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Civic Works Committee EES Direction and Strategy 2013/14 R³ Engineering

April 8th 2013

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Environmental and Engineering Services



R³ Engineering Principles

Rethink



Renew



Rebuild



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Sustainability
is at the heart of every decision
made at the City of London



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London Infrastructure

Service	Replacement Value \$ Millions	Total Capital and Operating 2012	Capital 2013	Operating 2013	Total Capital and Operating 2013	Gap \$ Millions
Water / Joint Water Boards	1,800	164.5	37.8	89.8	127.6	220
Wastewater & Treatment	3,600	127.7	54.4	79.1	133.5	250
Environmental Service	134	16.2	3.1	13.4	16.5	
Transportation	3,600	60.3	44.8	29.3	74.1	280
TOTAL	9,134	368.7	140.1	211.6	351.7	830



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Why We Need To Invest

- Proper operation of the system for the health of Londoners
- Support economic development and growth
- Enable us to live and grow as a community
- Address the infrastructure gap
 - **Renew aging and deteriorating infrastructure**
- Compliance with regulatory/environmental requirements
- Consumption reductions
- Ensure intergenerational equity
 - **While deferring future expansions**
 - **Avoiding future debt**



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Water & Wastewater Infrastructure Gap

Facing:

- \$450 M+ W / WW infrastructure gap
- frequent equipment failures, main breaks, collapses, etc.
- more extensive/too frequent maintenance
- consumption decline - revenues

Strategy:

- Increasing capital funding
- Embrace new technology / innovation to minimize operating costs





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Embrace New Technology

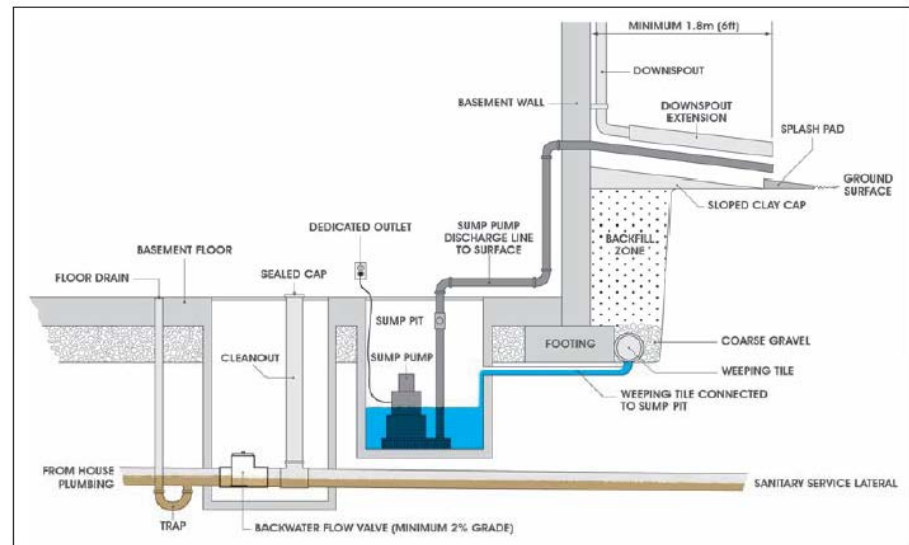




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Basement Flooding Reduction Initiative

- **Inflow/Infiltration from weeping tile connections causing Basement Flooding**
- **City is disconnecting weeping tile to remove Inflow/Infiltration**
- **Pilot project involves work inside homeowner's basement**
- **\$ Well Spent: only 20% of what it would cost to construct upsized pipe/inline storage**





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Talbot Street Brick Sewer Rehabilitation





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PDC rehabilitation





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Recent Awards



✓ Greenway Wastewater Treatment Plant Ash Handling System Project has been selected to receive the 2012 OPWA Technical Innovation Award

✓ Wastewater & Treatment – Telly Award (Education Communications)





IWCE Greenway Pollution Control Centre

- **152 mega-litre per day secondary treatment plant,**
- **Home to the IWCE/SOWC London Wastewater facility.**



New Funding Model & Long-Term Rate Plan

The Road To Sustainability

NEW FUNDING MODEL RATE INCREASES	2013	2014	2015	2016	2017	2018 & Beyond
WATER	8.0%	8.0%	7.0%	3.0%	3.0%	3.0%
WWT	7.0%	7.0%	7.0%	5.0%	3.0%	3.0%
COMBINED	7.5%	7.5%	7.0%	4.1%	3.0%	3.0%
COMBINED	8.0%	8.0%	7.4%	3.0%	3.0%	3.0%



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What Else?

- **Industrial Land Develop Strategy**
- **DC Rate / Master Plan Updates**
- **Flood Emergency Plan Update**
- **Drinking Water Standard of Care training**
- **Succession Planning**
- **Restructuring in some Divisions**
- **Wastewater Treatment Optimization Strategy**
- **Corporate Asset Management**
- **Rate Structure Implementation**
- **Pollution Prevention and Control Plan**
- **Thames Clear Water Revival**



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Environmental Programs (Built Environment)





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Community & Corporate Energy Action Plans





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Climate Change Adaptation



Taking Steps Towards Developing London's Climate Change Adaptation Framework

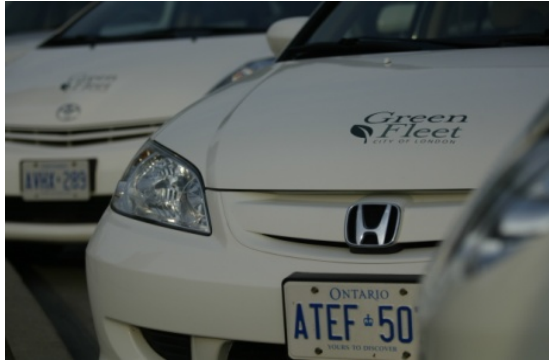
Risk Management (LEAD)
Stormwater Management
Parks Planning & Design
Corporate Asset Management
Environmental Programs

Middlesex London Health Unit
Upper Thames River CA*
Emergency Management*
Neighbourhood, Children & Fire*



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Fleet & Operational Services



... serving our
customers to
serve Londoners





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Improving Vehicle and Equipment Utilization

- Developing vehicle utilization assessments
- Providing vehicle solutions for low usage customers
- Developing new programs like “Car Time Share”

Car Half the Time = Half the costs





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PwC Audit Recommendations

- Reducing internal rental rates
 - Exploring alternative service delivery
 - Providing low cost vehicle solutions
 - Maximizing use of capital vehicle and equipment reserve fund
- “Reduction of over 1 million over the last two years”





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Solid Waste Services





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The Big Three Projects

1. Road Map to Maximize Waste Diversion (and garbage pickup) (late May/June)
2. The Role for Resource Recovery & Waste Conversion Technologies (September/October)
3. Environmental Assessment for Long Term Resource Recovery, Waste Conversion and Waste Disposal (November/December)

London's W12A Resource Recovery & Landfill (EcoPark) – Current & Future

W12A Landfill Site

- Opened in 1977
- 7.4 million tonnes in place; 2.8 million capacity remaining (~12 yrs)
- Operations include Landfill, Material Recovery Facility (MRF) Drop-off depot, HSW permanent Depot, Landfill Gas flare



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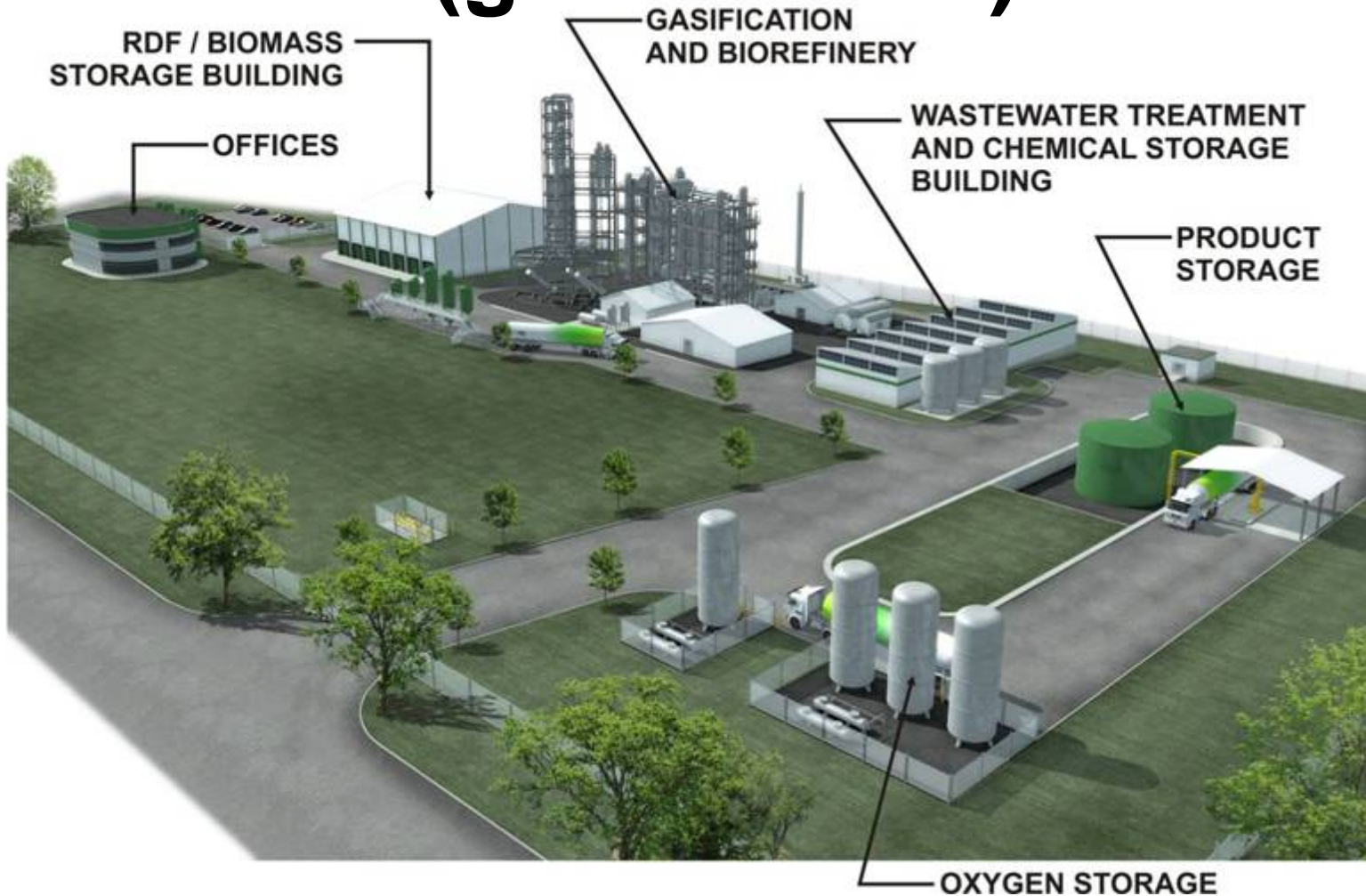
Anaerobic digesters
are increasing –
focus on organics
and some on solid
waste





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Edmonton RDF to Biofuels (gasification)





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Concept of the W12A Industrial Eco Park





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Edmonton, Alberta – 10 facilities at 1 location



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Greenhouses using landfill gas plus other fuel products (e.g., wood chips)



GOLD RUSH

2.0



Electronics recycling to processing –
using available infrastructure



Used tires, chipped & into new products



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A Landfill Site and Area are Valuable Municipal Assets



CASSANDRA ELDRED/CHN



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Stormwater Management Initiatives

2013 Subwatershed Studies

- Central Thames
- Mud Creek
- Dingman Creek
- Medway Creek
- Pottersburg Creek
- Stoney Creek



Objective of studies is to :

- Develop the water resources (hydraulic, hydrologic and erosion) and preliminary slope stability analyses for subwatersheds
- Determine the risk impact of flooding from extreme storm events including Climate Change for critical city infrastructure and recommend potential strategies to reduce the risk
- Provide a strategy to maintain slope stability under extreme storm events and recommend potential strategies to reduce the risk



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Stormwater Management Initiatives

Design Projects

- Wickerson SWM S-B
- Tributary 'C' , infiltration SWMFs #A and J
- Pincombe Drain design of Erosion Control On –Line SWMF and a portion of the Pincombe Drain channel remediation

Environmental Assessments/Master Plans

- Tributary "C"
- Pottersburg Creek Slope Stability downstream of Hamilton Road
- Dayus Creek

Municipal Drain Remediation, Maintenance and Operation

- Upgrade approximately 1000 m of municipal drains
- Maintain approximately 300 municipal drains for operational performance





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Stormwater Management Construction Projects

Key SWM construction projects schedule for 2013:

- Stanton Drain remediation and Hyde Park No. 4 SWM Facility
- Dingman Erosion Control Wetland SWM Facility
- Old Victoria No. 2 SWM Facility
- Fox Hollow No. 1 SWM Facility (Phase 1)
- Fox Hollow No. 3 SWM Facility
- Powell Drain Channel Emergency remediation
- Green Valley/Wilton Grove Channel Remediation





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Stormwater Management Initiatives



**Beaver Management
Policy**

**in conjunction with
Environmental
Planning**





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Towards a More Sustainable Transportation System - London 2030 TMP

“providing transportation mobility choices while ensuring that roads and bridges remain safe and in a state of good repair”

**Street
Lights
&
Traffic
Signals**

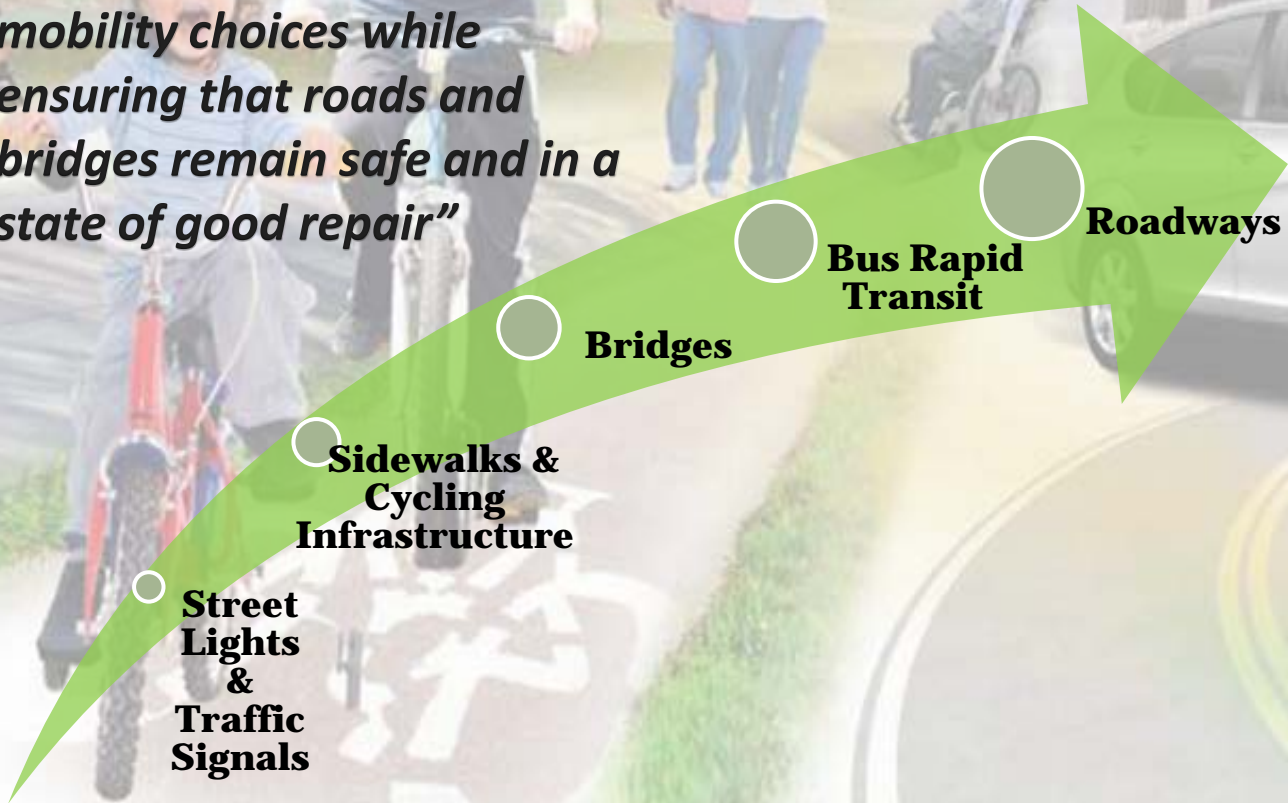
**Sidewalks &
Cycling
Infrastructure**

Bridges

**Bus Rapid
Transit**

Roadways

**Transportation
Infrastructure
Gap**





Transportation Infrastructure Needs



Existing Roadways

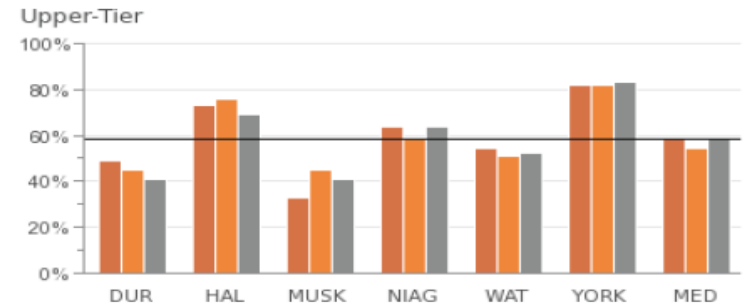
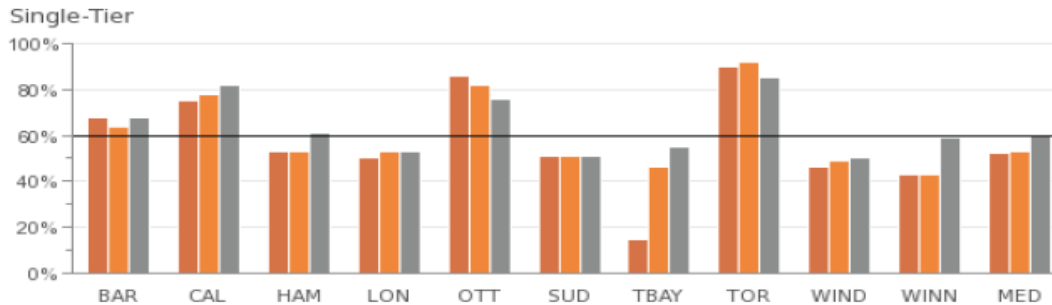
Roads = \$376 M over 10 years required to maintain target pavement quality standard.

Bridges/Structures = \$25 M over 10 years required to maintain in good repair.

What percent of paved roads are rated good to very good?

Fig 15.2 Percent of Paved Lane Km where the Condition is Rated as Good to Very Good

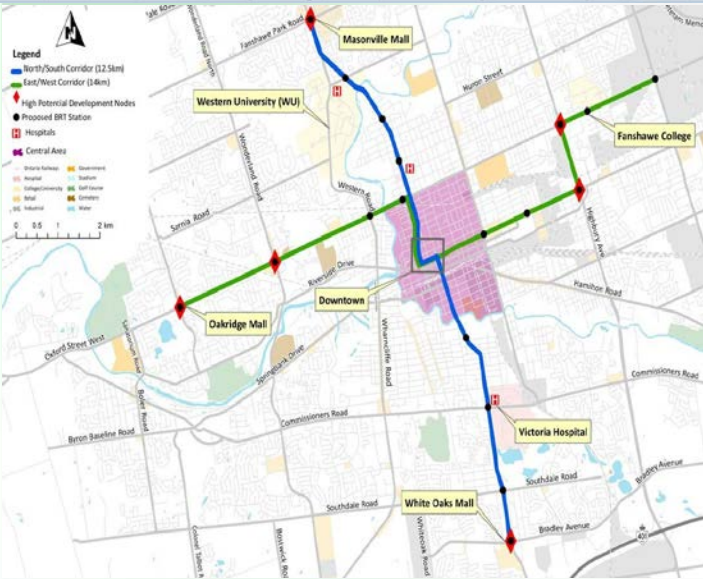
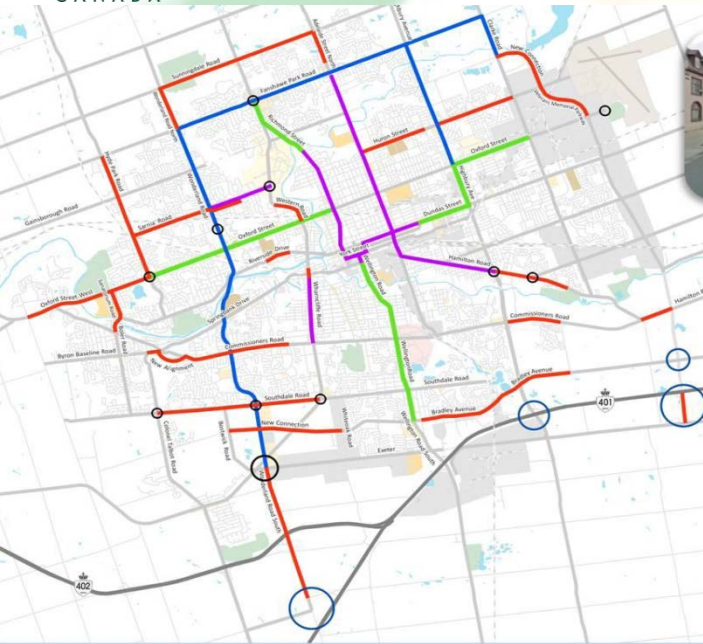
2011 OMBI Data



2009	68%	75%	53%	50%	86%	51%	15%	90%	46%	43%	52%	49%	73%	33%	64%	54%	82%	59%
2010	64%	78%	53%	53%	82%	51%	46%	92%	49%	43%	53%	45%	76%	45%	58%	51%	82%	55%
2011	68%	82%	61%	53%	76%	51%	55%	85%	50%	59%	60%	41%	69%	41%	64%	52%	83%	58%
2012	56%																	



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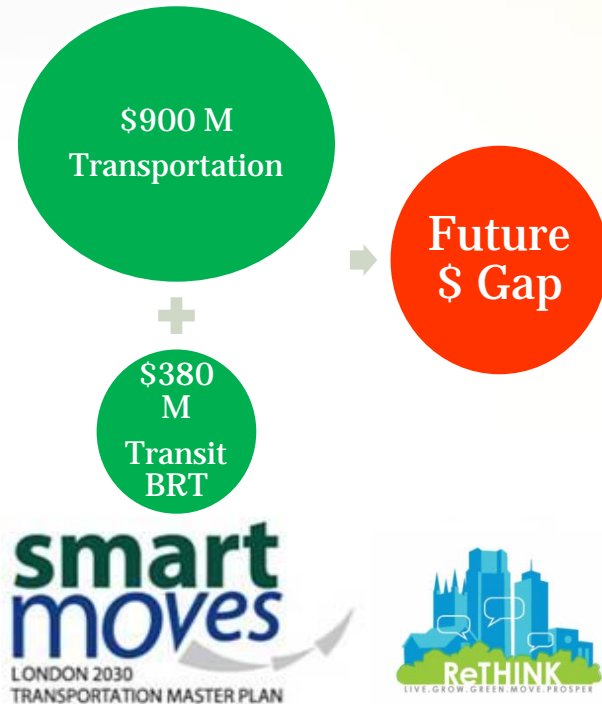


Transportation Master Plan



Implementation Strategy included a number of key deliveries to meet 2030 transportation mobility objectives:

- Roads Plan
- Rapid Transit Plan
- Active Transportation & Cycling Plan
- TDM Plan
- Parking Initiatives
- ReThink OP Policies





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Transportation Infrastructure Funding Gap



The cost of transforming and expanding London's transportation and public transit system is beyond the funding capacity of property taxes and transit fare revenues.



Financial contributions will be required through:

- Targeted, cost-shared infrastructure funding from the Federal and Provincial governments.
- New residents/businesses through Development Charges.
- Increased and committed Gas Tax Revenues

Municipalities need new revenue generating tools to support the implementation of transportation infrastructure.



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Transportation Construction Projects



Within London, key roadway widening/reconstruction projects over the next 5 years include:

- Oxford Street (Sanatorium to Hyde Park)
- Southdale Road (Wonderland to Wharncliffe)
- Hyde Park Road (Oxford to Fanshawe)
- Fanshawe Road (Adelaide to Highbury)
- Gore Bridge
- Potential BRT Corridor on Wellington/Richmond
- Wonderland/Highway 401 Interchange (MTO)





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Upcoming Reports

Report	Date
Progress Report and Implementation Plan for the London 2030 Transportation Master Plan	August 2013
Update on 2007 Road Map to Maximize Waste Diversion in London	May 2013
Overview of Resource Recovery and Waste Conversion Technologies and the Role of the W12A Landfill Site	September 2013
Environmental Assessment Requirements for Long Term Resource Recovery, Waste Conversion and Waste Disposal	November 2013
Sewage Residual Management Review	July 2013
Pollution Prevention and Control Plan (PPCP)	September 2013 (Phase 1)
Approach to Wastewater Treatment Optimization	November 2013