

# Sewer Bypasses and Overflows



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# Definitions

## Overflows:

- release of untreated wastewater to the environment.
- can occur in our sewer collection system, at pump stations, or treatment facilities.

## Bypasses:

- diversion of wastewater around part of the wastewater treatment process most often within a wastewater treatment plant.



# What Causes Overflows/Bypasses?

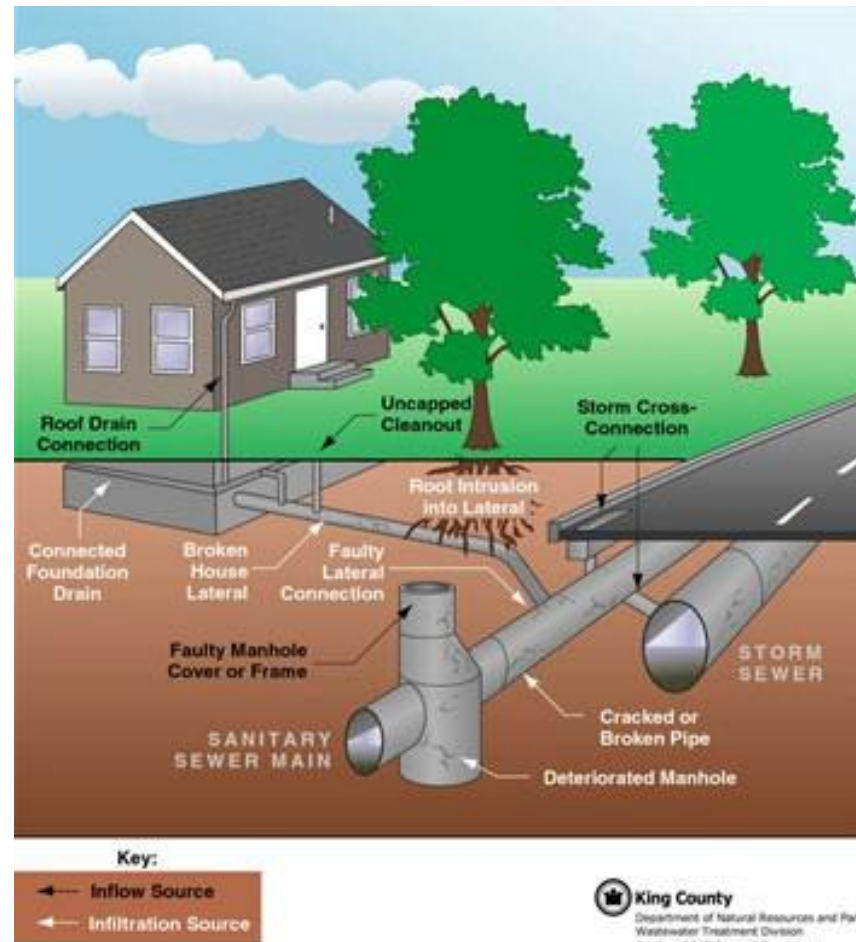
Most common cause: stormwater entering the sanitary sewer system, increasing flows beyond capacity. Otherwise known as 'Inflow & Infiltration'.

**Inflow:** stormwater flow into sanitary sewer via direct connection (e.g. combined sewers, weeping tile connection).

**Infiltration:** stormwater or groundwater into sanitary sewer via indirect connection (e.g. cracks in pipe).

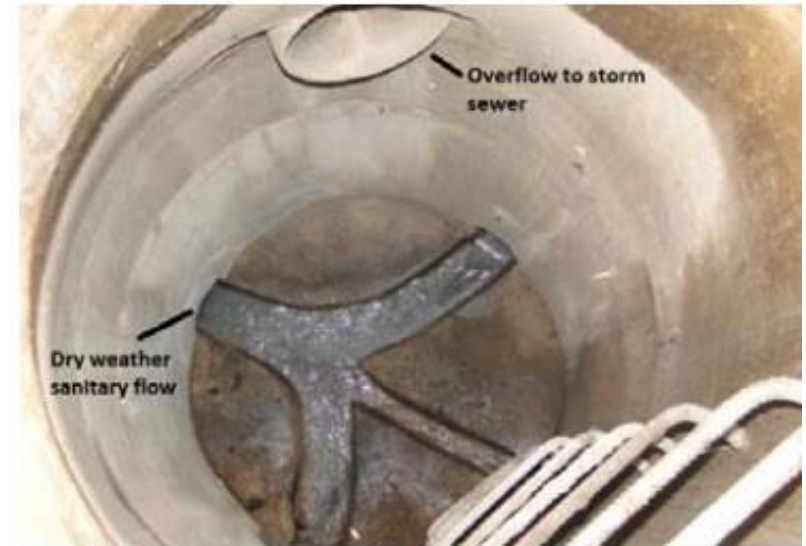
This is '**unwanted**' water in our sanitary sewer system.

# Inflow and Infiltration



# What Are We Doing?

- Because there are multiple sources of this unwanted water, multiple approaches are needed.
- Many of the plans and initiatives are interconnected





# Pollution Prevention Control Plan (PPCP)

- Multi-year master planning project to provide long-term solutions to address conveyance system sewer overflows and bypasses
- Identifies highest priority overflow points for management based on frequency and volume of overflows
- Recommendations of the PPCP include considerations for climate change, data management, capital works, and removal of inflow and infiltration at the source.
- 2023 PPCP Update: currently in process to engage consultant to undertake master planning update report



# Domestic Action Plan – Combined Sewer Separation

- Highlights projects completed that reduce discharge of phosphorous to the Thames; includes replacement of combined sewers and managing the highest priority overflows as identified in PPCP
- Original DAP goal was to separate 80%, or 17km (from 2008 quantity of 21.25km) of the combined sewer system by 2025; however, that relied on senior level government funding which did not materialize.
- City remains committed to combined sewer separation.

# Combined Sewer Separation – Past 5 Years

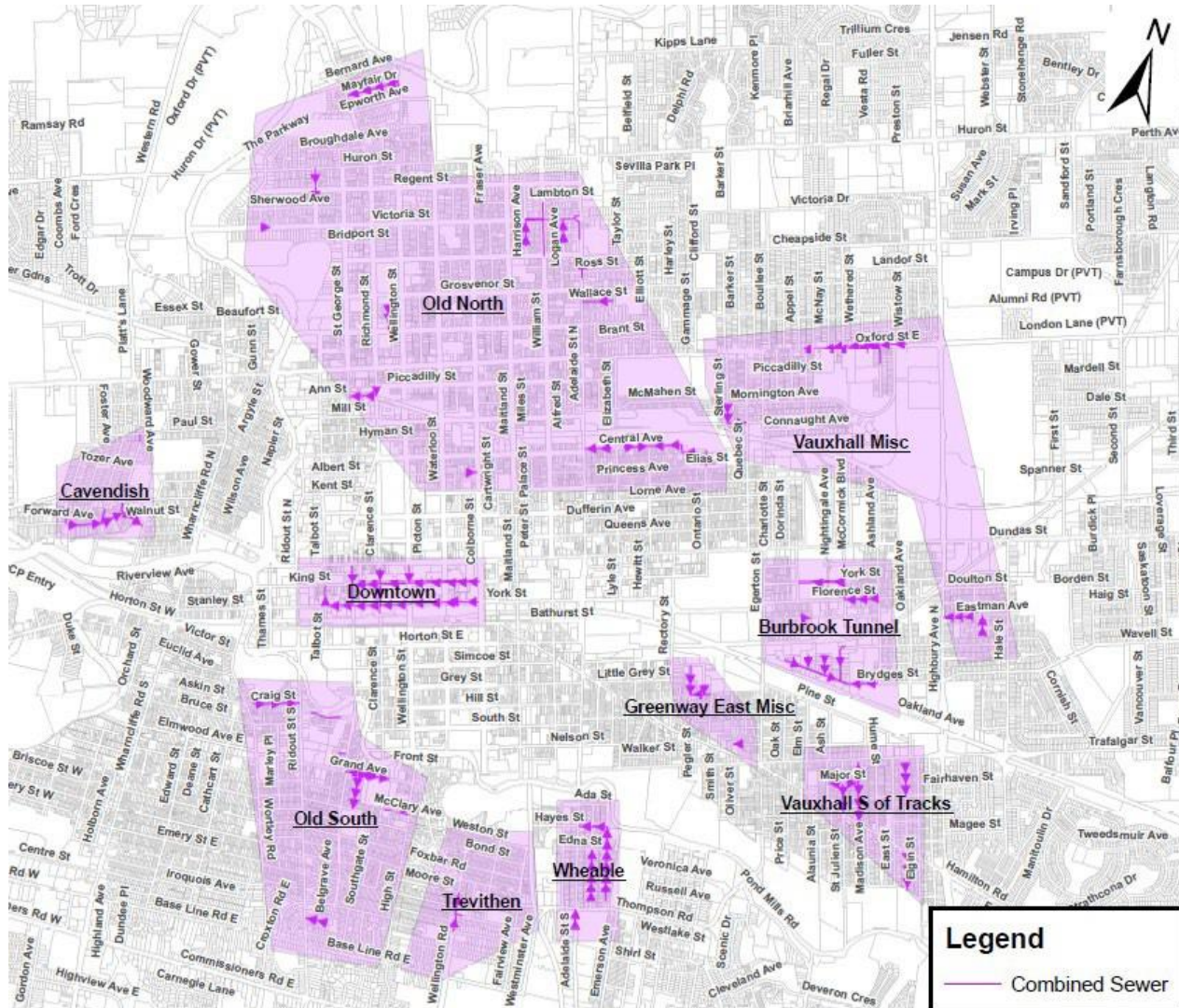
Year	Length Removed	Total Combined Sewer Remaining
2018	1,022m	16.5km
2019	600m	15.9km
2020	303m	15.6km
2021	1,428m	14.2km
2022	904m	13.3km

Over past 5 years, over 4.25km of combined sewer have been removed and replaced with new separated sanitary and storm sewers.



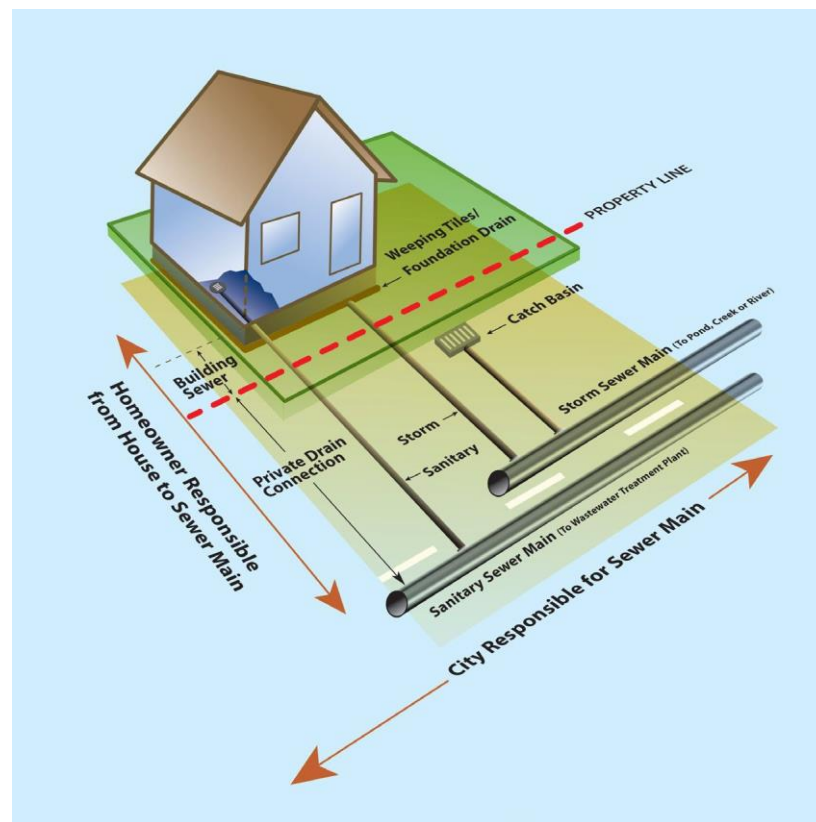
# Combined Sewers

13.3km remaining (end 2022)



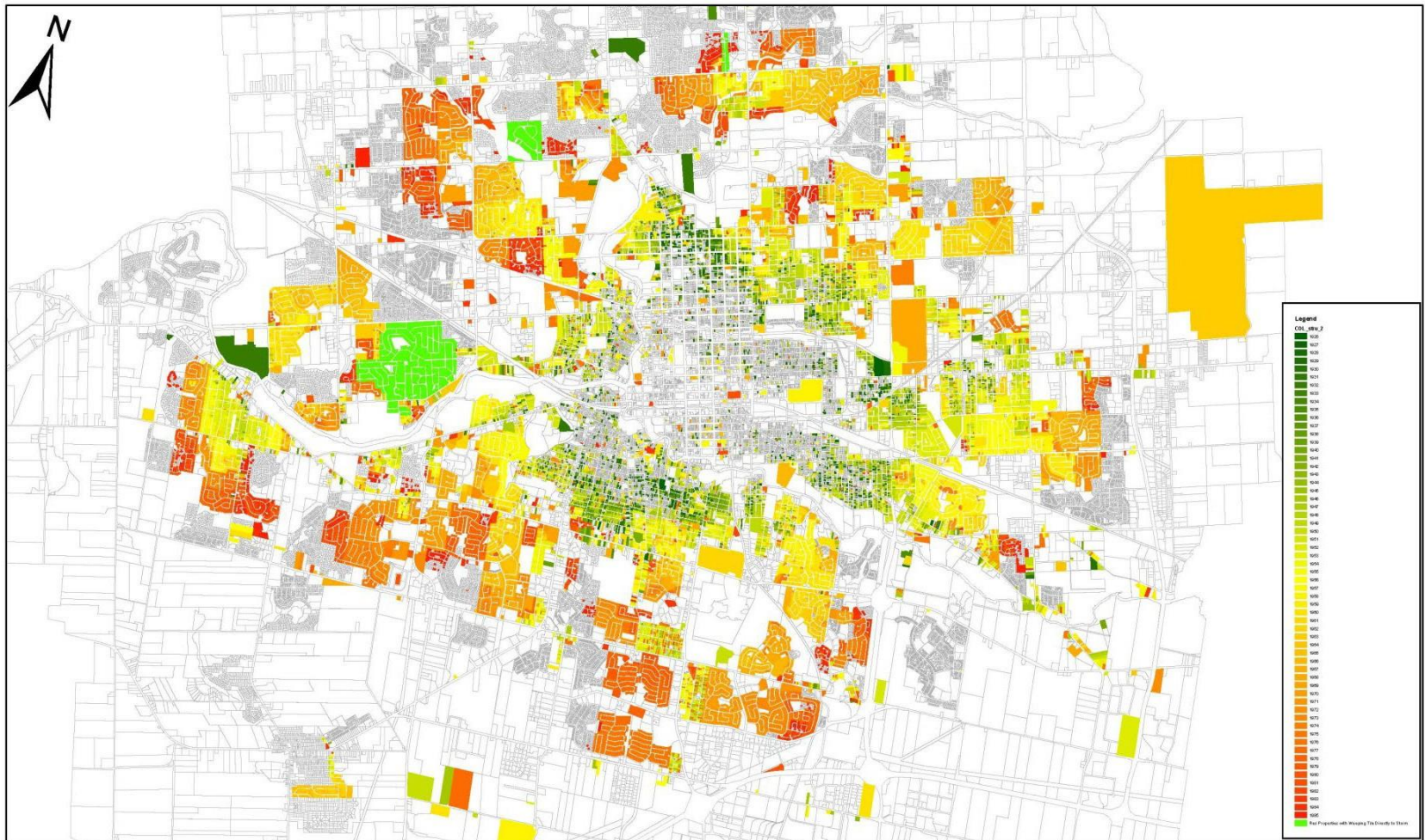
# Inflow Source: Weeping Tiles

- Weeping tiles were commonly connected to sanitary sewer between the 1920s and 1980s
- That makes these sanitary sewers “partially combined” as the weeping tiles are a point of inflow
- Leading cause of basement flooding
- Approximately 50,000 weeping tile connections



# Weeping Tile to Sanitary

Residential Properties Built Between 1926 and 1985  
ie. properties assumed to have weeping tiles to sanitary(47,000+ properties)





# Weeping Tile Disconnection

## **Basement Flooding Grant Program**

Subsidy of 90% of costs to separate weeping tiles from the sanitary sewer and install sump pumps and backflow valves

Applied for by individual homeowners

60 -80 grants approved each year

## **Targeted weeping tile disconnection program**

City initiated projects to target neighbourhoods for overall system benefit.

# Historical Bypasses and Overflows

Raw overflow volume  
< 0.17% of total  
wastewater treated

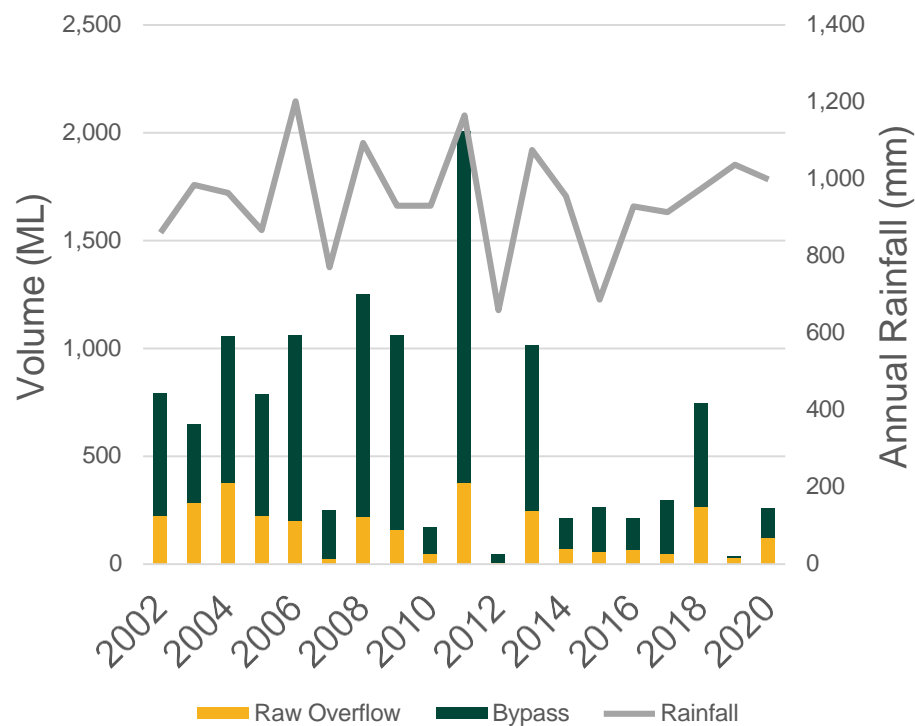
2018 stands out

Multiple intense rain  
events with snow melt

75% of raw bypass before  
end of February

Greenway upgrade not  
complete

Overflow and Bypass Activity  
2002-2020





# Wastewater Treatment Master Plan

- Wastewater Treatment Master Plan completed in February 2022
- Strategy for collection and treatment of wastewater in London over the next 50 years
- Provide long term plan for wastewater infrastructure including treatment plants and pumping stations
- Minimizing bypasses and overflows at these facilities will be a key consideration

# Recent Work

- Greenway Expansion
  - \$40M to increase treatment capacity, add wet weather treatment and storage capacity
- Dingman Creek PS
  - \$25M project to increase capacity in southeast London and increase ability to partially treat extreme flow events (2022)
- Adelaide WWTP Upgrades
  - Project to recover treatment capacity and construct wet weather storage tanks (2022)
- Pottersburg-Vauxhall System Optimization
  - Interconnection forcemain (2020) to allow full use of available treatment capacity
  - Wet weather treatment and storage facility (2022)
- Flood Protection at Greenway and Adelaide WWTP
  - \$49M project to protect WWTPs from floods and enable full treatment to occur up to 100 year flood elevation (complete by 2025)



# Conclusions

- Unwanted water has many sources of inflow and infiltration into the sanitary sewer system.
- Major source of inflow from residential weeping tile connections to sanitary lateral.
- Multi-faceted approach required to address the various sources.
- Ultimate goal is to protect properties from basement flooding and our environment from overflows and bypasses.



# Questions?

