Wastewater Treatment Operations
Monitoring Program

- Collect grab samples from 10 sites on the Thames River about 40 times per year
- Collect grab samples from 10 sites from Creeks about 12 times per year
- Collect 24 hour dissolved oxygen levels via a probe and data logger at 3 sites June to September
- Collect benthic samples during June to August in the Thames River and on the creeks

CITY OF LONDON
Thames River Monitoring

Advisory Committee on the Environment
October 2014

Tony Van Rossum, P. Eng.
Environmental Services Engineer

PRESENTATION OUTLINE

1.Monitoring Program

MOECC Blue Book
Surface water Quality Objectives

- http://www.london.ca/residents/Environment/Rivers-Creeks/Pages/Water-Quality.aspx

ISSUES

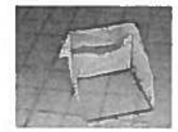
PARAMETER	MOE SURFACE WATER CRITERION	UPSTREAM		DOWNSTREAM (Byron Bridge)		Average met Objective
		2013	3 Year average	2013	3 Year average	
Suspended Solids		22	17	22	19	
BOD	4 0	1 2	1.8	1.5	2 0	Y
Dissolved Oxygen	4 0	11.3	10 4	11.0	10.3	Y
Phosphorous	0 03	0.09	0 08	0.12	0 13	N
Un-ionized Ammonia	0.019	0.002	0.003	0.003	0 003	Y
Nitrates**	2 9	5 8	5 1	6 2	5.7	N
Total Coliforms * xx	1,000	4,600	5,900	7,800	9,500	N
E. Coli * xx	100	108	115	220	323	N

Sampling Equipment

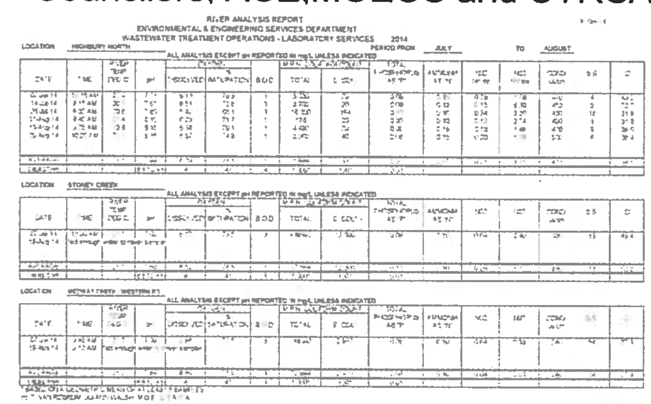
- River sampler

- YSI Probe

- Surber and Eckman samplers

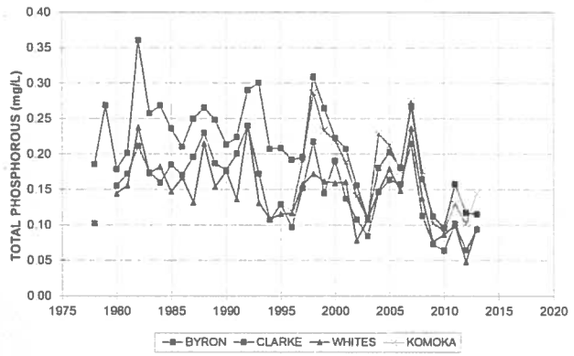


Monitoring Results Shared with Councilors, ACE,MOECC and UTRCA



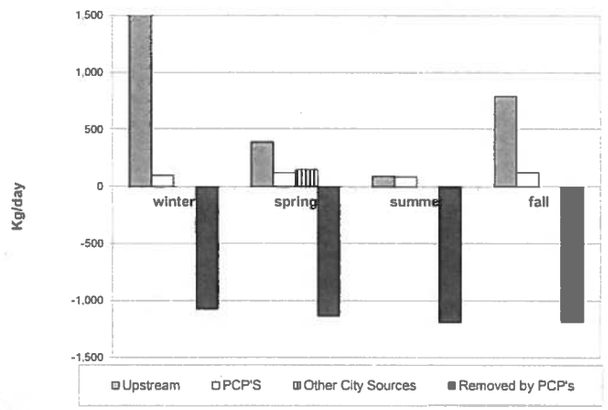
ISSUES

THAMES RIVER AT LONDON
ANNUAL AVERAGES



ISSUES

Phosphorous loading 2009 to 2013 inclusive



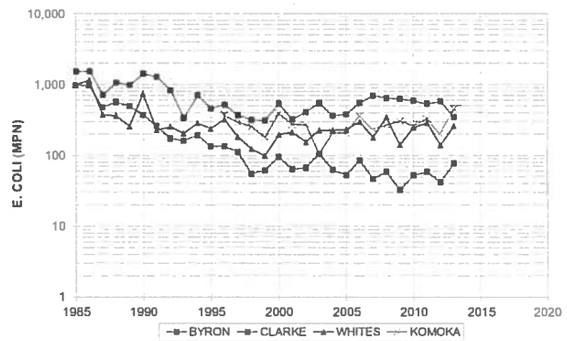
PARAMETER	Criterion	UPSTREAM		DOWNSTREAM (Byron Bridge)		Average met Objective
		2013	3 Year average	2013	3 Year average	
Iron	0.30	0.09	0.06	0.05	0.05	Y
Manganese	0.050	0.007	0.009	0.004	0.005	Y
Aluminum	0.075	0.114	0.070	0.063	0.060	N
Cadmium	0.0002	L0.0002	L0.0002	L0.0002	L0.0002	Y
Chromium	0.100	L0.001	L0.001	L0.001	L0.001	Y
Copper	0.005	0.001	0.001	0.002	0.002	Y
Nickel	0.025	0.004	0.003	0.005	0.005	Y
Lead	0.025	L0.002	L0.002	L0.002	L0.002	Y
Zinc	0.030	0.004	0.003	0.003	0.005	Y

* Results during Disinfection Season (April 1 to September 30) - units are defined as most probable number (MPN) per 100 mls.
** There is no MOE surface water criterion but the Canadian Council of Ministers of the Environment (CCME) has a criterion of 2.9 mg/L Nitrate as N.
L in the table means less than
xx The 2012 weighted geometric mean for the wastewater treatment plants effluent for the disinfection period was 424 most probable number (MPN) per 100 mls. for Total Coliforms and 35 most probable number (MPN) per 100 mls. for E. Coli.
Construction on the Komoka Bridge in 2013 prevented sampling over three months and so data from the Byron Bridge was used for comparison in 2013 and metal data from Giles Bridge.

ISSUES

- Bacteriological Quality

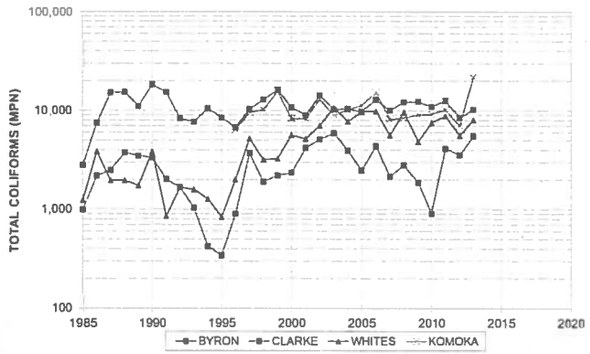
THAMES RIVER AT LONDON
ANNUAL AVERAGES



Issues

- Bacteriological Quality

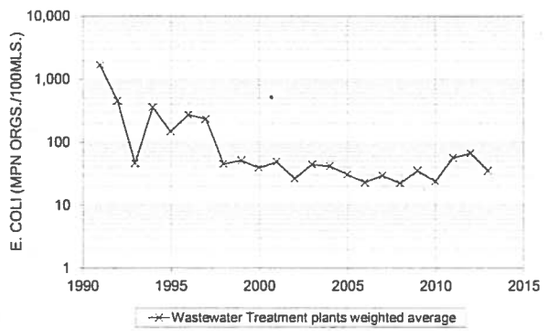
THAMES RIVER AT LONDON
ANNUAL AVERAGES



ISSUES

- Bacteriological Quality

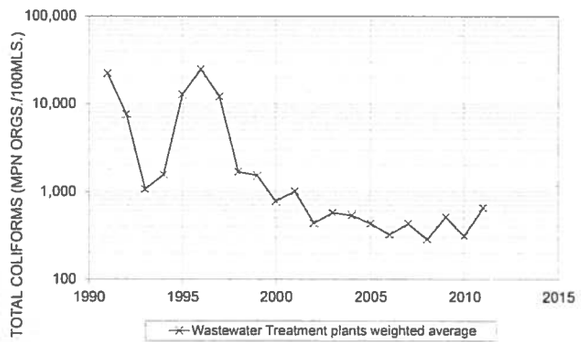
THAMES RIVER
DISINFECTION SEASONS



Issues

- Bacteriological Quality

THAMES RIVER
DISINFECTION SEASONS



ISSUES

- Pollution Prevention and Control Plan

http://www.london.ca/residents/Environment/EAs/Pages/Pollution-Prevention-and-Control-Plan.aspx

Project Background and Purpose

If sewer system capacity is exceeded due to extra surface or groundwater from inflow or infiltration, raw wastewater can back up into basements or overflow into storm sewers which outlet to the river. Inflow sources include foundation drain, roof leader or catch basin connections in older parts of London. Infiltration of water into sewers can also occur through cracks or poorly sealed pipe joints in deteriorating pipes. Overflows were deliberately designed and constructed in past years to minimize widespread basement flooding. A Pollution Prevention and Control Plan study is being conducted to examine the overflows and determine how and when the overflows can be decommissioned safely.

ISSUES

- Bypasses
- http://www.london.ca/residents/Sewers-Flooding/Sewage-Treatment/Pages/Bypass-and-Overflows.aspx

City of London
Bypasses and Pumping station Overflows

	Treated	Raw Bypass		Secondary Bypass		% of raw bypasses to Treated flow	Rainfall yearly total (mm)
	ML	ML	#	ML	#		
2002	75,150	225	32	567	11	0.30%	861
2003	74,385	285	99	365	40	0.38%	985
2004	77,304	375	106	679	47	0.48%	964
2005	75,150	225	74	566	26	0.30%	868
2006	83,075	201	99	862	33	0.24%	1,202
2007	71,874	24	36	227	19	0.03%	771
2008	78,979	219	70	1,033	38	0.28%	1,094
2009	74,557	158	60	901	22	0.21%	931
2010	70,426	47	38	123	17	0.07%	931
2011	84,793	375	94	1,630	31	0.44%	1,165
2012	67,865	4	6	41	6	0.01%	660
2013	76,160	249	55	765	19	0.33%	1,075
Average		199	64	647	26		

ML = Mega litres or million litres

Web site

City Wastewater Treatment

- Reports are included in the City web site
- Videos under "*Protect Our Environment*"
- Videos under "Best Practices for Businesses"
- Video on *History Of Sewage Treatment In London*

Overflows

2013 Estimatation of CSO effluent volumes for WSER reporting requirements.
Data below as reported to WSER [illegible] 2014

Outlet Location		SMS003 Trevithen All overflows have sufficient clearance	OSS006 Jacqueline/Terrace	SMS002 High/Grand	6KS002 Storm: Wellington/North of Thames Flows from Wellington/Hill east Wellington/Hill and Wellington South	DSS003 Wellington/River Secti[illegible] No overflow 2.2m clearance	DSS001 South/Waterloo no flow through 45 2.8km sanitary	BFS002 York/Richmond	BLS003 York/Ridout
	# Events	Effluent m3	Effluent m3	Effluent m3	Effluent m3	Effluent m3	Effluent m3	Effluent m3	Effluent m3
Jan 13	1	0	249	249	359	0	230	1,124	1,611
Feb 13	0	0	0	0	0	0	0	0	0
Mar 13	0	0	0	0	0	0	0	0	0
Apr 13	2	0	582	582	938	0	517	2,623	4,225
May 13	1	0	859	859	1,237	0	791	3,872	6,246
Jun 13	1	0	322	322	464	0	297	1,452	2,339
Jul 13	1	0	887	887	1,277	0	818	3,997	6,438
Aug 13	3	0	1,420	1,420	2,017	0	1,293	6,113	10,170
Sep 13	2	0	4,680	4,680	6,739	0	4,370	21,096	33,484
Oct 13	1	0	327	327	443	0	284	1,385	2,237
Nov 13	0	0	0	0	0	0	0	0	0
Dec 13	0	0	0	0	0	0	0	0	0
Total Estimated Effluent			9,287	9,287	11,373	0	8,572	41,861	67,435

Total All Sites (m3) 147,815

(7)

Advisory Committee on the Environment (ACE)
Comments on The London Plan

ACE comments are a result of Planning staff's presentation July 16, 2014 asking ACE to give additional input to The London Plan by November 3, 2014 and the resolution by City Council, August, 2013, to consider the inclusion of ACE's report regarding sustainability programs. ACE commends the City for the readability level of the plan and its innovation.

In The London Plan (Our Strategy chapter), p21, **Direction 4,** ACE fully supports and encourages the high standard goal to have London as one of the Greenest cities in Canada by 2035.

LOCAL IMPROVEMENT CHARGES

ACE agrees and supports p191/192, policies 792, 795, 803, 805 and 810 in the ***Green City Strategy*** section. These policies strongly correspond to the introduction of City sponsored incentives such as (LIC) Local Improvement Charges, for clean energy, energy efficiency and retrofit improvements in new and existing homes.

The above points in **The Green City** section of the London Plan refer to:

- improvements in green job creation;
- the role the City plays in growth in the green economy;
- incentives to encourage green businesses;
- incentives to support sustainable forms of development;
- financial tools incenting improvements to environmental performance of existing building through retrofits; and,
- a Community Action Plan which would implement more environmental friendly and affordable energy usage.

The key words being 'incentive'; offering opportunities that would not be available otherwise, and 'affordability'; offering residents a chance to invest in environmental home improvements they would not be able to afford otherwise.

These recommendations follow Provincial changes to the **Municipal Act** that empowered municipalities to use LIC to help property owners finance energy reduction changes to their homes.

Recommendation:

ACE advises that The London Plan include: specific wording that refers to the LIC programs in the body of the plan. (Such wording can be amended to particular points that refer specifically to city sponsored incentives that encourage home energy efficiency improvements.)

1. Under Green Development

Example with p191, policy 805

"Financial tools will be explored to consider incenting improvements to the environmental performance of existing buildings through retrofits."

Such financial tools could make use of Local Improvement Charge (LIC) incentives to assist property owners to improve home energy efficiency and clean energy retrofits. (The bold type being the amendment)

2.Under Green Energy and Clean Air

Example with p192, 810 *Community Energy Action Plan*

"...overall strategy to implement more environmentally friendly and affordable energy usage and enhance local air quality. .....implement such things as energy conservation, energy efficiency and good design, passive solar, waste heat utilization....."

The overall plan could enhance affordability to building owners by offering LIC incentives to implement energy efficiency and clean energy retrofit programs. (The bold type being the amendment)

ACTIVE TRANSPORTATION

Barriers to encouraging citizens to use active transportation include the lack of safe, convenient facilities recognizing increases in population place stress on existing transportation systems. For vehicle drivers, traffic problems can increase travel time with traffic delays, vehicle operation costs and most importantly, impact air pollution recognizing vehicles are a large source of smog-forming emissions within the London area.

ACE recognizes greater mobility choices can help to reduce pollution and make it easier to walk, cycle or take the bus locally. Accommodating active transportation has also been shown to increase property values and enhance public health.

Recommendations:

Public transit carries approximately 12% of Londoners and active transportation (walking and cycling) represents a further 9% at this time. The potential is there for more. ACE recommends an emphasis on improvements such as segregated bike lanes to make trips more enjoyable and safer and a Complete Streets policy design approach to slow down traffic and improve our air. These approaches are not prominently referenced in The London Plan.

ACE asks that a Complete Streets policy be put into place in the near future.

ACE cannot overly emphasize the value of a coordinated approach to street design standards to support pedestrian, cycling and transit priorities within neighbourhoods as highlighted on p57, policy 144_8 and p67, policy 172 which emphasizes mobility options.

Integrate these mobility actions throughout the document. For example, in the Our City chapter, page 5, policy 11 – add data on cycling and pedestrian use in addition to transit data.

Reference mobility options in the same priority order throughout The London Plan. Change p68, policy 177_3, p70, policy 192 and p352, policy 1293 which have a different order. Use the order of pedestrian, cycling and transit to emphasize walkability and to align with numerous other references in the document. Reword p35, policy 69 on the city's street network mobility corridors to emphasize pedestrians first also recognizing the importance of flow of goods and services.

Add transportation choices and increase road safety by reducing traffic congestion in Our Strategy chapter, p23, **Direction 6**. Add to **Direction 7** the potential of increased retail sales in pedestrian friendly areas and cycling destinations.

Amend the City's Structure Plan chapter, p 30 policy 60 to include the city's cycling route network under networks that shape how London operates – see page 81 map 2 mobility network.

ACE supports that pollution is referenced in the Growth Management chapter p45, policy 101 and that the city, (p192, policy 814), plans to establish a full fleet of city cars and efficient medium and heavy duty vehicles to reduce the city's carbon footprint. Page 220, policy 867, is not permitting drive-throughs in the design of proposed rapid transit corridors. Rapid transit and urban corridors p215, policy 856/7 envision walkable streetscapes and intensification corridors involving more pedestrians, thus, the importance of air quality in these areas.

Add on p47, growth policy 102, that the city looks to achieve infrastructure that recognizes population increases to London which include many young professionals who do not own vehicles and want pedestrian friendly communities.

P357, policy 1300 states that Official Plan policies are designed to protect public health and safety. Safe cycling though is referenced minimally in this document. Observed examples include p24, **Direction 7_6** safe cycling infrastructure, p41, policy 91 safe on-street cycling routes, p57, policy 144 traffic calming, p70, policy 192 grade separations safe for cycling and pedestrian movement, p147, policy 521 public facility design layout for pedestrian and cycling safety, p231 policy 898_6 wide sidewalks for safer access through parking lots, p239 policy 917 site layout, building location, and design reinforcing comfort and safety. There should be more reference to safe pedestrian and bicycle oriented streetscapes visible in The London Plan, particularly on cycling.

ACE supports the city's Building Policies chapter incorporating walking and biking under categories of what 'we are trying to achieve' and language such as that found on p51, policy 131 regarding secondary plans that make reference to placemaking, multi-modal transportation network, and active transportation.

P83 policy 243, add cycling parking to other transportation infrastructures.

P137 policy 487 references running which should be incorporated into other sections of the document assuming running is not purely for recreation or leisure.

The City Design chapter, p53 policy 140 notes young professionals seek walkable communities. Add, London recognizes the need to attract and retain this talent through demographic effectiveness assessment of their needs.

P72 figure 1 street design zones – add bike lanes to the graphic to align with p71 policy 200, that references pedestrians, cyclist and transit in figure 1.

P79, policy 207 under the Mobility chapter, add the city's transportation mode share targets, noting 'telecommuting' is a viable option to reduce traffic congestion. This is not referenced in The London Plan.

P79 policies 208 and 209 add bicycle parking as an option to park and ride facilities for transit.

P80 policy 211 shows active transportation as walking and biking, whereas, p55 policy 144 lists active transportation as cycling, walking, blading, boarding, and transit (the only reference in the document).

ACE strongly supports p80 policy 218 that all street reconstruction/widening include cycling lanes.

P138 policy 491 specific to parks and recreation, add cycling routes to content.

P200, policy 835_5, include bicycle parking, carshare, bikeshare under public parking plan for downtown.

P223, policy 871, note 'neighborhood' is spelled differently to other references throughout the document.

Under the Neighbourhoods chapter, p242, policy 924_7, add cycling mobility as well as pedestrian mobility in reference to street network design.

POLLINATORS

ACE has recently tabled a number of policies to support and enhance the challenges that pollinators face in our urban and agricultural-dominated landscapes. This includes: habitat loss, loss of food sources, disease and pesticides, with many of these factors acting in concert. The City of London has been very supportive of pollinators but more can be done

Recommendation 1: Identify London as a Pollinator Sanctuary in the City's Official Plan.

Add to: "**Direction #4** - Become one of the greenest cities in Canada" - a part 15:

London will become a Pollinator Sanctuary by recognizing the critical role that pollinator habitat plays in supporting ecosystem functions, the city will take all opportunities to protect, maintain and enhance pollinator habitat within City parks, Restoration Areas and Ecological Linkages, lands adjacent to stormwater management facilities and open space areas.

Recommendation 2: Include explicit language throughout the London Plan that reference the importance of creating suitable habitat for pollinators on private and public lands as well as reducing pesticide pressures.

P35, policy 67_4: add Protect, enhance and restore .....

P57, policy 144 Street Trees and Landscaping. Add trees that offer ideal habitat for pollinators will be planted wherever possible, also city street landscaping will encourage the planting of short and tall prairie grasses and other native flowers, shrubs and trees that offer habitat for pollinators.

P95 need to add to policies 312 and 313 re pollinator habitat

P99 Management, Restoration and Rehabilitation Priorities: Identify the creation of pollinator habitat is top priority

P157 Stormwater drainage and stormwater management: Add section on creation of pollinator habitat around each old and new stormwater management facility.

Mention of Pollinators can also be placed within other sections of the London Plan, such as in Urban Forest, Parks and Recreation, The Food System, and Urban Regeneration.