



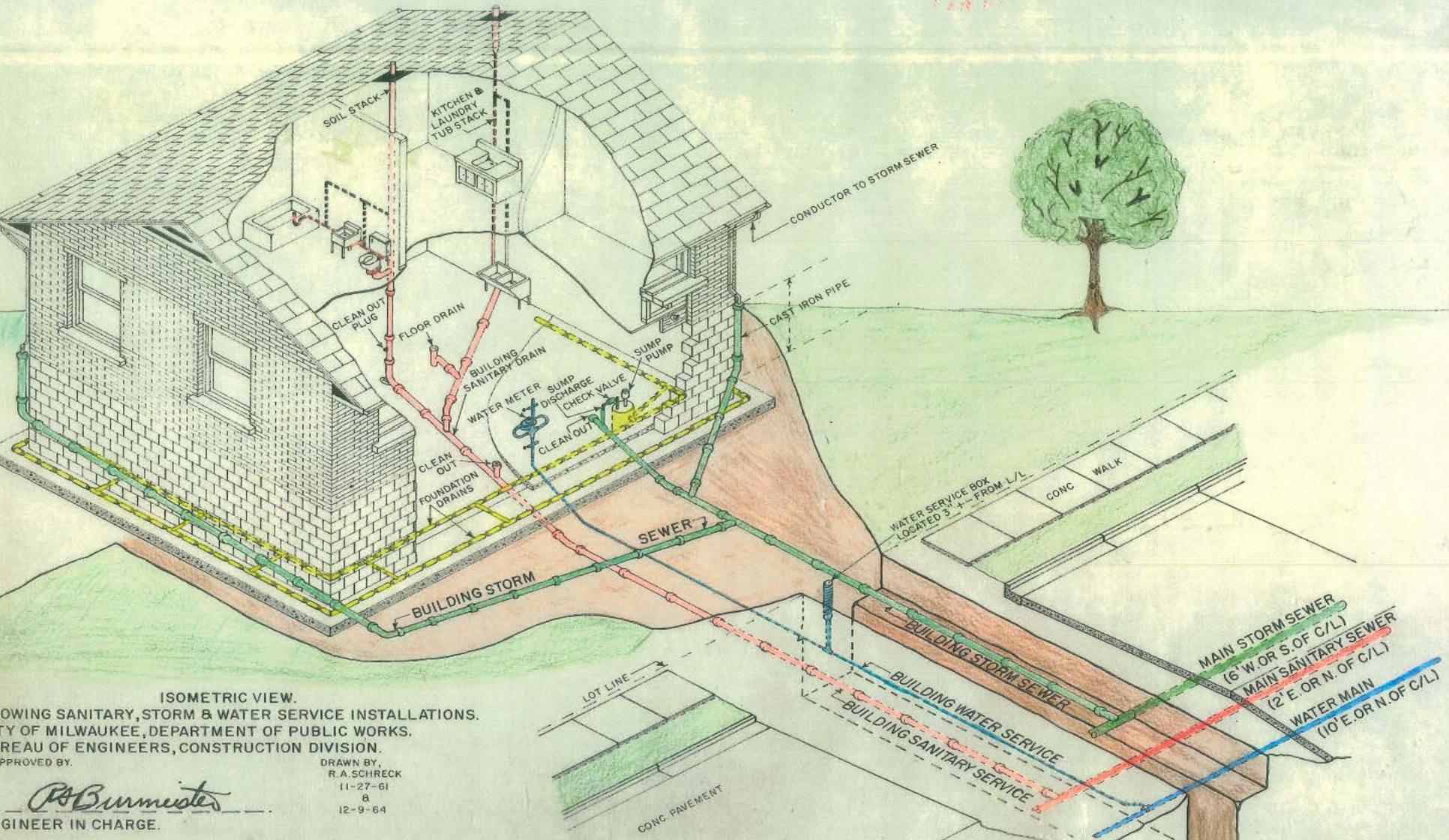
Department Of Public Works

Environmental Engineering Section

Infiltration and Inflow (I/I) Reduction Project Sanitary Sewer Lateral Rehabilitation & Foundation Drain Disconnection

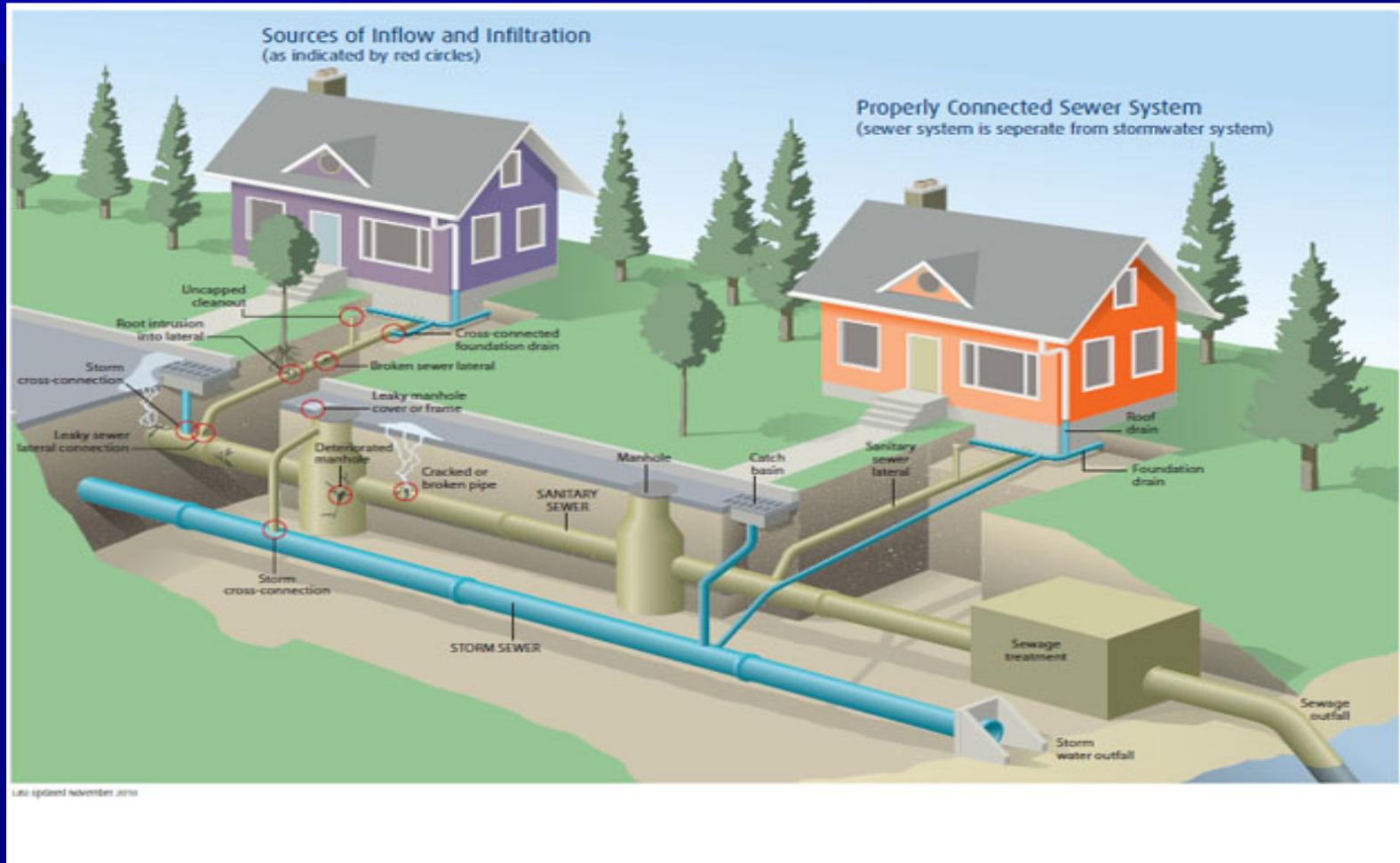


City of Milwaukee I/I Reduction Project



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- The purpose of this project is to reduce clear water entry into the sanitary sewers, by rehabilitating sanitary building sewers, and disconnecting foundation drain connections from the sanitary sewer system.

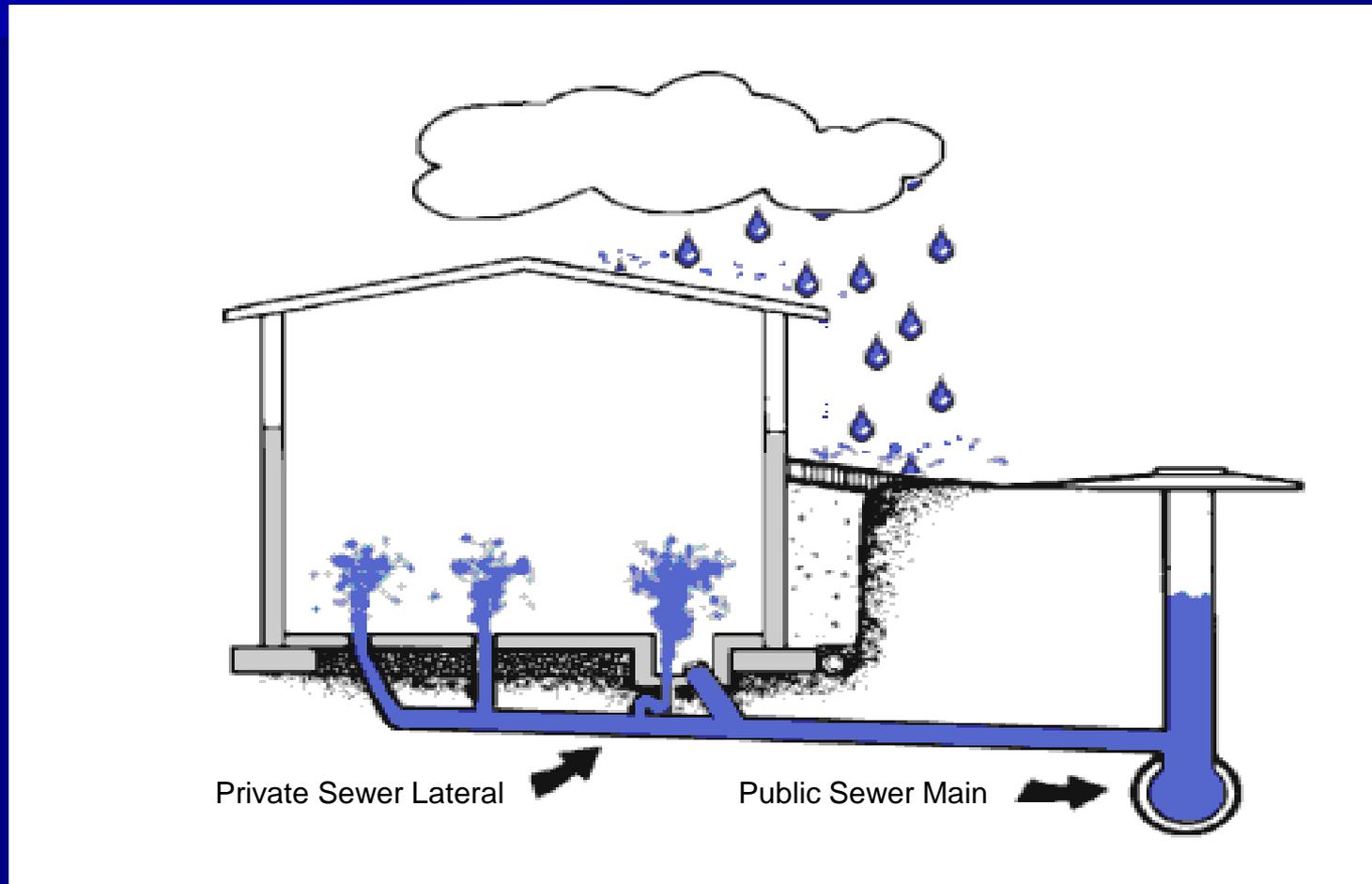


City of Milwaukee I/I Reduction Project

- Infiltration is clear water entering a sanitary sewer system through defective pipes, pipe joints, lateral connections to sewer mains and manhole walls.
- Inflow is clear water entering the sanitary sewer system through connections such as foundation drains and illegal downspout connections.
- During heavy rain events, inflow and infiltration ("I/I") dramatically increase the amount of flow in the sanitary sewer system (up to 5 to 6 times the sewer capacity), thereby increasing the risk for basement flooding.
- This excess flow gets conveyed to the sewage treatment plant.
- The purpose of this project is to reduce clear rain water entering into the sanitary sewers, ultimately reducing the chances of basement flooding from sanitary sewer backups.

How Do Basement Backups Happen?

- During heavy rain events, clear water enters the sanitary sewers through various defects. The amount of water in the sewer system can rise above your basement level, causing sewer backups.



Sanitary Sewer Lateral Rehabilitation Project

- This portion of the project consists of inspecting and rehabilitating the sanitary building sewers (laterals) of homes, through the trenchless cured-in-place pipe (CIPP) process
- This program is 100% voluntary and the homeowners will not incur any costs.
- Funding for this project will be financed primarily through a grant from the Milwaukee Metropolitan Sewerage District (MMSD), and the City of Milwaukee's sewer maintenance fund.
- The City will work with the residents to minimize disruptions and inconvenience caused due to proposed work during the project.

What will be done?

A camera will be inserted in the lateral from the sewer main in the street. The condition of the lateral is then assessed for rehabilitation and/or repair.



What will be done?

There are many options available for the rehabilitation sanitary sewer lateral.

1. Rehabilitation using the existing cleanout in the home
 - Requires right of entry and access to your basement
2. Rehabilitation using a temporary lateral access (cleanout) in the home's yard.
 - Requires right of entry in your front lawn
3. Rehabilitation from the main towards the house.
 - No property disruption will be necessary

All rehabilitation options will be allowed, and the option chosen will depend on the low bidder contractor.

Total lateral rehab length will depend on the method selected

Why was this method chosen?

- Cured-In-Place Lining requires minimum excavation.
- Creates a one-piece pipe with no joints, eliminating groundwater infiltration and root intrusion.
- Only requires a short period of limited water use (less than 8 hours).



- Eliminates root intrusion issues and other minor defects. Seals open joints and cracks.
- Renews your pipes life



- Renews the sanitary sewer lateral with minimal disturbance to the property, cleanouts are capped below the grass during restoration.
- Excavation is minimized

Before and After Rehabilitation



Before – Lateral is cracked and deteriorated. Water from the ground can enter the lateral freely.

After – Lateral is smooth and sealed. Water from the ground can no longer enter the lateral.



Foundation Drain Disconnection Project Details

- This project consists of removing the existing Palmer valve, disconnecting the foundation drains, and installing a sump pump with a dedicated 20 amp electrical circuit.
- This program is 100% voluntary and the homeowners will not incur any costs, assuming 100 AMP electrical service is available.
- The project is funded primarily through a grant from the Milwaukee Metropolitan Sewerage District (MMSD).
- It is expected to take a day or two to finish the work. The City will work with the residents to minimize disruptions and inconvenience for the entire duration of the project.

Project Requirements to Participate

- An initial inspection by the contractor and the city personal is required to determine the eligibility.
- Must not have an existing sump pump.
- Foundation drains are connected to the sanitary sewer system.
- A 100 amp electrical service must exist in the home.
- Upgrading the electrical service to 100 amp will not be covered. Upgrading costs will be at the home owners expense.
- Battery back-up system is optional at the home owner's expense.

What will be done?

The Palmer valve in the basement will be removed.



What will be done?

The foundation drains will be disconnected.



What will be done?

Foundation drains will be connected to the sump crock



What will be done?

A sump pump will be installed with a dedicated electrical circuit.



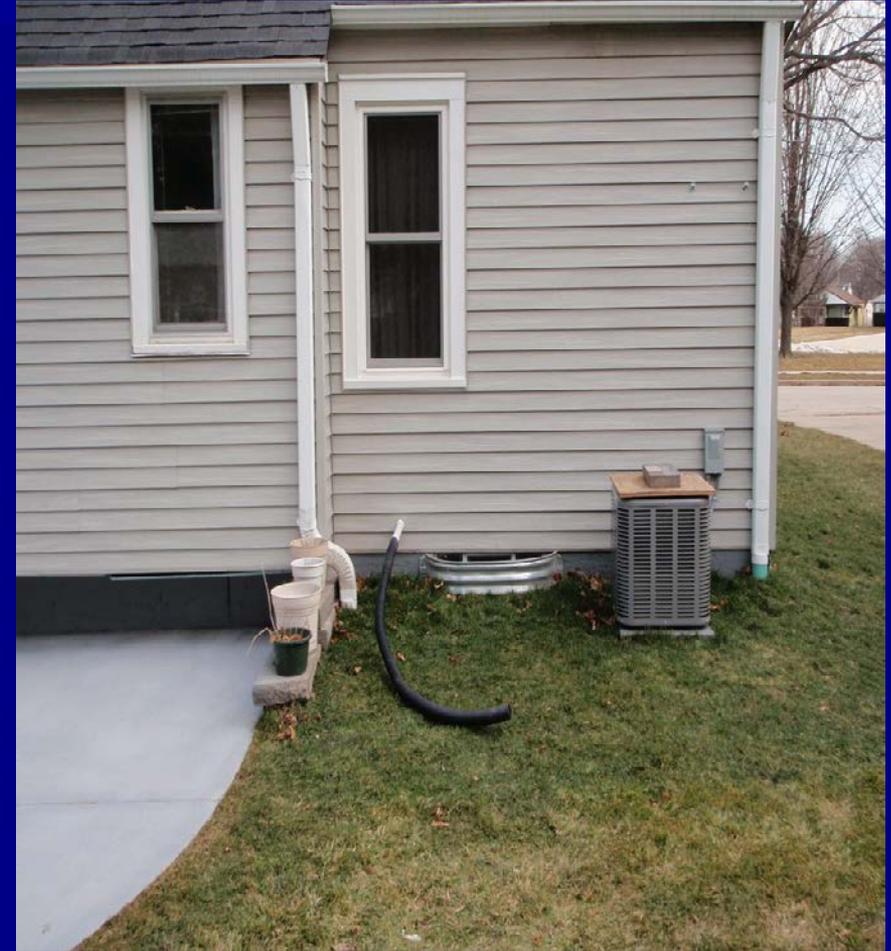
After Rehabilitation

Upon completion of installation, the basement will be restored.



What will be done?

The sump pump will discharge into the yard at a suitable location.



Tentative Work Schedule

- December 2018 – Invitation for bidders and contract award.
- March 2019 – Lateral rehabilitation work may begin with inspections and cleanout installations. Property inspections begin for foundation drain disconnection
- November 2019 – Lateral rehabilitation project completion. The actual completion date will vary based on number of homes participating.
- March 2020 – Foundation Drain disconnection project completion date.
- * The City of Milwaukee will send additional information on the project and Right of entry form asking the owner to sign up to participate in the project.