

<b>TO:</b>	<b>CHAIR AND MEMBERS WASTE MANAGEMENT WORKING GROUP MEETING ON JANUARY 19, 2017</b>
<b>FROM:</b>	<b>JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENT, FLEET &amp; SOLID WASTE</b>
<b>SUBJECT:</b>	<b>RESIDUAL WASTE DISPOSAL STRATEGY SCOPE OF WORK AS PART OF THE ENVIRONMENTAL ASSESSMENT PROCESS</b>

### RECOMMENDATION

That, on the recommendation of the Director – Environment, Fleet & Solid Waste, the following key parameters for the scope of work for London’s long-term solid waste Residual Waste Disposal Strategy as part of the Environmental Assessment process **BE SUPPORTED** by the Waste Management Working Group:

- a) The study period for the strategy will be 25 years beyond the current approved capacity of the W12A Landfill of 2025, ending in approximately 2050;
- b) The maximum amount of waste that can be landfilled each year remain unchanged at 650,000 tonnes at this time;
- c) The service area include the City of London, Elgin County, Huron County, Lambton County, Middlesex County, Oxford County, Perth County and local First Nation Communities noting City Council will have the authority to determine which, if any, municipalities or businesses outside of London are allowed to use any City residual waste disposal facility or facilities in the future; and
- d) The capacity of any new residual waste disposal facility be sized assuming the residential waste diversion rate is 60% by 2022; and the Provincial interim goals for total solid waste diversion of 30% by 2020, 50% by 2030 and 80% by 2050.

### PREVIOUS REPORTS PERTINENT TO THIS MATTER

Relevant reports that can be found at [www.london.ca](http://www.london.ca) under City Hall (Meetings) include:

- Memorandum of Understanding with the Institute for Chemicals and Fuels from Alternative Resources - University of Western Ontario (December 12, 2016 meeting of the Civic Works Committee (CWC), Item #10)
- Establishment of a Waste Management Working Group (December 5, 2016 meeting of the Strategic Priorities and Policy Committee (SPPC), Item #2)
- Update and Next Steps: London Waste to Resources Innovation Centre and Green Shields Energy (October 4, 2016 meeting of the CWC, Item #10)
- Appointment of Consulting Engineer Long Term Solid Waste Resource Recovery and Disposal Plans (May 24, 2016 meeting of the CWC, Item #10)
- Individual Environmental Assessment Long Term Solid Waste Resource Recovery & Disposal Plans (October 6, 2015 meeting of the CWC, Item #14)
- Preliminary Concept for a London Waste to Resources Innovation Centre (February 3, 2015 meeting of the CWC, Item #4)
- City of London W12A Landfill Area Plan Study Meeting on Official Plan & Zoning By-Law Amendment (February 9, 2009 meeting of the Planning Committee, Item #15)

### COUNCIL’S 2015-2019 STRATEGIC PLAN

Municipal Council has recognized the importance of solid waste management in its 2015-2019 - Strategic Plan for the City of London ([2015 – 2019 Strategic Plan](#)) as follows:

**Building a Sustainable City**

- Strong and healthy environment
- Robust infrastructure

**Growing our Economy**

- Local, regional, and global innovation
- Strategic, collaborative partnerships

**Leading in Public Service**

- Proactive Financial Management
- Innovative & supportive organizational practices
- Collaborative, engaged leadership
- Excellent service delivery

<b>BACKGROUND</b>
-------------------

**PURPOSE:**

This purpose of this report is to seek support from the Waste Management Working Group of key parameters that define the scope of work for the Residual Waste Disposal Strategy as part of the Individual Environmental Assessment (EA) process.

**CONTEXT:**

In October 2015 Municipal Council directed staff to proceed with the development of a long-term Resource Recovery Strategy and a Residual Waste Disposal Strategy for the City of London.

The Resource Recovery Strategy involves the development of a plan to maximize waste reduction, reuse, recycling, resource recovery, energy recovery and/or waste conversion in an economically viable and environmentally responsible manner. Resource Recovery strategies (i.e., often known as waste diversion strategies) are developed and approved at the local government level and do not require Provincial government approval. However, these strategies do serve as input into Provincial government decision-making as related to approval of the Residual Waste Disposal component.

The Residual Waste Disposal Strategy involves the development of a long-term plan to manage residual waste (waste after resource recovery) and involves completion of an Individual Environmental Assessment (EA) as prescribed by the Ministry of Environment & Climate Change (MOECC). The Individual EA requires approval by the Minister of Environment & Climate Change and Cabinet.

<b>DISCUSSION</b>
-------------------

An overview of the Individual EA process is provided in a separate report to the Waste Management Working Group dated January 19, 2017. The EA process requires the scope of work (purpose of the study or undertaking) to be clearly defined. There are four key decisions to be made when developing the purpose of the Residual Waste Disposal Strategy ('Disposal Strategy') which are:

1. What length of time does the Disposal Strategy cover?
2. What annual tonnage could be landfilled?
3. What service area does the Disposal Strategy include?
4. How much residual residential waste will require disposal?

**1. What Length of Time does the Disposal Strategy Cover?**Overview

The W12A Landfill has approximately eight years capacity remaining based on current waste disposal rates which will provide disposal capacity until 2025. The five most recent municipal Terms of References (ToRs) (which sets out the framework for undertaking the EA) approved by the MOECC (Table 1) for landfill expansion EA's have planning periods for new residuals disposal capacity of 20 to 36 years beyond the currently approved disposal capacity.

Considering the above, new residuals disposal capacity of 20 years, 25 years, 30 years and 35 years were assessed taking into consideration:

- consistency with other EAs;
- Final Draft Strategy for a Waste-Free Ontario;

- MOECC comments;
- understanding of community considerations; and
- financial considerations.

#### Consistency with other EAs

Precedents set by other residual management disposal capacity projects provide a good indication of expectations by government and community reviewers. As noted above the five most recent municipal ToRs for landfill expansions approved by the MOECC are identified on Table 1.

**Table 1 – Planning Periods of Recently Approved ToRs**

<b>Municipality</b>	<b>Existing Landfill Remaining Site Life (years)</b>	<b>New Residuals Management Disposal Planning Period (years)</b>
City of Temiskaming Shores (2012)	7	23
Regional Municipality of Niagara (2013)	3	25
The Town of St. Marys (2014)	4	36
Municipality of Greenstone (2014)	0	20 to 30
County of Brant (2014)	10	30
Average	5	27 to 29
City of London	8	-

#### Final Draft Strategy for a Waste Free Ontario

The MOECC posted its Final Draft Strategy for a Waste-Free Ontario: Building the Circular Economy to the Environmental Registry on December 16, 2016 and will receive comments until January 30, 2017. Although not finalized, the proposed strategy for a Waste-Free Ontario does provide a general guideline for where the Province is likely to head with respect to future landfills. The strategy recognizes the need for more landfill space but does not want an oversupply of landfill capacity. The proposed strategy states:

*“While Ontario strives for a waste-free future, there will still be a need for landfill space as we work towards this goal... Potential new landfills will need to be planned well to avoid over-supply of landfill capacity, and managed well to meet environmental standards and maximize the capture of greenhouse gases.”*

Seeking an additional 20 to 25 years of waste disposal capacity is reasonable when considering the above. It balances the need for long-term waste disposal security against looking too far into the future given the proposed strategy for a Waste-Free Ontario. The 20 to 25 years of additional waste disposal capacity is less than the average additional disposal capacity being sought by other municipalities who recently had ToRs approved (Table 1).

It must be noted that landfilling is different when compared with other waste disposal technologies such as energy-from-waste (EFW). A landfill is built in stages (i.e., cells for waste placement) that typically last 3 to 5 years. The cost to build the cell occurs when the previous cell is nearing completion (about one year before). If there is less garbage than anticipated the construction of the next stage can be delayed. This is different than an EFW facility that must be built in its entirety and requires a minimum tonnage commitment to operate the facility. Some EFW technologies can be modular in size to help lower capital costs if available tonnage is likely to be lower.

#### MOECC Comments

In discussions with the MOECC it was made clear that the decision on the length of the new disposal capacity period was up to the City but the MOECC would need a compelling rationale to support additional disposal capacity of greater than 25 years given the Draft Final Strategy for a Waste-Free-Ontario: Building the Circular Economy.

### Understanding of Community Considerations

Generally, a shorter disposal capacity period of time (20 years) would be considered better by the local community living near a current or proposed disposal facility noting that some/many in the local community have no desire for any additional capacity at the W12A Landfill. The community as a whole would likely prefer a longer disposal capacity period (25 to 30 years) to provide a longer term solution.

### Financial Considerations

The environmental assessment process for approval of long term residuals disposal facilities is long and expensive. The length of the overall approvals process for municipalities is typically between six and eight years and costs several millions of dollars. A longer, new disposal capacity period allows the work by everyone and costs of the EA process and other required subsequent approvals to be spread over a longer period of time and delays the expense of completing the next EA.

### Recommendation

Table 2 summarizes the considerations discussed above with respect to the length of the new residuals disposal planning period.

**Table 2 – New Disposal Planning Periods (Considerations and Length of Time)**

Considerations	New Disposal Planning Periods (years)			
	20	25	30	35
Consistent with Other EAs	✓	✓	✓	✓
Consistent with Waste-Free Strategy	✓	✓	x	x
MOECC Comments	✓	✓	x	x
Understanding of Community Considerations	✓	x	x	x
Financial Considerations	x	✓	✓	✓

A new disposal planning period of 30 or 35 years is not recommended as they are not consistent with the Province's recently released Draft Final Strategy for a Waste-Free Ontario or comments provided by the MOECC.

New disposal capacity planning periods of 20 or 25 years have similar benefits but a period of 25 years provides greater certainty for London and delays the expense of completing the next environmental assessment for a longer period. For these reasons, it is recommended that the new disposal capacity period of 25 years beyond the current capacity of the W12A Landfill be pursued, extending to 2050.

## **2. What annual tonnage could be landfilled?**

The current Environmental Compliance Approval (ECA) for the W12A Landfill site limits the maximum annual disposal (referred to as the "rate of fill") to approximately 650,000 tonnes. Historical annual quantities disposed of have been a function of waste diversion programs, use of an EFW facility operated by the London Health Sciences Centre, disposal bans (e.g., construction, renovation and demolition materials) and amount of business garbage delivered to the W12A Landfill. Listed in Table 3 is a summary of tonnage over the years.

**Table 3 - Waste Quantities Received at the W12A Landfill**

Tonnes	Description of Activity
260,000	Waste received in 2016
225,000	Average annual waste received for disposal for 5 year period 2012 - 2016
260,000	Average annual waste received for disposal for 5 year period 2007 - 20011
275,000	Highest 5 year average annual waste received for disposal 1984 - 1988
310,000	1987 - the largest annual amount of waste (garbage) received
380,000	1989 - the largest annual amount of waste (garbage and clean fill) received

The average annual amount of waste received for disposal at the W12A Landfill over the last 10 years has been approximately 240,000 tonnes. The largest annual amount of waste received for disposal occurred in 1987 and was approximately 310,000 tonnes.

Preliminary waste quantity projections indicate that the maximum annual rate of fill of 650,000 tonnes will not have to be increased to meet the disposal needs envisioned considering the 25 year time period recommended above, the proposed service area (Section 3) and the future waste diversion goals (Section 4). It may be possible (or necessary from an approvals perspective to “avoid over-supply of landfill capacity) to reduce the annual rate of fill once final waste quantity projections have been calculated.

Considering the above, it is proposed not to change the maximum annual rate of fill of 650,000 tonnes per year at this time.

### 3. What Service Area does the Disposal Strategy Include?

#### Overview

The approved W12A Landfill service area currently includes London, Thames Centre, Try Recycling’s facilities located in Middlesex Centre (County of Middlesex), the Lake Huron Water Treatment Plant located in the Municipality of South Huron (County of Huron) and the Elgin Area Water Treatment Plant located in the Municipality of Central Elgin (County of Elgin) for disposal; and London, County of Middlesex and County of Elgin for Municipal Hazardous and Special Waste Services (MHSW) (See Map 1, next page).

The City could limit this aspect of the EA to the existing service area of the W12A Landfill (as noted above, a combination of locations and point sources) or consider a larger service area (regional to provincial). Factors to take into consideration when deciding on the extent of the service area include:

- consistency with current approach for providing waste management services;
- geographic location (wasteshed);
- province’s recently released Final Draft Strategy for a Waste Free Ontario;
- provincial shortfall in disposal capacity;
- provision of a publically-owned disposal option for nearby municipalities, institutions & businesses;
- community support;
- local nuisance impacts;
- financial benefit;
- backup/contingency disposal capacity; and,
- ease of approvals.

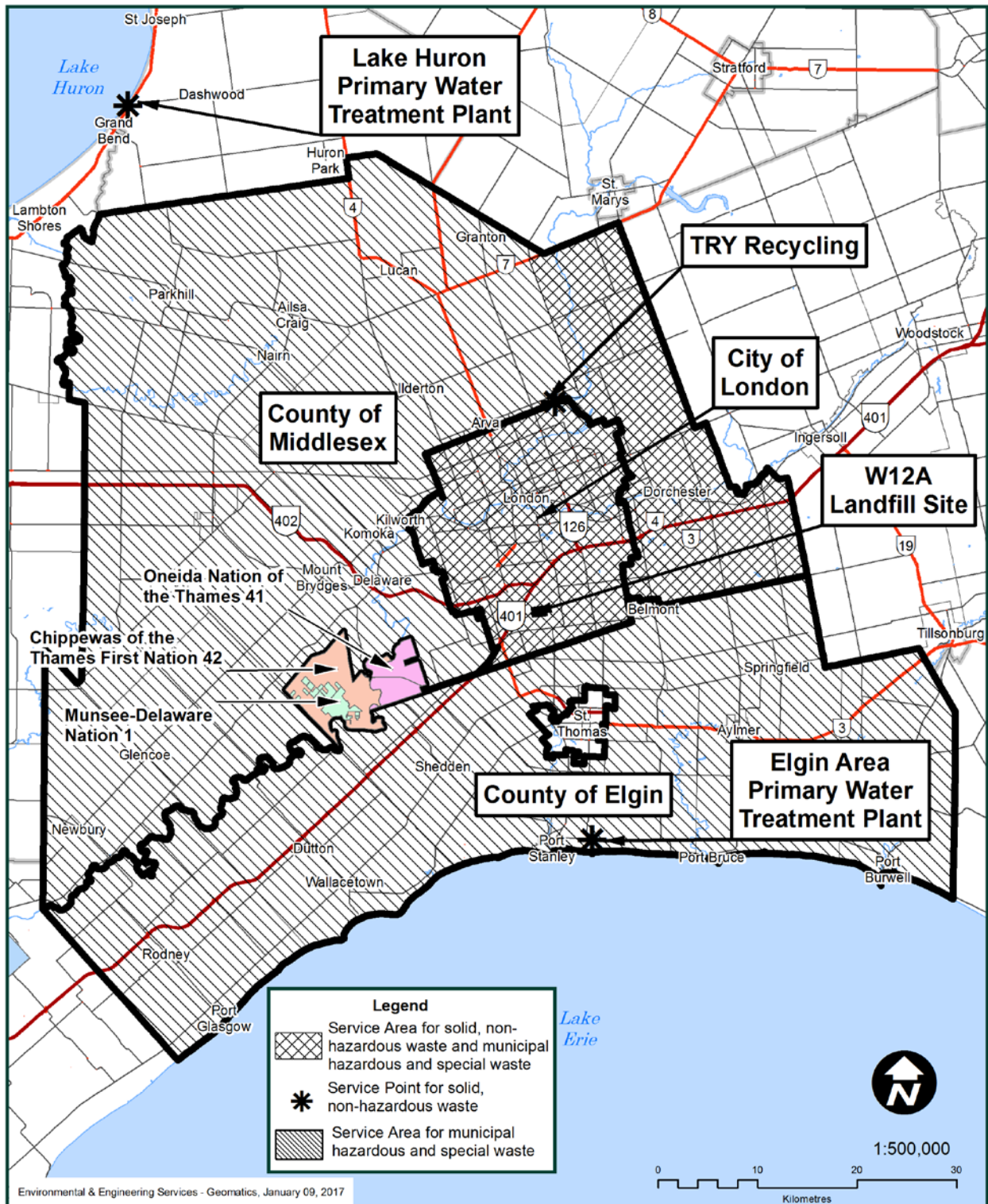
#### Consistent with Current Approach for Waste Management Services

Not changing the existing service area or having a regional service area is consistent with the current approach of providing waste management services to nearby municipalities when in the interest of the City. Municipalities, other government organizations, or individual businesses in Eglin, Middlesex, Huron and Oxford Counties already use one or more of the waste management services available in the City’s Waste Management Resource Recovery area as shown in Table 4. The City also provides waste management services to the Oneida First Nations community.

**Table 4 - Waste Management Services Provided to Other Jurisdictions**

<b>Waste Management Service</b>	<b>First Nations</b>	<b>Elgin</b>	<b>Huron</b>	<b>Middlesex</b>	<b>Oxford</b>
Disposal of Municipally Controlled Waste	-	-	-	Yes	-
Disposal of Point Source IC&I Waste	-	Yes	Yes	Yes	-
Processing of Municipally Controlled Recyclables	-	Yes	-	Yes	-
Processing of IC&I Recyclables	-	Yes	-	Yes	Yes
MHSW	Yes	-	-	Yes	-

**Map 1 – Current Services Areas  
(Solid, Non-Hazardous Waste and Municipal Hazardous and Special Waste)**



It is also noted that the City's Manning Drive Material Recovery Facility (MRF) can accept recyclables from anywhere in Ontario but currently only processes recyclables from the local region (recyclables from nearby municipalities or organizations in Elgin, Middlesex and Oxford Counties).

The City also is the Administrator in the Lake Huron and Elgin Area Water Supply Systems which is a regional water supplier to municipalities in Elgin, Huron, Lambton and Middlesex Counties.

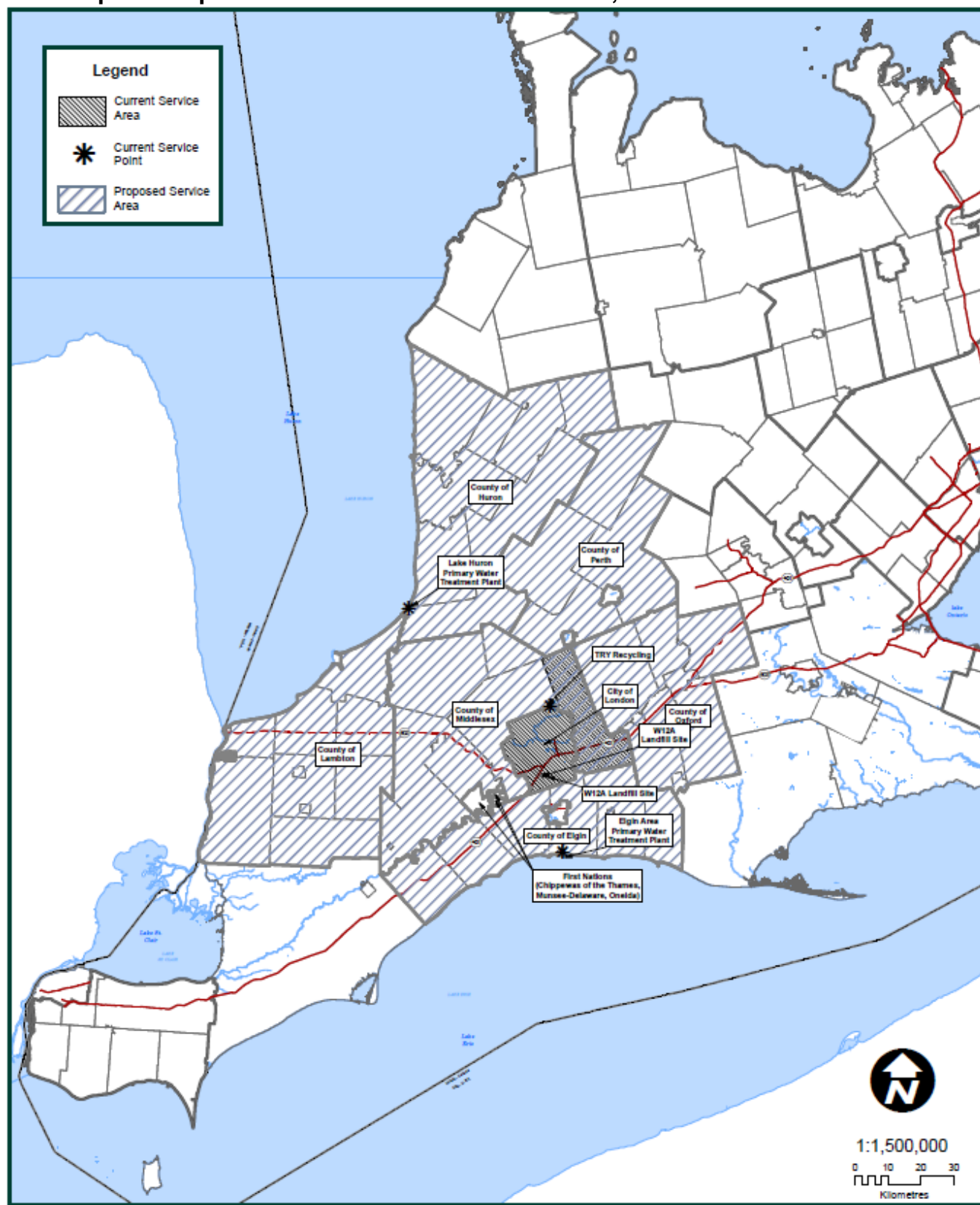
#### Geographic Location

A regional service area consisting of Elgin County, Middlesex County, Huron County, Lambton County, Oxford County and Perth County makes a logical "wasteshed" consisting of all Counties that border Middlesex County. London represents the main regional center for all or parts of each these Counties. This proposed "wasteshed" or service area is shown on Map 2 (next page).

The existing service area has served a very useful purpose but it has created several restrictions that impede service efficiencies by creating unnecessary boundaries and

removing control from London Municipal Council to assist neighbouring municipalities and/or derive additional tipping fee revenues from their waste management assets. A province-wide service area is a more common request from private landfill operators. It is also significantly more complex when analyzing impacts and other considerations (e.g., environmental, social, financial).

**Map 2 – Proposed Service Area to Receive Solid, Non-hazardous Waste**



#### Recently Released Final Draft Strategy for a Waste-Free Ontario

As previously noted, the MOECC posted its Final Draft Strategy for a Waste-Free Ontario: Building the Circular Economy to the Environmental Registry. The strategy recognizes the need for fewer and larger landfills to reduce environmental impacts, particularly those associated with greenhouse gas impacts. This will require a more regional approach to waste disposal. The proposed strategy states:

*“The size of landfills will also be considered to reduce the need for multiple new landfills and use landfill gas reduction facilities effectively.”*

Having London provide residual waste services to a larger area (regional to provincial) is consistent with having fewer and larger facilities to reduce greenhouse gas impacts.

### Addresses a Portion of Provincial Shortfall in Disposal Capacity

The Ontario Waste Management Association estimates that Ontario's existing landfill capacity is estimated to be between 11 years (if all waste generated in Ontario was disposed in Ontario) to 17 years (if 30% of Ontario's waste continues to be sent to the United States for disposal). Consequently, there is the potential for a significant shortfall in disposal capacity should new disposal capacity not become available in a timely fashion.

There are currently two large landfill proposals in Southwestern Ontario; a new landfill is proposed near Ingersoll (Southwestern Landfill Proposal by Walker Environmental) and expansion of the Ridge Landfill in Chatham-Kent (proposed by Progressive Waste Solutions). It is estimated there will still be a waste disposal capacity shortfall over the proposed study period even if both these landfill proposals are approved.

Having a regional to provincial service area could address a portion of the provincial disposal capacity shortfall.

### Publically-owned Disposal Option for Nearby Municipalities, Institutions and Businesses

Municipalities that do not have their own landfill typically must rely on using a private landfill for disposal, of which there are a limited number in Southern Ontario. Enabling the W12A Landfill to accept waste from surrounding municipalities would provide these municipalities with a competitive public option that could potentially reduce their costs. It also has the potential to reduce greenhouse gas emissions by reducing transportation distances.

It is common for institutions and businesses to award waste collection and disposal contracts for all of their facilities irrespective of the municipalities in which they are located in. This can provide cost savings through economies of scale and/or simplify their administrative costs associated with waste management. For example, the Thames Valley District School Board which has schools in the cities of London, Woodstock and St. Thomas as well as the counties of Elgin, Middlesex and Oxford. Having a landfill site that can serve all these areas would be beneficial.

### Community Support

No community engagement on choosing between the existing, a regional or a provincial service area has been undertaken. Based on previous events, it is believed:

- there would be no to some opposition to the existing service area;
- there would be significant opposition to a provincial service area regardless of the benefits based on the opposition to the purchase of the Green Lane landfill by the City of Toronto; and,
- there may or may not be opposition to a regional service area given the limited concerns with the changes made to the W12A Landfill's service area over the last few years.

### Local Nuisance Impacts

One of the proposed guiding principles (separate Waste Management Working Group Report) to be used to direct the development of the long-term Resource Recovery Strategy and the Residual Waste Disposal Strategy for the City of London is:

*Waste disposal facilities must meet, and if possible, exceed all applicable regulatory standards. London will make all reasonable efforts to reduce and address negative effects of any future residual waste disposal facility through proper design and operation of the facility, as well as providing appropriate mitigation measures to the surrounding community.*

In other words, regardless of the size of the service area (existing, regional or provincial), any waste disposal facility will need to meet all applicable regulatory standards and will be designed and operated to prevent adverse impacts to the area's water quality, air quality, noise levels, etc.

The size of the service area does have the potential to affect nuisance impacts (e.g., odours, increase traffic on the roads, etc.) in the local area.



### Provide Financial Benefit to the City by Lowering Waste Disposal Costs

Waste disposal facilities typically have significant “economies of scale” due to the large portion of fixed costs (e.g., landfills have fixed costs such as scale house attendant, operations staff, groundwater monitoring, etc.) compared to the variable costs (e.g., leachate collection system, cover material, etc.). Consequently having more waste come to a waste disposal facility over a year from a regional to provincial service area will lower the cost per tonne of waste received. This results in more economical and cost effective waste disposal for the City and the customer base.

The additional revenue and financial savings can then be reinvested into new environmental initiatives at the landfill, used to lower waste management costs for the residents and/or offset the cost of additional resource recovery (i.e., tipping fee charge of approximately \$45/tonne versus an incremental operating and capital replacement cost of \$25/tonne for 150,000 tonnes per year will generate \$3,000,000 annually to lower costs or to reinvest).

### Provide Backup/Contingency Disposal Capacity

Waste management is a critical service and any prolonged disturbance or disruption of service can be detrimental to both the environment and residents and other users. There may be circumstances where the City will not be able to accommodate some or all the waste coming to the landfill for a short period of time. This could be the result of a work stoppage, fire, accidents or malfunctions at the landfill, etc. In such cases, having disposal options at other landfills as a short-term contingency measure is vital to providing effective waste management.

Ideally the City would have a contingency plan in place whereby one or more landfills would be able to take London’s garbage in these circumstances and in return the City would reciprocate the contingency (backup) capacity for these landfills. Having a service area that is broader than the current service area would allow the City to create a contingency agreement with any other landfills in the selected service area.

### Ease of Approvals

It is expected that proposing a provincial-wide service area for a municipally-owned waste facility will make the environmental assessment approval more difficult as it would complicate the assessment of impacts. For example, it would be difficult to determine greenhouse gas (GHG) impacts from the transportation of waste given the wide range from where waste could originate. A service area using the existing service area of the W12A Landfill or a regional Study Area would be much less complicated.

### Recommendation

Table 5 summarizes the considerations discussed above with respect to the proposed service area.

**Table 5 – Service Areas and Considerations**

Considerations	Service Areas		
	Existing	Regional	Provincial
Consistency with Current Approach	✓	✓	x
Geographic Location (waste shed)	x	✓	x
Final Draft Strategy for a Waste-Free Ontario	x	✓	✓
Provincial Shortfall in Disposal Capacity	x	✓	✓
Provision of a Publically-owned Disposal Option	x	✓	✓
Community Support	✓?	✓?	x
Local Nuisance Impacts	✓	x	x
Financial Benefit	x	✓	✓
Backup/Contingency Disposal Capacity	x	✓	✓
Ease of Approvals	✓	✓	x

Based on the above considerations:

- A province-wide service area is not recommended given the expected additional difficulties in the approval process and strong likelihood of public opposition.
- A regional service area is preferred over a service area using the existing service area of the W12A Landfill because it has most of the benefits of the existing service area plus the added benefits of being consistent with the Final Draft Strategy for Waste-Free Ontario, addresses a portion of the provincial shortfall in disposal capacity, provides a public disposal option for nearby organizations and municipalities and provides a greater financial benefit to the City.

It is recommended the Disposal Strategy include the City of London plus Elgin County, Middlesex County, Huron County, Lambton County, Oxford County, Perth County and local First Nation Communities in its proposed service area. The population of Elgin, Middlesex, Huron, Lambton, Perth and Oxford Counties (including separated cities) as well as local First Nations communities is approximately 525,000.

It must be noted that having available residual waste disposal capacity for municipalities outside of London does not mean that London is obligated to accept waste from these municipalities in the future. City Council will have the authority to determine which, if any, municipalities or businesses outside of London are allowed to use any City residual waste disposal facilities. For example, the City's Manning Drive Material Recovery Facility (MRF) can accept recyclables from anywhere in Ontario. It is currently processing recyclables from municipalities or organizations in Elgin, Middlesex and Oxford Counties.

The amount of waste that may come from the proposed service area cannot be estimated at this time because no contact has been made with any of the approximately 50 municipalities within the proposed service area to determine their level of interest in potentially using residual waste disposal facilities in London or the quantity of waste each municipality generates. A detailed estimate will be made subject to approval of the proposed service area by Council.

The expected quantity of waste will likely be limited based on the following:

- The majority of municipalities (approximately 30 of the 50) have their own landfill. Some of the landfills have capacity beyond 2050 while some landfills are currently in the process of being expanded (e.g., St. Marys Landfill).
- Many municipalities without landfills have existing long-term contracts with private landfills and/or are closer to private landfills and subsequently will have limited need in using residual waste disposal facilities in London.
- The quantity of waste generated per capita is typically less in rural areas compared to urban areas. For example, the residential per capita disposal rate from households served by the Bluewater Recycling Association (BRA provides recycling and garbage collection services to a large portion of Huron, Lambton, Middlesex and Perth Counties) is only 55% of London's disposal rate (280 kg/hhld/year for BRA compared to London's rate of 510 kg/hhld/year).

A very preliminary estimate of the quantity of waste that may come to a new City-owned residual waste disposal facility at some point in the future is 100,000 to 150,000 tonnes per year if the City received waste from 40% of the service area.

Based on discussions with the MOECC, inclusion of waste from these regional municipalities in the additional waste disposal capacity to be considered in the EA will require some form of expression of interest/commitment from those municipalities.

#### 4. How Much Residential Waste Will Need to be Disposed?

The City has progressively carried out assessments of waste diversion and developed implementation programs and a schedule for specific activities to continue to increase its rate of diversion. The current residential diversion rate is 45% with the latest assessment of diversion programs provided in *The Road to Increased Resource Recovery and Zero Waste (Road Map 2.0)*.

Programs identified in Road Map 2.0 have the potential to divert 60% of residential waste. The only significant diversion component that remains undecided is how residential organics will be managed. It is estimated that it would take between 2 and 5 years to fully implement an organics management program depending of the method and technology chosen to manage organics.

As noted earlier, the City has commenced a separate process, in parallel with the Residual Waste Disposal Strategy EA, to further examine waste diversion and overall resource recovery. The Resource Recovery Strategy involves the development of a plan to maximize waste reduction, reuse, recycling, resource recovery, energy recovery and/or waste conversion in an economically viable and environmentally responsible manner.

A review of the ten largest municipalities/recycling boards in Ontario (excluding London) indicates that 60% residential diversion is a practical upper limit for large municipalities with a Green Bin program. Nine of the ten municipalities (i.e., Essex-Windsor does not have a Green Bin program) had Green Bin programs and their diversion rates for 2014 are presented in Table 6. Diversion rates varied from 45% to 62% with an average diversion rate of 52%. Only two jurisdictions (Halton and York) achieved a diversion rate greater than 55%. Without a Green Bin program the practical upper limit for residential diversion for a large municipality is approximately 50%.

The Resource Productivity and Recovery Authority (formerly Waste Diversion Ontario) has not published the 2015 data for municipalities, but in general it is expected that most jurisdictions with Green Bin programs will show an incremental improvement in the amount diverted. The improvement is the result of increased efforts in public education and the introduction of bi-weekly garbage collection in a number of municipalities. It is expected the average diversion rate will increase to approximately 55%.

Some municipalities have set aggressive (aspirational) waste diversion targets higher than 60% but do not have a clear road map on how they will reach these targets.

**Table 6 – Waste Diversion in Municipalities with Green Bin Programs**

Municipality	Green Bin Program	2014 Waste Diversion <sup>a</sup>
Ottawa	Yes	45%
Peel	Yes	45%
Hamilton	Yes	48%
Niagara	Yes	52%
Toronto	Yes	52%
Waterloo	Yes	52%
Durham	Yes	55%
Halton	Yes	56%
York	Yes	62%
Average		52%

a – From [www.rpra.ca/Library/WDO-Historical/Municipal-Information](http://www.rpra.ca/Library/WDO-Historical/Municipal-Information).

Based on current waste diversion programs, participation from residents, proven processing technologies and proven and sustainable end markets for materials, a residential waste diversion range between 55% and 65% will likely be sustainable in the next few years.

For the purpose of developing the long-term Residual Waste Disposal Strategy it is proposed to assume a short term target for residential waste diversion rate of 60% by 2022. The 60% diversion rate will be increased in the future should it be determined that higher diversion rates are possible and sustainable.

The Province has published (December 2016) interim goals for total solid waste diversion (consisting of residential, IC&I and CR&D waste streams) of 30% by 2020, 50% by 2030 and 80% by 2050. Long term diversion targets will be developed taking these goals into consideration when estimating long term capacity requirements.

<b>CONCLUSION</b>
-------------------

This report recommends the following limits for the scope of work for London's long-term Residual Waste Disposal Strategy:

- The study period for the Disposal Strategy will cover the timeframe 2017 to 2050 which is 25 years beyond the current approved capacity of W12A Landfill;
- The maximum annual rate of fill, which is currently 650,000 tonnes, remain unchanged at this time;
- The service area include the City of London, Elgin County, Middlesex County, Huron County, Lambton County, Oxford County, Perth County and local First Nation Communities; and
- The capacity of any new residual waste disposal facilities be sized assuming the residential waste diversion rate is 60% by 2022; and taking into consideration the Provincial interim goals for total solid waste diversion (consisting of residential, IC&I and CR&D waste streams) of 30% by 2020, 50% by 2030 and 80% by 2050.

### ACKNOWLEDGEMENTS

This report was prepared with assistance from Mike Losee, Division Manager, Solid Waste Management and Paul Smolkin, P.Eng., Principal, Golder Associates Ltd. (Technical consultant on the EA).

<b>PREPARED BY:</b>	
<b>WESLEY ABBOTT, P. ENG. PROJECT MANAGER SOLID WASTE MANAGEMENT</b>	
<b>PREPARED AND RECOMMENDED BY:</b>	<b>CONCURRED BY:</b>
<b>JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENT, FLEET &amp; SOLID WASTE</b>	<b>KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES &amp; CITY ENGINEER</b>