary sewer system only during or immediately after rainfall from direct connections. Points of entry may include connections with roof and area drains, storm drain connections, and holes in manhole covers. Infiltration is the water that enters the sanitary sewer system from the surrounding soil. Common points of entry include broken pipes and defective joints in pipes or manhole walls. A cross between infiltration and inflow is the connection of foundation drains to sanitary laterals. The highest inflow occurs because of storm events or snow melt that contribute to excessive sanitary sewer flows. The highest infiltration flows are observed following storm events as water seeps into the system through its defects.



Lateral means the extension from the public sewer or other place of disposal beginning outside the building wall (Chapter 70 of the De Pere Municipal Code). Laterals are owned by the property owner. Nothing in this policy should be construed as changing ownership of or responsibility for the lateral from the private property owners to the City.

Sanitary sewer means a sewer that carries liquid- and water-carried wastes from residences, commercial buildings, industrial plants, and institutions, together with small quantities of groundwaters, surface waters, and storm waters that are not admitted intentionally (Chapter 70 of the De Pere Municipal Code). For this policy, the term **main** means sanitary sewer also.

BACKGROUND

The City of De Pere has significant inflow and infiltration (I&I) into the sanitary sewer system. De Pere operates and maintains a sanitary sewer system which includes over 100 miles of gravity sewers and two lift stations. Studies estimate that there are approximately the same number of miles of private sewer and laterals. The City maintains the public sewer through cleaning, televising, reconstructing, lining, and sealing leaks. Private laterals are the responsibility of the private property owners and often not maintained. A significant amount of clear water is estimated to come from private laterals. For instance, as the City seals leaks around the main, the water table will increase until a point where a leak occurs on the private laterals.

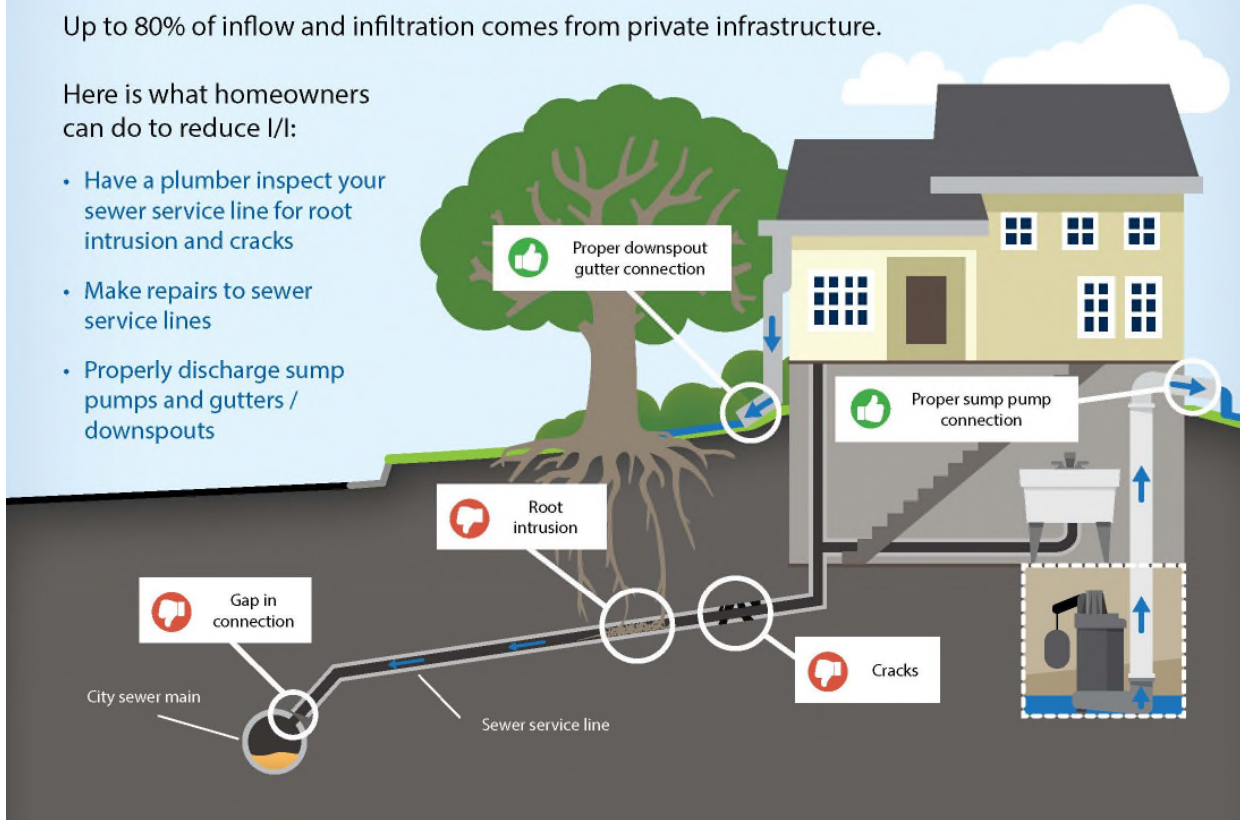
There are multiple opportunities for I&I on the private side of the sewer system. The diagram below shows multiple I&I locations including foundation drains, roof drain connections, and leaking laterals.

You can reduce inflow and infiltration

Up to 80% of inflow and infiltration comes from private infrastructure.

Here is what homeowners can do to reduce I/I:

- Have a plumber inspect your sewer service line for root intrusion and cracks
- Make repairs to sewer service lines
- Properly discharge sump pumps and gutters / downspouts



The City has taken steps to eliminate I&I from the private systems. The City has created the Foundation Drain Disconnection Program (FDDP) to provide a financial incentive for property owners to disconnect foundation drains from sanitary laterals. The FDDP was updated in 2024 to mandate sump pump installation.

The City purchased smoke testing equipment and began smoke testing the sanitary sewer system in 2024. The goal is to eliminate illicit connections such as roof drains.

One of the remaining sources of infiltration is leaking sanitary laterals. At the March 11, 2024 meeting, the Board of Public Works approved a voluntary trial program offering full length lateral replacement via a method called pipe bursting as part of City projects where sanitary laterals are being replaced to the right of way with the project.

In the past, the City has been replacing clay, concrete, ductile iron, and cast-iron sanitary sewer laterals from the sanitary sewer main, to the property line (right-of-way line) in conjunction with water service relay work. This is done by excavating down to the existing sanitary sewer lateral and physically replacing the pipe. This is considered the open cut method, as the contractor is required to open the road and dig down to the pipe needing replacement.

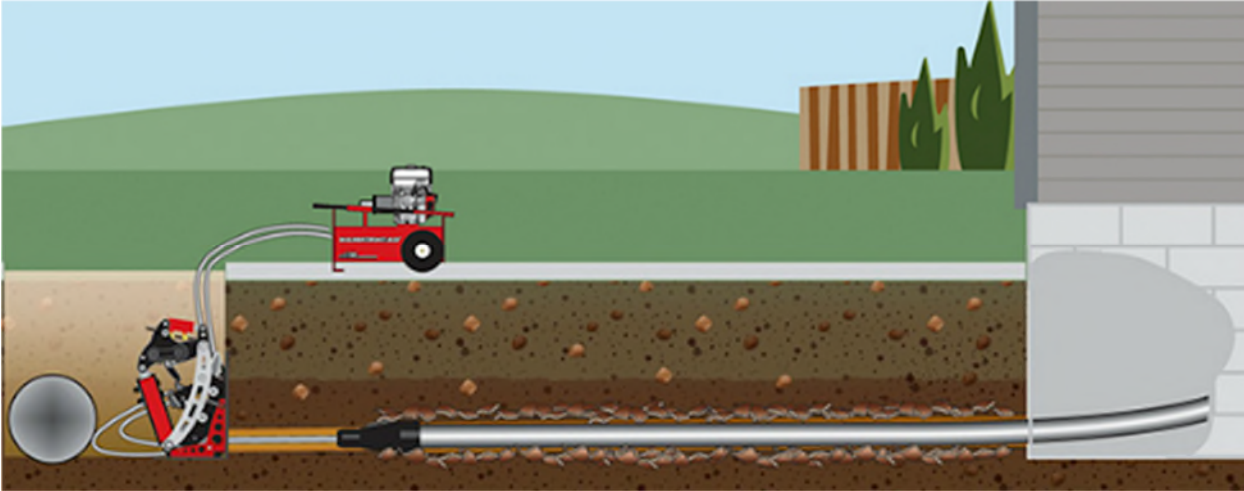
In 2024, the City led a voluntary trial program with City projects offering full lateral replacement from the main to the basement via pipe bursting. This was for utility relay projects where the sanitary laterals were scheduled to be relayed. This was fully funded by the City. The benefit to the City is that the lateral is completely replaced with plastic to minimize infiltration. The benefit to the property owner is a new lateral.

DISCUSSION

The purpose of this policy is to implement a full lateral replacement program to address I&I. The goal is to provide an incentive for property owners with clay, concrete, ductile iron, or cast-iron laterals to repair their entire lateral with trenchless technologies versus completing just spot repairs.

There are two trenchless technologies included for reimbursement with the program; pipe bursting or lateral lining.

Pipe bursting is a technique of breaking the existing lateral while pulling a new pipe through the existing lateral. There are two excavations required, one in the basement floor and the other at the sanitary sewer main. Once completed, there is a new plastic pipe from the sewer main into the basement.



Sewer lateral lining involves injecting an epoxy resin into liner that is inserted into the damaged pipe. The liner is cured with heat or light to make it hard. While the pipe diameter is reduced slightly, the capacity of the lateral is not reduced due to the smooth interior of lined lateral.



The program will be divided into two parts as follows:

- Lateral replacement as part of a City project where partial lateral relay is planned through open-cut construction.
- Private lateral relay for property owners considering a sanitary lateral replacement outside of a City project.

City Led Projects

For City projects, the program will be on a voluntary basis. Funding will be 100% like the 2024 trial program. The City will bid pipe bursting with the City project. Work will be completed by the City contractor. Funding will be for the pipe bursting, connecting the sanitary lateral at the main, and concrete restoration in the basement. In addition to this, the City will install a sump basin if it is found through pre-televising that the foundation drain is directly connected to the sanitary lateral. The property owner will be responsible for the sump pump and pump piping costs. The property owner will be eligible for partial funding of the sump pump and piping costs through the Foundation Drain Disconnection Program. Restoration of the concrete floor will be completed by the City. The cost to restore finished basements (walls, floors, finishes, etc) along with other items such as backflow preventers, basement piping and plumbing are not eligible for reimbursement.

Private Lateral Replacements

There are many situations where private laterals require repair outside of a City project. The pilot program only included full lateral replacement associated with a City project. The program will be expanded to include lateral relay outside of City project along with expanding the options for trenchless construction techniques. The City will provide an incentive up to 50% for full lateral replacement through pipe bursting or sewer lining. Laterals relayed outside of a City project, will be led by the property owner. The property owner will be responsible to hire a contractor to complete the work. Property owners will be eligible for up to a 50% reimbursement, up to \$3,000 (\$6,000 project cost). Eligible expenses will include the cost to pipe burst or line, replace the concrete floor in the basement, landscape restoration and permits. The cost to restore finished basements (walls, floors, finishes, etc) along with other items such as backflow preventers, basement piping and plumbing are not eligible for reimbursement.

In addition to pipe bursting, the project would add the option of sanitary lateral lining. Lining in sanitary sewer laterals is similar to sanitary sewer main lining completed by the City. Under this situation, the sewer is cleaned, a pipe liner is inserted into the pipe and cured. Like pipe bursting, sanitary sewer lateral lining would be eligible for 50% reimbursement by the City and the entire lateral, from the sanitary sewer main out in the road to the basement would need to be lined.

To further encourage residents to participate, the City may consider completing any hard surface repairs (roadway, curb or sidewalk) as part of its annual capital improvement program at no cost to the homeowner. These hard surface restoration costs would then be funded using the same funds allocated to complete full-length sanitary sewer replacements.

The program for private lateral replacements would be run like the Foundation Drain Disconnection Program (FDDP) with the property owner hiring a contractor to complete the work and then submitting eligible expenses for the City to reimburse. For a program like this, staff will need to work closely with the property owner to review preconstruction and post-construction televising to verify the work has been completed properly.

Other Considerations

Properties will be eligible for lateral relay or lining with City participation once. City staff will maintain a list of properties with partial and full lateral relays starting with full lateral relays completed as part of the City's 2024 construction projects.

Existing full length PVC laterals will not be eligible. For partial lateral relays that were completed by the City prior to 2025, the City will participate in the private lateral relay from the right of way to the house, like the policy identified above.

Starting in 2025, for City projects with sanitary lateral relay work, a property owner will only be eligible for the full lateral relay using pipe bursting at the time of the project. If the property owner chooses not to participate in pipe bursting and the City relays the sanitary lateral to the right of way as part of the project, this property will not be eligible for City participation in the future. For these properties, the City will have already paid to have half the lateral relayed as part of the City project, which equates to the 50% funding that the City provides in the Private Lateral Relay portion of this policy.

POLICY

City Led Projects.

- 100% funding of eligible expenses. Eligible expenses include the cost for pipe bursting/lining. Repairing the concrete floor. The cost to restore finished basements (walls, floors, finishes, etc) along with other items such as backflow preventers, basement piping and plumbing are not eligible for reimbursement.
- Sump basin installation will be completed by the City if it is found through pre-televising that the foundation drain is directly connected to the sanitary lateral. The property owner will be responsible for the sump pump and pump piping costs. Sump pump and pump piping costs are eligible for partial funding through the Foundation Drain Disconnection Program.
- All property owners will be notified of the program and given the option to voluntarily participate.
- Costs for this part of the program will be included with the capital costs for the projects.

Private Lateral Replacement.

- The entire length of the lateral is replaced by the property owner with a City approved method, which at this time is pipe bursting or lining.
- Property owners will need to contact the City and obtain permits prior to commencing the work.
- 50% funding of eligible expenses up with a maximum reimbursement of \$3,000 (\$6,000 project). Eligible expenses include the cost for pipe bursting/lining. Repairing the concrete floor. The cost to restore finished basements (walls, floors, finishes, etc) along with other items such as backflow preventers, basement piping and plumbing are not eligible for reimbursement.
- A Street Excavation Permit is required but will be treated as an emergency repair with no charge.
- Backfilling within City right of way shall be completed under the supervision of City staff.
- The City will complete asphaltic concrete pavement restoration at no cost to the property owner.
- Post construction televising will be required.
- The City will set aside a set amount of funds for the private led lateral replacement. Once the funds are exhausted for the year, property owners will need to wait until the next year to be reimbursed. Invoices will be submitted within six months of completing the work.

Other Items

Eligibility is as follows:

- Starting in 2025, for City led projects, a property owner will only be eligible for the full lateral relay using pipe bursting at the time of the project. If the City relays the sanitary lateral to the right of way as part of the project and the property owner does not participate in pipe bursting, this property will not be eligible for City participation in the future.
- For partial lateral relays that were completed by the City with a City project prior to 2025, the City will participate in the private lateral relay from the right of way to the house.
- A property is only eligible for the 50% cost share once.
- Existing clay, concrete, cast iron, or ductile iron laterals are eligible.