LONDON

The Great Lakes Sewage Report Card

October 2, 2013

Advisory Committee on the Environment

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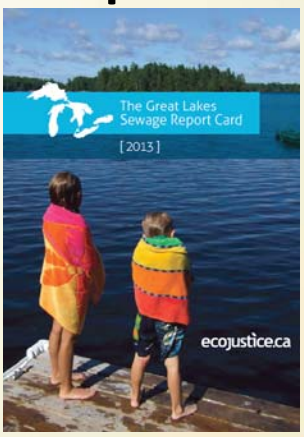

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Outline of Today's Talk

- Great Lakes Sewage Report Card 2013
  - Results
  - Observations
- London's Bypass & Overflow Reporting
- Inflow and Infiltration in London
- What's London doing to improve sewer system and plant bypasses

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- London is supportive of all efforts to improve water quality including reporting by Ecojustice
- Sewer system overflows are problem for older cities and informing the public and media is important to help ensure that programs and funding are available to make improvements

3

- Ecojustice sent a 22-question, 2 page survey to 25 municipalities within the Great Lakes basin in June, 2012
- 12 of 25 Municipalities responded to the surveys
- Ontario has more than 470 municipally owned wastewater treatment facilities servicing 444 upper, lower and single tier municipalities
- Only 12 municipalities responded with information from 34 plants or about 7% of Ontario's WWTF

4

- Some survey questions were given a greater weight (i.e., level of sewage treatment, quantity or volume of CSO as percentage of total, CSO frequency).
- Grades were applied based on the **limited information** that was provided
- Municipalities were not given an opportunity to challenge the scores or ranking methodology.

5

Results and grades assigned

- 12. Windsor (C-);
- 11. London (C-)
- 10. Toronto (C)
- 9. St. Catharines (C)
- 8. Sudbury (C)
- 7. Sarnia (C+)
- 6. Brockville (B)
- 5. Midland (B)
- 4. Kitchener-Waterloo (B+)
- 3. Collingwood (B+)
- 2. York and Durham (B+)
- 1. Peel Region (A-)

Municipalities that didn't respond

- Thunder Bay
- Sault Ste. Marie
- Kingston
- Hamilton
- Niagara Region
- Welland
- Barrie
- Halton Region
- Marathon
- Owen Sound
- Wawa
- Oshawa
- Cornwall
- Belleville

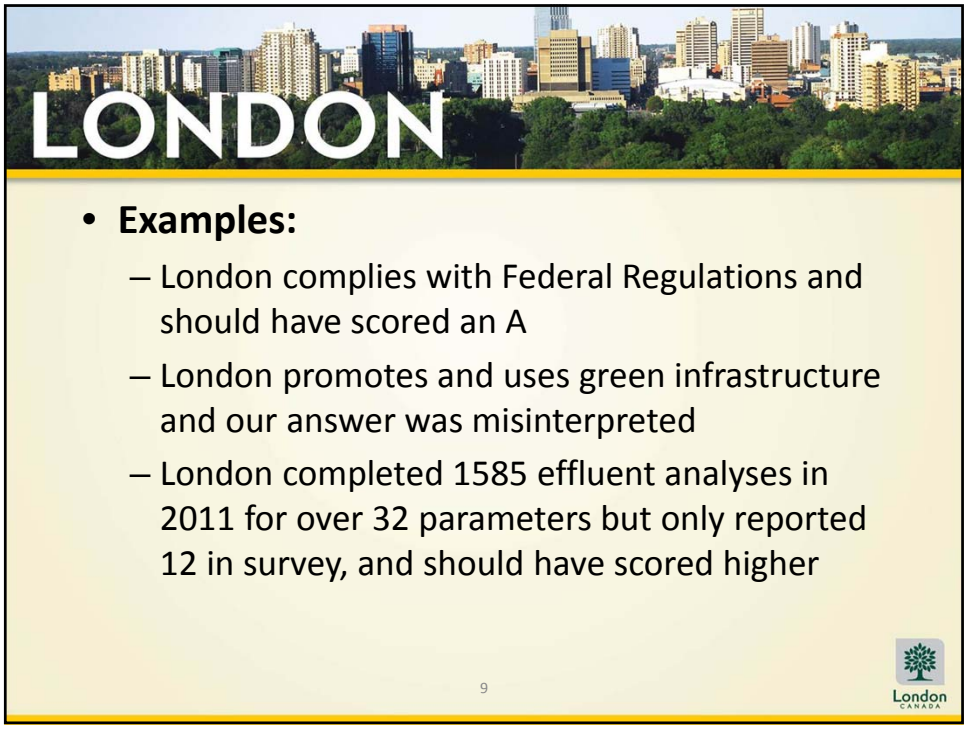
6

- **Observations:**
  - Some larger municipalities like York and Durham only reported on <u>one site</u> (i.e, Duffin Creek WWTP)
    - Durham has 11 plants and 48 pumping stations
    - York has 7 plants and 19 pumping stations
  - Some municipalities didn't report bypasses because their plants were operated by upper tier government (i.e., St. Catharines – Niagara Region)
  - One City didn't get secondary treatment until July 2012 yet received an C for their level of treatment even though primary should have scored an F

7

- **Observations on scoring:**
  - London scored highest for the level of treatment for our 4 secondary and 2 tertiary plants
  - London received highest rating for current and future sewage management plans
  - Different weights would have ranked London higher
  - London could have provided more data and better answers to some of the questions which would have improved our scores

8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• Examples:
– London complies with Federal Regulations and should have scored an A
– London promotes and uses green infrastructure and our answer was misinterpreted
– London completed 1585 effluent analyses in 2011 for over 32 parameters but only reported 12 in survey, and should have scored higher
9
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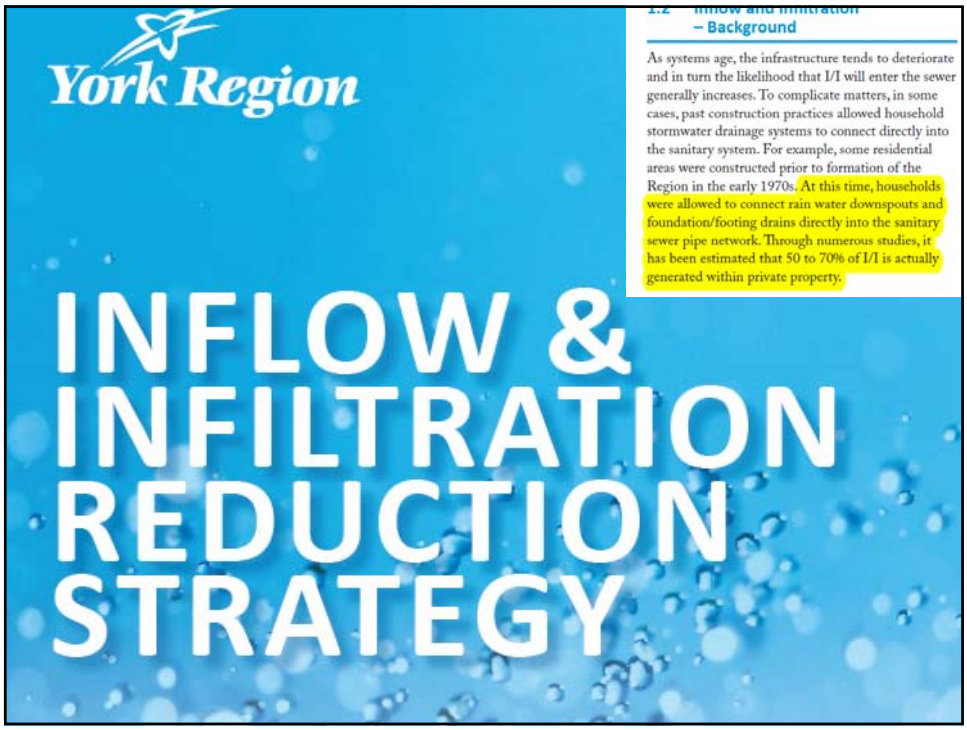
York Region
– Background
As systems age, the infrastructure tends to deteriorate and in turn the likelihood that I/I will enter the sewer generally increases. To complicate matters, in some cases, past construction practices allowed household stormwater drainage systems to connect directly into the sanitary system. For example, some residential areas were constructed prior to formation of the Region in the early 1970s. At this time, households were allowed to connect rain water downspouts and foundation/footing drains directly into the sanitary sewer pipe network. Through numerous studies, it has been estimated that 50 to 70% of I/I is actually generated within private property.
INFLOW & INFILTRATION REDUCTION STRATEGY

	Weight	St Catharines	York & Durham	Collingwood	Kitchener-Waterloo	Midland	Sudbury	Sarnia	Windsor	Peel	Toronto	London	Brockville
Treatment level	2	N/A	B	C-	B	C	C	B	C	B	B-	B	C
Wet-weather bypasses	2	N/A	A	A	B		C	D	F	B		F	B
Wet-weather bypass % of total flow	2	N/A	A		A-	A-	D	D	F	A-	D	F	C
CSO event(s)	2	F	N/A	A	N/A	C	A	A	D	N/A	F	D	N/A
CSO % of total flow	2	N/A	N/A		N/A	A-	N/A	A			D	D	N/A
Up to date sewer-use bylaw	1		A	A	D	D	A		D	A	A		C
Expected compliance with federal regulations	1	A	A	A	X		B	X	B		B	C	A
Final effluent quality – # of different parameters tested	1	N/A		C		B	B	C	A+	A	A	C	C+
Current and future sewage management plans		B	B	C		C	C	D	B-	B	A	B+	B
Green infrastructure	1	A	A	N/A	N/A	C	N/A	C-	A-	N/A	A+	D	N/A
Renewable energy	1	N/A	A	B-	B	B	D	D	C+	B+	B	B	B
Final Grade		C	B+	B+	B+	B	C	C+	C-	A-	C	C-	B

Open to Interpretation

- **London's Bypass & Overflow Reporting:**
  - All wet weather bypasses are publicly reported for **every instance** in London at 6 treatment plants and 36 pumping stations
  - London may report bypasses at a dozen facilities during the same rainfall event
  - 2011 was a "wet year" where precipitation was 30% above the average – 125 reported bypasses
  - 2012 was a "dry year" where precipitation was 30% below average – 6 reported bypasses

12

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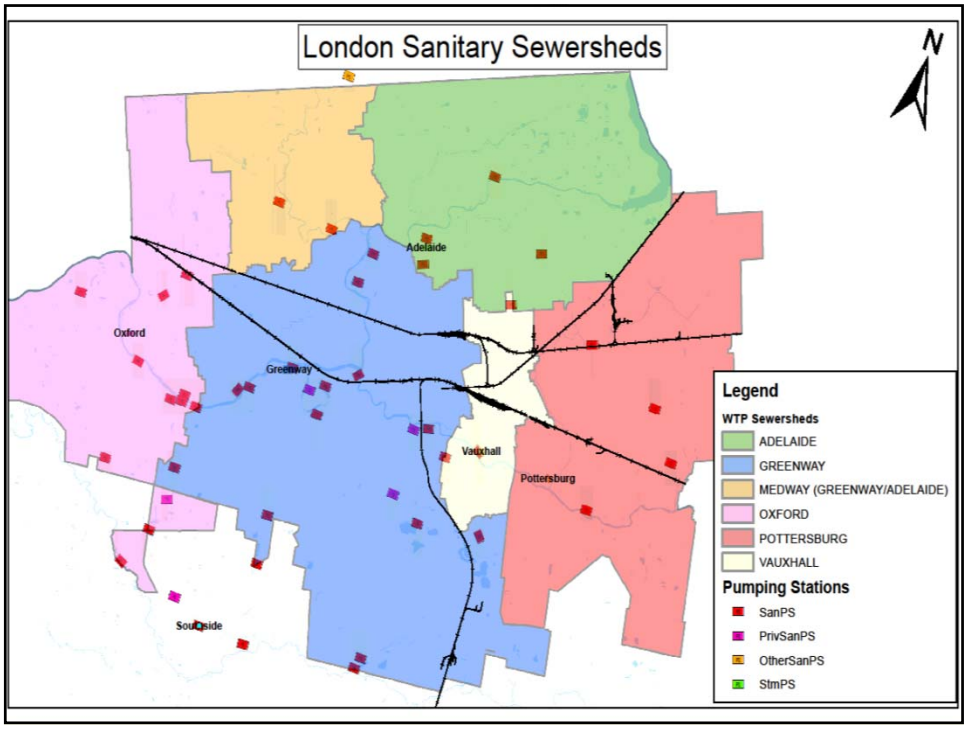
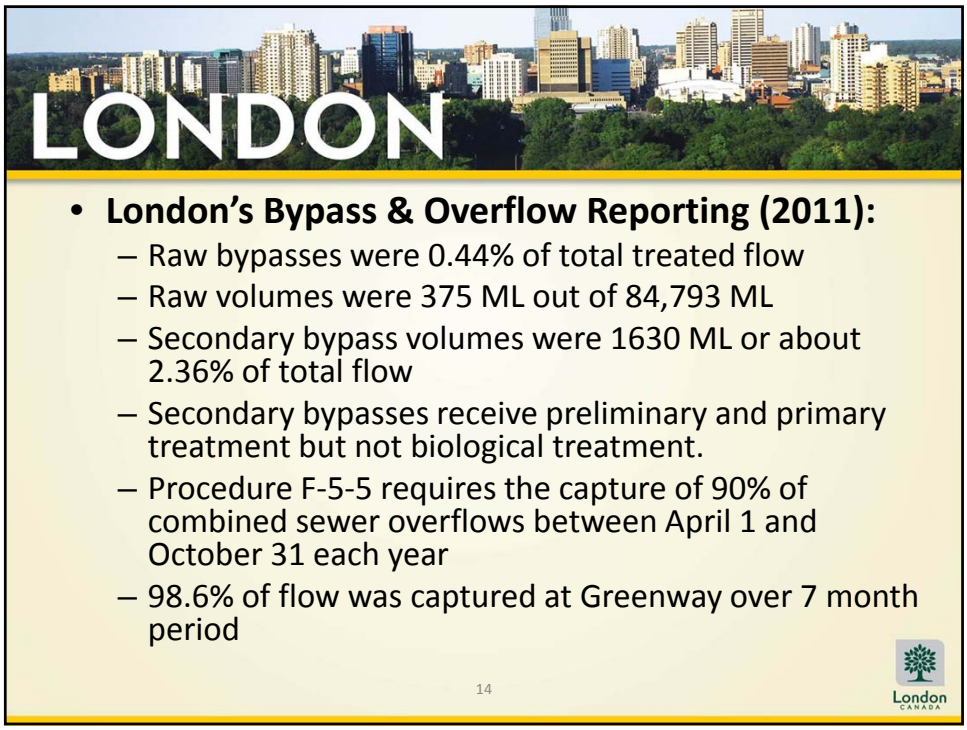

London Sanitary Sewersheds
N
Adelaide
Oxford
Greenway
Vauxhall
Pottersburg
Southside
Legend
WTP Sewersheds
ADELAIDE
GREENWAY
MEDWAY (GREENWAY/ADELAIDE)
OXFORD
POTTERSBURG
VAUXHALL
Pumping Stations
SanPS
PrivSanPS
OtherSanPS
StmPS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• London's Bypass & Overflow Reporting (2011):
– Raw bypasses were 0.44% of total treated flow
– Raw volumes were 375 ML out of 84,793 ML
– Secondary bypass volumes were 1630 ML or about 2.36% of total flow
– Secondary bypasses receive preliminary and primary treatment but not biological treatment.
– Procedure F-5-5 requires the capture of 90% of combined sewer overflows between April 1 and October 31 each year
– 98.6% of flow was captured at Greenway over 7 month period
14
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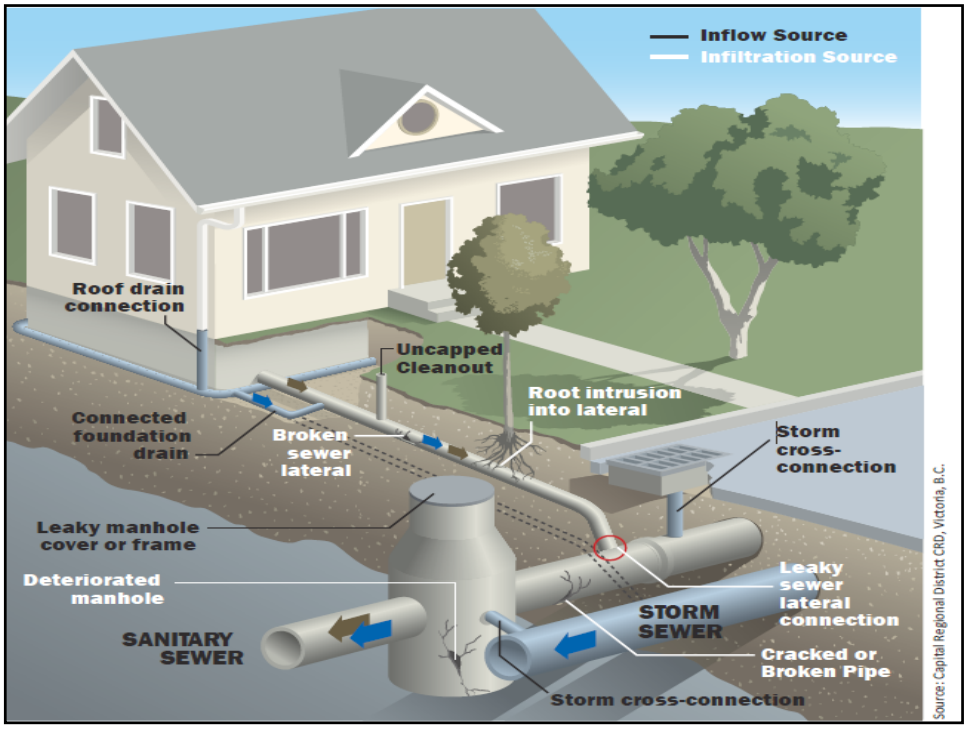
- **London's Bypass & Overflow Reporting (2012):**
  - Raw bypasses were 0.008% of total treated flow
  - Raw volumes were 6 ML out of 67,865 ML
  - Secondary bypass volumes were 41 ML or about 0.06% of total flow
  - Procedure F-5-5 requires the capture of 90% of combined sewer overflows between April 1 and October 31 each year
  - ~100% of flow was captured at Greenway over 7 month period

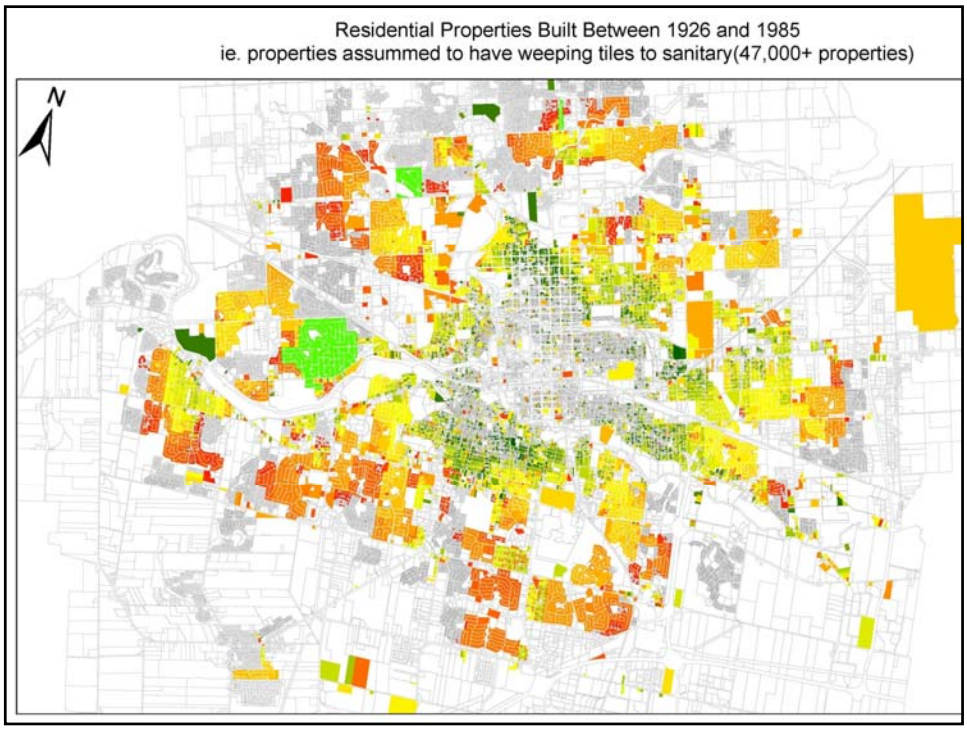
15

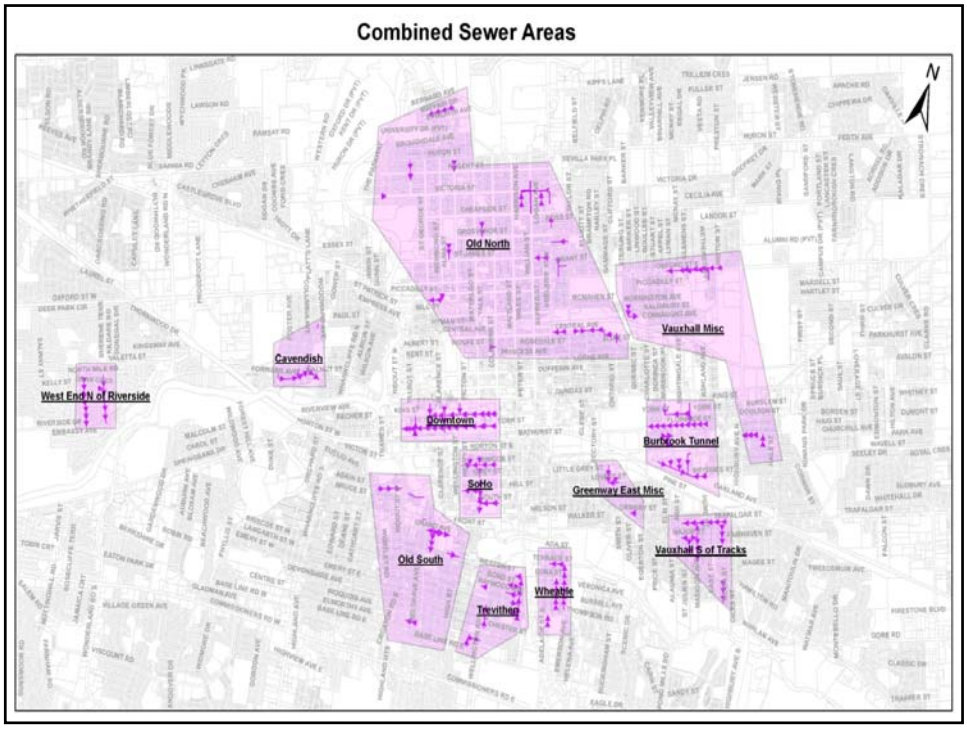
Inflow and Infiltration in London

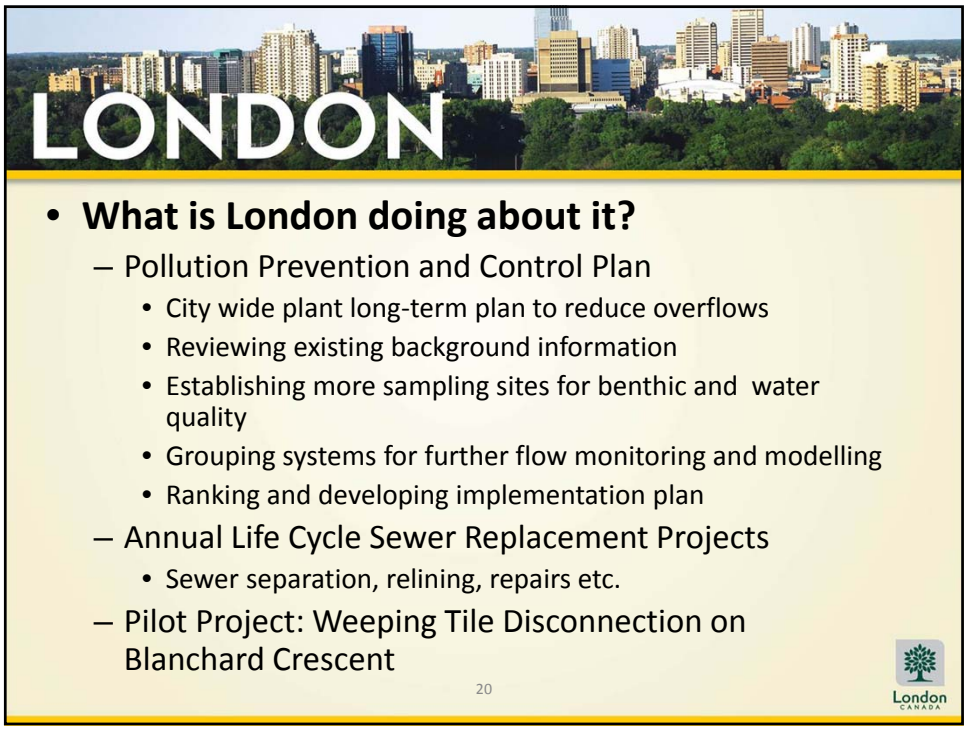
- Occurs when stormwater and groundwater enters the sanitary sewers
- Excess I/I results in:
  - basement flooding,
  - sewer overflows,
  - bypasses at plants,
  - higher conveyance costs and
  - higher treatment costs

16


Inflow Source
Infiltration Source
Roof drain connection
Uncapped Cleanout
Root intrusion into lateral
Connected foundation drain
Broken sewer lateral
Storm cross-connection
Leaky manhole cover or frame
Deteriorated manhole
Leaky sewer lateral connection
STORM SEWER
SANITARY SEWER
Cracked or Broken Pipe
Storm cross-connection
Source: Capital Regional District CRD, Victoria, B.C.


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


Combined Sewer Areas
N
Old North
Vauxhall Misc
Cavendish
West End N of Riverside
Downtown
Burnbrook Tunnel
SoHo
Greenway East Misc
Vauxhall S of Tracks
Old South
Wharncliffe
Trevithan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• What is London doing about it?
– Pollution Prevention and Control Plan
• City wide plant long-term plan to reduce overflows
• Reviewing existing background information
• Establishing more sampling sites for benthic and water quality
• Grouping systems for further flow monitoring and modelling
• Ranking and developing implementation plan
– Annual Life Cycle Sewer Replacement Projects
• Sewer separation, relining, repairs etc.
– Pilot Project: Weeping Tile Disconnection on Blanchard Crescent
20
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- **What is London doing about it?**
  - Mandatory pressure testing of new sewers & use of manhole inserts in unassumed areas
  - Wastewater Treatment Plant Improvements
    - CEPT, Split Flow, Increased capacity
  - Participating at Wastewater Practitioner's Group
    - MOE, WEAO, Municipalities and Consultants
  - Thames River Clear Water Revival
  - Public Education (website, presentations, videos, pamphlets, etc.)

21

Summary

- EcoJustice report would have been better with complete information
- Inflow and Infiltration is a widespread, weather-dependent problem
- London continues to invest in ways to increase capture and better treat wet weather flows

22

More information:

- http://www.ecojustice.ca/publications/the-great-lakes-sewage-report-card-2013
- http://www.london.ca/residents/Environment/EAs/Pages/Pollution-Prevention-and-Control-Plan.aspx
- http://www.london.ca/residents/Environment/Rivers-Creeks/Documents/Thames-River-Water-Quality-2012.pdf

23

Questions?

24