

August 16, 2018

Volume II - Supporting Documents

Proposed Terms of Reference

**Environmental Assessment of the Proposed W12A Landfill
Expansion, City of London**



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Volume II – Supporting Documents

Supporting Document #1 - W12A Landfill Area Plan

Supporting Document #2 - Residual Waste Projections and Landfill Capacity Assessment

Supporting Document #1

W12A Landfill Area Plan



City of London

W12A LANDFILL AREA STUDY

LAND USE OPTION EVALUATION REPORT

JUNE 2006



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1. BACKGROUND & INTRODUCTION

1.1 Area Study Background

The W12A Landfill is a waste management facility owned and operated by the City of London for the purpose of disposing of municipal solid waste. It was opened in 1977 and based on current flow of garbage is expected to have sufficient capacity to meet the needs of the City for another 17 – 20 years. The City landfill site covers 147 hectares of land, of which 107 hectares have been or will be used for waste disposal with the balance of the lands used as a buffer. In addition to the site itself, the City owns a number of properties adjacent to the W12A Landfill.

The City of London initiated the W12A Landfill Area Study in response to area residents concerns regarding the future impacts of the W12A Landfill and related facilities, on its environs and the need for greater certainty as to the life span and future role of the waste management facility. In December 2004, Council approved the Terms of Reference for an Area Study for the W12A Landfill. The Terms of Reference was developed by the City of London based on extensive consultation with local residents and stakeholders. The goal of the Study is to develop a plan for the continued evolution of this Landfill facility towards a future potential role as an integrated waste management centre. The area study would result in recommendations for inclusion of special policies in the Official Plan and related guidelines related to matters such as, impact mitigation, property acquisition and the introduction of industrial eco-park (ecological) uses related to waste management resources, by products and processes.

The study area identified in the Terms of Reference includes the block of land bounded by Wellington Road, Manning Drive, White Oak Road and Scotland Drive with an area of 397 hectares. This area includes the existing landfill, other City owned properties and a number of privately owned properties and is defined as the core area. The study area also includes a 1,500 m buffer around this block of land with an area of approximately 2,000 hectares, where impacts from existing and future proposed facilities will be evaluated.

There have been two public meetings held to date as part of the Area Study. The first public meeting was held in June 2005 and introduced the project to the public. The second public meeting was held in November 2005 to identify the land use evolution alternatives and review the evaluation criteria. These meetings provided input for the consulting team and City of London staff.

1.2 Background Study Team

The Terms of Reference identified a series of background studies required to support the development of the overall land use plan for the W12A Landfill and the development of policies for inclusion in the Official Plan. The background studies were completed in December 2005 and were made available to the public online and through the City libraries. The following briefly indicates the team members and background studies that support this report:

William Pol, MCIP, RPP, IBI Group was retained to undertake the Land Use Background Study. This Study provided a land use survey and analysis of the land use characteristics of the core and buffer areas. There is an historical review of the development of the W12A Landfill and the policy context for the site and surrounding areas. The results of the study identified land use and policy opportunities and constraints to the long term future development of the area.

William Pol, MCIP, RPP, IBI Group was also retained to undertake the Agricultural Resources Background Study. The purpose of this report was to provide background information on the agricultural resources in the Study Area of the W12A Landfill Area. This report looked at a range of technical information and background documents ranging from provincial legislation and local agricultural initiatives to soils data and a land use survey. The technical review included a comprehensive review of available information including aerial photography, and mapping resources to determine agricultural activities and changes in the Study Area over the course of the last twenty years.

Dr. Gary Epp, M.Sc., Ph.D., Earth Tech was retained to undertake the Ecological Background Study and Natural Heritage Strategy. The purpose of this report was to provide the framework for environmentally sound planning decisions and reasoned management of natural resources in the area. This report looked at existing natural heritage features, an assessment of ecosystem function, an evaluation of significant features, recommendations regarding development constraints, and opportunities and an outline of the requirements for more detailed environmental impact studies. The Natural Heritage Strategy assimilated this information and provides a strategy for the protection and enhancement of natural features and processes.

Ian Blevins M. Eng., P. Eng., Earth Tech was retained to undertake the Transportation Background Report. This report was intended to examine the volume and pattern of current traffic flows in the study area and identify opportunities or constraints that will affect future planning and development in the study area.

Rob Kell, P. Eng, P. Geo, Dillon Consulting Limited was retained to undertake the Hydrology / Hydrogeology Background Study. The purpose of this report was to identify, assess and map any

surface water and ground water resources within the study area. A key component of the study was an inventory summarizing the existing characteristics of the study area. The study summarizes a full range of hydrologic, hydraulic, and geomorphic baseline parameters used to assist in the designation of special policy areas and the development of design criteria for any potential future development.

Jim Wilson, M.A., Archaeologix was retained to undertake the Archaeological & Built Heritage Assessment (Stage 1). The purpose of the study was to compile all available information about the known and potential cultural heritage resources within the study area and to provide specific direction regarding the protection, management and/or recovery of this recourse, consistent with City and Ministry of Culture guidelines.

1.3 Evaluation Study Introduction

The purpose of this report is to document the land use options and the evaluation process that was undertaken to recommend future land uses in the core area of the W12A Landfill Area Study. The selected land use option will assist in developing the land use planning policies, guideline documents, Official Plan and Zoning By-law amendments necessary to implement the evolution of the landfill for the next 40 year time horizon. This report follows the preparation of background studies related to land use, agriculture, transportation, environmental resources, archaeological resources, hydrology and hydrogeology, prepared for the Area Study. These background studies are used as the basis for the qualitative evaluation of the options.

This background study consists of four parts including:

- A description of the landfill evolution options;
- The establishment of criteria for use by the evaluation;
- The applicable rating system; and
- The evaluation tables and the concluding landfill evolution options.

2. LANDFILL EVOLUTION ALTERNATIVES

The consultants provided four landfill evolution alternatives at the public meeting in November 2005. These options included: Status Quo, Expand Landfill, Develop Integrated Resource Recovery Center, and the Development of an Industrial Eco-park. As a result of input from the public the City of London agreed to add three alternatives, including: #5 Close W12A Landfill on August 31, 2006; #6 Export the garbage to another municipality after the existing capacity is used; and #7 develop an accelerated diversion of household waste to increase the life span of the landfill. Each of the seven (7) alternatives is given the same evaluation against all of the criteria.

Appendix 1 provides a detailed description of each of the seven landfill evolution options. **Appendix 2, Maps – Landfill Evolution Options** includes maps showing the general extent of the land attributed to each of the options.

Option 1: Status Quo

This option is based on the continued existing use of the landfill capacity for the next 15 to 20 years. Prior to this final closing the municipality would proceed to identify a new greenfield landfill site within the municipal boundaries of the City of London to accommodate solid waste services for the 20 to 25 years beyond the potential life of the existing operation. The land area would remain at the existing 141 ha. There is no significant change to the operating procedures on site. Secondary uses include public drop-off, landfill gas collection, leachate collection and household special waste facility. An additional desirable land use would be landfill gas utilization in the production of electrical energy and a leachate pre-treatment facility.

Option 2: Expand Landfill

This option is based on the addition of land area available to the landfill to the 40 year time horizon without the need to create a greenfield landfill within the municipal boundaries of the City. The same uses continue as found under the status quo with an opportunity to expand the public drop off and community recycling centre. The additional lands would include 94 ha of land currently owned by the City. In the order of 35 to 90 ha of land will be required to accommodate landfill space.

Option 3: Develop an Integrated Resource Recovery Centre

This option is intended to support the on-site recovery of materials and energy. The effect would be a smaller landfill expansion. This option assumes achieving the target of 60% diversion rate for the landfill in accordance with direction from the Province of Ontario but in a revised timeframe of approximately 2012 – 2018. Assuming this diversion rate, a range of 30 to 70 ha of landfill area is

required. An additional 5 – 10 ha of space are required for the siting and development of diversion facilities depending on the technologies used. This option would extend the life of the site beyond the 40 year time horizon.

Option 4: Develop an Industrial Eco Park

The basis of this option is to capitalize on the use of garbage and recyclables as raw material inputs into the manufacture of new products on site. This approach is intended to take advantage of the recycling capabilities of the landfill and the proximity of raw materials. It is intended to add value to the outputs on site and complete the recycling process. This option would include a smaller expansion of the landfill, the resource recovery lands, and lands needed for the eco-industrial park. There would be an addition of approximately 80 ha of land used for the Industrial Eco Park extending to the north and east of the expanded and existing landfill site. This would accommodate waste disposal beyond the 40 year time horizon.

Option 5: Close the Landfill on August 31, 2006

Based upon public feedback at a public meeting on November 10, 2005, an option involving closure of the W12A Landfill on August 31, 2006 before capacity is reached was also evaluated. The premature closure would necessitate the consideration of other options including the export of solid waste outside the municipal boundaries in the short term. In the long term, the City would have to consider other options including export or a new greenfield waste disposal site within the municipal boundaries for the next 40 years.

Option 6: Export Garbage to another Municipality after Using the Existing Capacity.

For the next 15 – 20 years the City could continue to use landfill at this location using 141 ha of existing land. Beyond this time horizon the City would contract to have the garbage exported outside of the municipality. Existing public services may have to be relocated elsewhere in the municipality. No new greenfield location would be necessary for this option. There would be a need for a waste transfer station. An additional desirable land use would be landfill gas utilization in the production of electrical energy and leachate pre-treatment facility.

Option 7: Accelerated Waste Diversion – Maximize Site Life

This option achieves a diversion rate of 60% at an accelerated pace, within 3 to 5 years and discourages the delivery of IC&I garbage through increased tipping fees. It requires land for the full range of waste management activities including landfill, and landfill expansion, a full range of resource recovery options (eg. Material recovery facility, in-vessel composting), with potential consideration for mechanical, biological, and thermal processing. This option would still require

expansion of the existing landfill (20 – 40 ha) and some of the lands suggested for a resource recovery centre. This option assumes a heavy investment in waste diversion processes and the implementation of aggressive municipal regulations and incentives to ensure public compliance.

The tables in **Appendix 1** summarize all seven options originally developed by the consulting team.

3. EVALUATION CRITERIA

3.1 Criteria Overview

The purpose of this section is to describe the principles or assumptions, categories, criteria and indicators used to evaluate the options for the evolution of the W12A Landfill Site. This information provides the framework around which the criteria are applied to evaluate the options provided.

The evaluation methodology and criteria take into consideration background study results, sound solid waste management practices, the City of London Official Plan, Provincial Policy Statement 2005 and sound land use planning principles. This evaluation methodology provides the basis upon which to select the preferred land use option or options for the evolution of the W12A Landfill Site.

The evaluation methodology and criteria also take into consideration the following quote from *Solid Waste as a Resource, Guide for Sustainable Communities* (Federation of Canadian Municipalities, 2004)

"Sustainable community integrates economic, social and environmental issues to achieve a healthy and liveable community long-term... The economic and environmental benefits associated with waste reduction and resource recovery are key elements in establishing a sustainable community... These goals are pursued using fiscally and environmentally responsible policies that:

- *Make the most efficient use of resources;*
- *Generate the least amount of waste;*
- *Provide high quality service to community residents;*
- *Live within the carrying capacity of a community's natural resources—land, water and air."*¹

3.2 Guiding Principles & Assumptions

The following guiding principles and assumptions form the basis of the evaluation criteria. Flowing from these principles or assumptions are the criteria upon which each of the options is evaluated. The assumptions are intended to be widely accepted statements describing the approach to waste management in the City of London.

The following guiding principles and assumptions are provided in no rank order, and have equal importance for the evaluation criteria.

1. The City of London will continue to manage waste produced within the municipal boundaries through various methods of reduction, diversion, disposal and conversion to other useable products.
2. The City of London will make decisions on waste management issues using principles of sustainable development which are socially, environmentally and fiscally responsible.
3. The Provincial government has set a target of 60% waste diversion for the Province in June 2004 to be achieved by the end of 2008. There have been no further details released on this matter in the last two years. City Council on August 3, 2004 recommended that the target date be pushed out 5 – 10 years (2012 – 2018) to provide adequate time for major changes that are required across the Province.
4. The existing W12A Landfill has a defined capacity to accommodate additional landfill for seventeen to twenty years.
5. The existing Official Plan for the City of London and the Provincial Policy Statement 2005 are the applicable land use planning documents.

3.3 Criteria

The criteria are grouped into categories related to the same theme in the following four tables. This allows an evaluation to be made in context of the category and to understand the relationships between themes. The evaluation criteria are set out in **Appendix 3** in the following four categories:

- Natural Environment Evaluation Criteria
- Social / Cultural Evaluation Criteria

- Technical and Economic Evaluation Criteria
- Regulatory/Legal and Administrative Evaluation Criteria

Each of these categories is subdivided into a number of criteria. The criteria are used to evaluate each of the four land use options for the core study area.

In the left hand column of **Appendix 3**, each criterion is listed describing the feature it is intended to measure. A brief rationale describing the importance of the criteria to the landfill option evaluation is provided in the centre column. The right hand column lists the indicator(s) describing how the criteria are measured in each of the options.

Each of the criteria is given equal weight in the methodology. There has been no ranking of the importance of the criteria within each category or between categories.

The criteria are placed into a matrix with the proposed land use evolution alternatives. Each of the evolution criteria is given the “qualitative phrase” describing the potential effects for each of the alternative land use options. This matrix will provide an overview of the potential and expected positive, neutral or negative effects on each of the options.

3.4 Rating System

Each of the criteria measures the potential effects of selecting the option. The criteria are rated as follows:

- **Strong positive** – the indicator shows a significant positive effect for this criteria;
- **Positive** – the indicator shows some positive effect for this criteria;
- **Neutral** – the indicator shows no effect positive or negative for this criteria;
- **Negative** – the indicator shows some negative effect for this criteria;
- **Strong negative** – the indicator shows a significant negative effect for this criteria;

These “qualitative phrases” are provided because many of the criteria are qualitative in nature and require an interpretation of the available information. The “qualitative phrases” used to rate the criteria are based on data from the technical background studies and other sources of information as required.

3.5 Public Input into the Options, Criteria and Ranking System

The following summarizes the responses received from the public after the meeting November 10, 2005 at Regina Mundi Catholic College regarding the Evolution Alternatives and the Evaluation Criteria applicable to the W12A Landfill Area Plan Study.

Public comments were received at the Public Meeting and recorded in the Minutes prepared by the City of London. In addition forms were distributed at the public meeting and by mail to the residents. As a result of the comments during the public meeting, three new landfill evolution alternatives are included as follows:

1. Option No. 5: Close W12A Landfill Site on August 31, 2006.
2. Option No. 6: Export the garbage to another Municipality after existing capacity has been used.
3. Option No. 7: Accelerated Diversion – Maximize Site Life (increase recycling and composting efforts, and do not accept commercial, industrial and institution waste which will increase the life expectancy of the current landfill without an expansion).

These options are included in the list of landfill options and are evaluated using the same criteria identified for the existing options. In response to the invitation to comment, 14 responses were received. Generally the comments focussed on specific issues related to:

- Compensation for residents living in proximity to the landfill;
- Alternative locations for landfill in the City;
- Complaints about the operation of the landfill; and
- Potential impacts of the expansion beyond the 1.5 km buffer area.

Other Evolution Options Brought Forward by Public

There were two suggestions made with respect to Evolution Options of the W12A Landfill site that has not been explored do date. The first is to create a Municipal Not-for-Profit Corporation where the landfill is operated at arms length from the municipality. The second suggestion was to sell the existing W12A to a waste management corporation. The implication in these options is that another form of management would have a different impact on surrounding land uses. The Area Study is not intended to address the corporate responsibility of the W12A Landfill. The Area Study

is focused on land use and assumes that the management, operation and ownership will remain a municipal responsibility. It is unnecessary to add these options to the list.

The option of incineration has been excluded due to high capital and operating costs in the order of \$120 - \$150 per tonne. These facilities require a dedicated source of combustible materials that may conflict with waste diversion programs.

New Evaluation Criteria

With respect to the Evaluation Criteria two specific suggestions are made through the public comments.

1. Table 2 should be updated to determine the impact on air quality on site and surrounding area.
2. Table 4 – all costs involved in each of the steps should be determined, ie. avoid impact; compensation of neighbours.

In response to Item 1 it is acknowledged that air quality may be an issue with respect to Landfill evolution. The City is undertaking landfill gas control measures to reduce the existing and potential air quality impact, through landfill gas collection. Air quality was not part of the terms of reference and is generally beyond the scope of the Area Study. There are no specific policies on air quality in the Official Plan. Consideration of air quality will be part of the Environmental Assessment document.

In response to item 2, the reference is to Changes in Land Value criteria. The scope of the study provides for high level consideration of the costs with respect to compensation and the value of assessment for properties in the core area. A detailed review would be completed as a recommendation for specific actions.

Based on the review of the public responses both written and from the public meeting, the technical consultant team are not recommending any revisions to the Matrix of Landfill Evolution Options or the Evaluation Criteria beyond the additional Evolution Options as agreed to at the meeting.

4. EVALUATION METHODOLOGY

After confirmation of the landfill evolution alternatives and the evaluation criteria the consultants undertook to create four tables related to criteria headings Natural Environment, Social Cultural, Technical/Economic and Regulatory / Legal and Administrative tables. Each of the evolution alternatives was evaluated for each of the criteria and given a description and ranking of "strong negative", "negative", "neutral", "positive", and "strong positive".

The evaluation includes two perspectives for the evolution of W12A Landfill. The first perspective is the City-wide need to provide for landfill disposal within the municipal boundaries. For example, how will the option impact the ability of the City to provide an effective solid waste disposal/diversion service if this option is acted upon? The second perspective relates to the impact of the option to the study area. For example, if this option is taken how will it impact the immediate land use?

The first perspective recognizes the larger public interest in sound municipal management of a public service. The second perspective focuses on the impact relative to the existing community.

These evaluations provide guidance and direction on the selection of the land use evolution alternatives, the development of Official Plan policies and implementation measures for the core study area and the surrounding land uses.

5. EVALUATION SUMMARIES: PRINCIPLES, CONSTRAINTS AND OPPORTUNITIES

5.1 Evaluation, Constraints & Opportunities

Constraints and opportunities have been considered for each of the seven options. A detailed comparison of the constraints and opportunities is found in the tables in **Appendix 4 – Individual Evaluations**. The Evaluation is based on these tables under the headings, Natural Environment, Social / Cultural, Technical / Economic, and Regulatory / Legal and Administrative. This discussion provides greater detail than the overall rating provided in the previous section.

5.1.1 OPTION 1 – STATUS QUO - USE EXISTING LANDFILL CAPACITY WITH NEW GREENFIELD LANDFILL REQUIRED

The overall rating of the Status Quo option is a negative evaluation with three negative ratings for Natural Environment, Social/Cultural and Regulatory / Legal Criteria and one neutral rating for the Technical / Economic Criteria. On balance the constraints outweigh the opportunities. The following points highlight the constraints and opportunities of this option.

Constraints:

- A new greenfield landfill site may possibly create surface water, ground water and disturbance to aquatic and terrestrial habitat on the new landfill site in the City.
- Potential loss of additional agriculture land outside of the core area.
- A new landfill site would potentially impact a larger number of residential dwellings.
- Difficulty in obtaining EA approvals for a new landfill site.
- Not consistent with the PPS and the Official Plan policies with respect to increasing diversion from landfill.

Opportunities:

- Removes the landfill activity from this location.
- Limited impact on heritage resources.
- Lowest cost disposal is continued through the operation of W12A.

- Potential green energy from landfill gas.

5.1.2 OPTION 2 – EXPAND LANDFILL, ENHANCE SOME DISPOSAL RELATED USES

The overall rating for Expand Landfill is neutral across all four criteria, Natural Environment, Social/Cultural, Technical / Economic and Regulatory / Legal Criteria. The following are the constraints and opportunities.

Constraints:

- Expansion of landfill may increase land use conflict with surrounding property owners.
- Potential further limitations on surrounding land uses.
- Does not have a significant increase in waste diversion programs.

Opportunities:

- The physical character of soils results in minimum potential of infiltration.
- Roads in the vicinity of W12A have reserve capacity to accommodate existing and future landfill traffic.
- This is the lowest cost disposal option and most effective way of developing new capacity.
- The City currently owns sufficient land for the expansion of the landfill.
- Expanded public drop-off and community recycling opportunities.
- This Option is in keeping with the Provincial Policy and Official Plan to provide future waste management within the municipal boundaries.
- Expansion will initiate further environmental and planning controls to mitigate impacts.
- Potential green energy from landfill gas.

5.1.3 OPTION 3 – DEVELOP INTEGRATED RESOURCE RECOVERY CENTRE

The overall rating for Develop an Integrated Resource Recovery Centre is positive. It is positive for Natural Environment, Technical / Economic and Regulatory / Legal criteria. It is neutral for Social/Cultural criteria. The following are the constraints and opportunities.

Constraints:

- Potential odour and noise impacts related to the construction of new waste diversion facilities including organics and recyclables.
- Potential increase in traffic associated with the Resource Recovery Centre.
- High cost of waste processing (thermal/mechanical/ biological)

Opportunities:

- Reduce potential impacts on groundwater and terrestrial resources based on a reduced footprint.
- Increase diversion of waste materials and reduction and consumption of resources.
- Reduced impact on agricultural lands because of a reduced landfill footprint.
- Increase level of public waste management service through the Resource Recovery Centre.
- The City has sufficient land holdings to develop this option.
- Increase direct and indirect employment through capital works and operations.
- Lower disposal costs based on expansion of existing site.
- Increased potential for partnerships with private sector for development of a Recovery Resource Centre operation.
- No alternative landfill site required.
- Fulfills the Provincial Policy Statement and the Official Plan policies with respect to limited landfill expansion and larger scale diversion programming.

- Greater potential for approval of the Environmental Assessment based on increased diversion rates.
- Expansion will improve regulatory measures and mitigation measures.
- Potential green energy from landfill gas.

5.1.4 OPTION 4 – DEVELOP INDUSTRIAL ECO PARK

The overall rating for Develop Industrial Eco Park is positive. It is positive for Natural Environment, Technical / Economic and Regulatory / Legal criteria. It is neutral for Social/Cultural criteria. The following are the constraints and opportunities.

Constraints:

- Potential odour, dust and noise impacts related to the construction of new waste diversion facilities and eco industrial uses.
- Potential increase in traffic with industrial type uses.
- There may be increased cost with the development of an industrial park.

Opportunities:

- This option provides the greatest opportunity for resource recovery and the reduction of consumption of resources with significant potential to generate renewable energy.
- Potential to increase public waste management services.
- Potential for direct and indirect employment is significant with the creation of an Eco Industrial Park.
- Significant potential for partnerships with private sector in developing recycling organics processing facilities.
- Lower disposal costs based on expansion of existing site.
- Consistent with the Provincial Policy Statement and the City of London Official Plan policies for the reduction / reuse and recycling of waste products into usable consumer goods.

- Potential for improvements to roads on the abutting lands through industrial development.
- Greater likelihood of approval of the Environmental Assessment based on diversion, smaller landfill footprint and reuse of waste products.
- Potential green energy from landfill gas.

5.1.5 OPTION 5 – CLOSE THE LANDFILL ON AUGUST 31, 2006

The overall rating for Close the Landfill on August 31, 2006 is Negative. It is Negative for all four criteria, Natural Environment, Social/Cultural, Technical / Economic and Regulatory / Legal criteria. The following are the constraints and opportunities.

Constraints:

- The need to identify and obtain approvals with an alternative greenfield landfill location.
- No significant increase in waste diversion.
- Significant potential for land use conflict to create a new landfill site.
- Difficult opportunity in identifying an alternative landfill site within the City boundaries.
- Possible reduction in waste management services to the public.
- No increased capacity to support new compensation.
- High cost of hauling and tipping fees associated with exporting of waste.
- No opportunities for compensation to surrounding landowners.
- No opportunities for partnerships or waste management.
- Contrary to the Provincial Policy Statement and the Official Plan policies with respect to waste recovery options and managing waste within the municipal boundaries.
- Relies on host facility for environmental assessment approvals.

Opportunities:

- No additional lands will be required by the City of London for the landfill capacity.
- Less impact on surrounding land uses from noise, traffic, dust, odour and litter.
- Possible improvements to the buffer area.

5.1.6 OPTION 6 - EXPORT GARBAGE TO ANOTHER MUNICIPALITY AFTER USING EXISTING CAPACITY

The overall rating for Export of Garbage after existing capacity is negative. It is negative for Natural Environment, Technical / Economic and Regulatory / Legal criteria. It is neutral for Social/Cultural. The following are the constraints and opportunities.

Constraints:

- Limited potential for increased waste diversion.
- The additional transfer and haul facilities may have dust, odour, noise, and litter impacts currently contained on the W12A site.
- There would be an increase cost in the transfer and haul of waste materials.
- No additional public waste management services provided.
- There is little potential for business opportunities during the operation of the W12A site.
- This option is contrary to the Provincial Policy Statement and the Official Plan for the City of London because it does not manage waste or recycle material within the municipal boundaries.
- This option puts the City at risk should the host municipal landfill facilities be closed or reached capacity.

Opportunities:

- Impact on surface water and terrestrial features will likely be neutral because the footprint of the W12A site remains the same.
- No additional lands will be required by the City of London for the landfill capacity.

- Potential green energy from landfill gas.

5.1.7 OPTION 7 – ACCELERATED WASTE DIVERSION MAXIMIZE LANDFILL SITE LIFE

The overall rating for Accelerated Waste Diversion to maximize the Landfill site life is neutral/positive. It is positive for Natural Environment and Regulatory / Legal criteria. It is neutral for Social/Cultural and Technical / Economic criteria. The following are the constraints and opportunities.

Constraints:

- Potential odour and noise impacts related to the construction of new waste diversion facilities including organics and recyclables.
- An accelerated expansion and diversion rate would increase the net cost for operations and capital at the site.
- High cost of waste processing (thermal/mechanical/ biological).

Opportunities:

- The reduction in fill material would reduce potential impact on surface and groundwater quality as well as loss or disturbance of terrestrial heritage features.
- There is potential to reduce consumption of resources with potential to generate non-renewable energy.
- Reduce land needs has potential for less land use change impacts.
- Potential increase in public waste management services to accelerate diversion.
- The City has sufficient land holdings to accommodate increased diversion.
- Increase in direct and indirect employment associated with capital works and operations for accelerated diversion.
- Opportunities for partnerships with private sector development.
- Fulfills the intent and purpose of the Official Plan policies and the Provincial Policy Statement with respect to waste management.

- A reduced size for the expansion of the W12A along with the increased diversion programs will support greater likelihood of Environmental Assessment approvals.
- Potential green energy from landfill gas.

5.2 Overall Rating

Table 5.1 – Overall Rating on the following page summarizes the qualitative rankings found in Appendix 4. The tables in Appendix 4 provide the detailed information describing the options, indicators and a qualitative interpretation of the criteria.

Option	Rating
1 Status Quo	Negative
2 Expand Landfill	Neutral
3 Develop Integrated Resource Recovery Facility	Positive
4 Develop Industrial Eco-Park	Positive
5 Close W12A Landfill Site on August 31, 2006	Negative
6 Export Garbage to other Municipality after existing capacity used	Neutral / Negative
7 Accelerated Diversion – Maximize Site Life	Neutral / Positive

5.3 Guiding Principles & Assumptions

The following Table 5-2, Regard for Guiding Principles, indicates the degree of congruence between the five Guiding Principles set out in Section 3.2 and the seven Landfill Evolution Options listed in Section 2. The purpose of the table is to indicate the degree to which each option has regard to the principles or assumptions. Where the circle is empty it indicates it does not meet the principle. Where the circle is half (50%) shaded it indicates that the option has some regard to the principle. Finally, where the circle is completely (100%) shaded it indicates the option has complete regard to this principle.

Table 5-1 indicates that Option #3 and #4 have the highest regard to the principles or assumptions with fully shaded circles in each principle. Option #7 has high regard for the principles or assumptions. Options #2 and #6 have some regard to the principles or assumptions. Options #1, #5 and #6 have little or no regard to the principles or assumptions. Based on the analysis of regard to the principles or assumptions Options #3, #4 and #7 are the preferred options have the most regard to the principles or assumptions.

5.4 Recommendation

Based on the above methodology and application of the evaluation criteria the recommended land use evolution option should provide for options #3, #4 and #7 having scored very close in the rating of the evolution options. These options should be considered in the development of Official Plan policies, guideline documents for the development of the Area Plan.

Table 5.1 - Overall Rating				
RATING				
Strong Positive	Positive	Neutral	Negative	Strong Negative

Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco-park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used	Option 7: Accelerated Diversion - Maximize Site Life
NATURAL ENVIRONMENT						
Negative	Neutral	Positive	Positive	Negative	Neutral	Positive
SOCIAL / CULTURAL						
Negative	Neutral	Neutral	Neutral	Negative	Neutral	Neutral
TECHNICAL / ECONOMIC						
Neutral	Neutral	Positive	Positive	Negative	Negative	Neutral
REGULATORY / LEGAL AND ADMINISTRATIVE						
Negative	Neutral	Positive	Positive	Negative	Negative	Positive

AVERAGE OVERALL RATING			
Negative	Neutral	Positive	Neutral / Positive

Table 5.2 - Guiding Principles & Assumptions

Guiding Principles & Assumptions	Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco- park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used	Option 7: Accelerated Diversion - Maximize Site Life
1. The City of London will continue to manage waste produced within the municipal boundaries through various methods of reduction, diversion, disposal and conversion to other useable products.							
2. The City of London will make decisions on waste management issues using principles of sustainable development which are socially, environmentally and fiscally responsible.							
3. The Provincial government has set a target of 60% waste diversion for the Province in June 2004 to be achieved by the end of 2008. There have been no further details released on this matter in the last two years. City Council on August 3, 2004 recommended that the target date be pushed out 5 – 10 years (2012 – 2018) to provide adequate time for major changes that are required across the Province.							
4. The existing W12A Landfill has a defined capacity to accommodate additional landfill for seventeen to twenty years.							
5. The existing Official Plan for the City of London and the Provincial Policy Statement 2005 are the applicable land use planning documents.							



Does Not Meet Principle



Meets the Principle in Part



Fulfills Principle

APPENDIX 1

**LANDFILL EVOLUTION OPTIONS 1 – 4 PRESENTED NOVEMBER 2005 AND
OPTIONS 5-7 AS REQUESTED AT THE PUBLIC MEETING**

Component	Existing Facilities (at W12A)	Potential for this Option	Issues / Opportunities
Landfill Evolution Option 1: Status Quo			
Existing W12A Landfill	17 to 20 years of remaining capacity	Required for remaining operating period. Closed when reach contours, could be used as green space or for Agricultural purposes	<ul style="list-style-type: none"> - Current landfill related local impacts may continue - Engineering controls required 50 – 100 years after closure - Future landfill capacity will be required within the planning period
Greenfield Landfill	None	Required to provide long-term disposal capacity	<ul style="list-style-type: none"> - Higher cost then expansion of current site - Can provide necessary future landfill capacity - Landfill related local impacts in new area of municipality
Public Drop-off Depot	Existing Depot at W12A site	Required at current scale to serve local population	<ul style="list-style-type: none"> - Provides service to public near site for drop-off of waste, scrap metal and yard materials - Small contribution to current diversion rate
Landfill Gas Collection	Existing System and Flare	Required as part of operations for existing landfill	<ul style="list-style-type: none"> - Mitigates emissions to air and odours from landfill
Leachate Collection and On-site Treatment Facility	Existing Collection system	Required installation of on-site treatment facility	<ul style="list-style-type: none"> - Current system of hauling leachate is occasionally overwhelmed during wet weather events, resulting in leachate mounding and increased potential for odour - Class EA has determined that W12A site is the best location for developing a pre-treatment facility for leachate and septage - Reduced traffic impacts and costs
Household Special Waste Facility	Existing HSW depot	Required to provide HSW services to municipality	<ul style="list-style-type: none"> - Removes potentially hazardous materials from waste requiring landfill disposal
Landfill Gas Utilization	None	Desired to recover energy	<ul style="list-style-type: none"> - No energy recovered from current landfill gas system - Could provide renewable energy source for local use or for sale on the grid - Reduces net GHG emissions to the environment

Component	Existing Facilities (at W12A)	Potential for this Option	Issues / Opportunities
Landfill Evolution Option 2: Expand Landfill			
Expanded W12A Landfill		Required to add 20 or more years of landfill capacity	<ul style="list-style-type: none"> - Lower Cost compared to all other disposal options - Can provide necessary future disposal capacity - Potential continuation of landfill related local impacts
Public Drop-off Depot	Existing Depot at W12A site	Required at current scale to serve local population, potential for expansion to offer broader Community Recycling services	<ul style="list-style-type: none"> - Provides service to public near site for drop off of waste, scrap metal and yard materials - Small contribution to current diversion rate
Plus All Components of Option 1 (exception greenfield landfill)			
Landfill Evolution Option 3: Develop an Integrated Resource Recovery Centre			
Material Recovery Facility (Recycling Processing)	None	Desired to provide municipally owned capacity for processing recyclables	<ul style="list-style-type: none"> - Currently the private sector processes London recyclables - Could provide option for London when current contracts expire - Co-location at landfill provides potential to share site services, facilitates co-collection opportunities and provides flexibility to municipality - Potential for additional large vehicular traffic
Yard Waste Composting Facility	Approved but not developed at site	Desired to provide municipally owned capacity for yard waste processing	<ul style="list-style-type: none"> - Currently the private sector processes London yard waste - Demand for composting capacity in the Province is expected to escalate - Could provide a cost competitive option for London, sharing landfill infrastructure - Potential for odour and additional large vehicular traffic
Public Drop-off Depot	Existing Depot at W12A site	Required expansion of depot to offer broader Community Recycling services	<ul style="list-style-type: none"> - Expand range of materials that can be dropped off, potential Re-use centre - Increase in diversion rate - Increase in small vehicle traffic to landfill

Component	Existing Facilities (at W12A)	Potential for this Option	Issues / Opportunities
In-vessel Composting Facility	None	Could be considered to provide capacity to process source separated organics (SSO)	<ul style="list-style-type: none"> - Lack of source separated organics processing capacity in Province - London will have to consider collecting SSO to meet 60% diversion target, as could add another 15 to 20% to existing diversion rates - Cost effective option, as could share existing infrastructure - Potential for odours and additional large vehicular traffic
Wind Turbine Farm	None	Desired to generate green energy	<ul style="list-style-type: none"> - Address provincial need for renewable energy - Could share infrastructure associated with LFG power plant - Potential for noise, visual impacts and wildlife
Construction and Demolition Waste Processing Facility	None	Could be considered to expand ability to manage C & D wastes on-site	<ul style="list-style-type: none"> - Currently the private sector processes C&D materials - On-site C&D services could provide source of materials and cover for landfill operations, and could share existing site infrastructure - Could increase waste diversion - Potential for dust and noise, and additional large vehicular traffic
Thermal Processing	None	Could be considered to recover energy and reduce waste volume sent to landfill	<ul style="list-style-type: none"> - Higher cost then landfill options - Potential local impacts related to Thermal facility - Can reduce size of landfill required OR extend life of existing landfill and reduce landfill related impacts - Only a portion of waste requiring disposal (based on current waste projections) has reasonable thermal value
Mechanical / Biological Processing (MBT)	None	Could be considered to treat residual waste, remove recyclables, reduce waste volumes and stabilize materials sent to disposal	<ul style="list-style-type: none"> - Higher cost then landfill options - Some local nuisance impacts related to MBT - Can capture more recyclables from waste stream, reduce size of landfill required OR extend life of existing landfill and reduce landfill related impacts

Component	Existing Facilities (at W12A)	Potential for this Option	Issues / Opportunities
Plus all Components of Option 1 & 2 (exception greenfield landfill)			
Landfill Evolution Option 4: Develop Industrial Eco-park			
Eco-Industrial Park	None	Required to link resource recovery services at site with local industry that could use materials and/or energy	<ul style="list-style-type: none"> - Resource recovery and energy generation at site could provide resources to sustain local eco-industries - Potential to share other infrastructure - Potential for increased traffic in area
Plus all Components of Option 1, 2 & 3 (exception greenfield landfill)			
Landfill Evolution Option 5: Close W12A Landfill Site on August 31, 2006			
New greenfield Location or	None	Required to replace all current and desired components at W12A Landfill	<ul style="list-style-type: none"> - Involves entire new greenfield location or shipping of garbage outside of City - Cost high if new greenfield location chosen, but very high if export of garbage is chosen
Contract to Export Waste	None	Required to ensure City can accommodate waste disposal	<ul style="list-style-type: none"> - High cost - Reduced impacts on immediate surrounding areas
Could include all Components of Option 1, 2 & 3 if new greenfield location option chosen			
Landfill Evolution Option 6: Export garbage to other Municipality after existing capacity used			
Waste Transfer Station	None	Required to mobilize heavy trucks for long-distance haulage	<ul style="list-style-type: none"> - Potential for increased traffic at waste transfer station location
Contract to Export Waste	None	Required to ensure City can accommodate waste disposal	<ul style="list-style-type: none"> - High cost - Reduced impacts on immediate surrounding areas
Plus all Disposal related secondary uses and, resource recovery uses and green energy uses of Option 1			

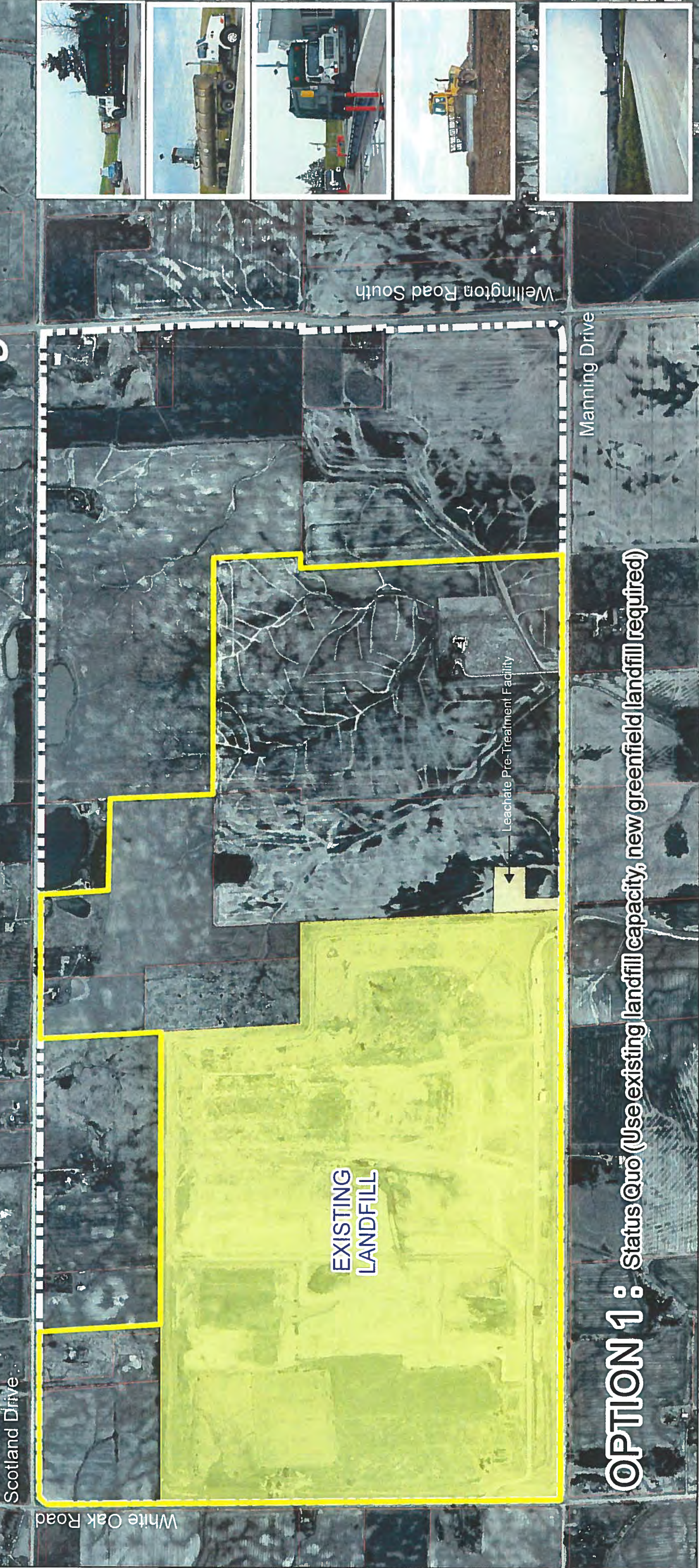
Landfill Evolution Option 7: Accelerated Diversion - Maximize Site Life

Mechanical / Biological Processing (MBT)	None	Desirable to treat residual waste, remove recyclables, reduce waste volumes and stabilize materials sent to disposal	<ul style="list-style-type: none"> - Higher cost than landfill options - Some local nuisance impacts related to MBT - Can capture more recyclables from waste stream, reduce size of landfill required OR extend life of existing landfill and reduce landfill related impacts
In-vessel Composting Facility	None	Desirable to provide capacity to process source separated organics (SSO)	<ul style="list-style-type: none"> - Lack of source separated organics processing capacity in Province - London will have to consider collecting SSO to meet 60% diversion target, as could add another 15 to 20% to existing diversion rates - Cost effective option, as could share existing infrastructure - Potential for odours and additional large vehicular traffic
Construction and Demolition Waste Processing Facility	None	Desirable to expand ability to manage C & D wastes on-site	<ul style="list-style-type: none"> - Currently the private sector processes C&D materials - On-site C&D services could provide source of materials and cover for landfill operations, and could share existing site infrastructure - Could increase waste diversion - Potential for dust and noise, and additional large vehicular traffic
Plus all components of Option 3 (except Thermal Processing)			

APPENDIX 2

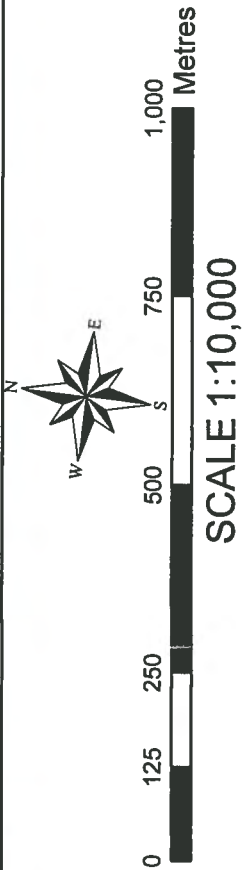
MAPS - LANDFILL EVOLUTION OPTIONS

W12A Landfill Area Plan Study

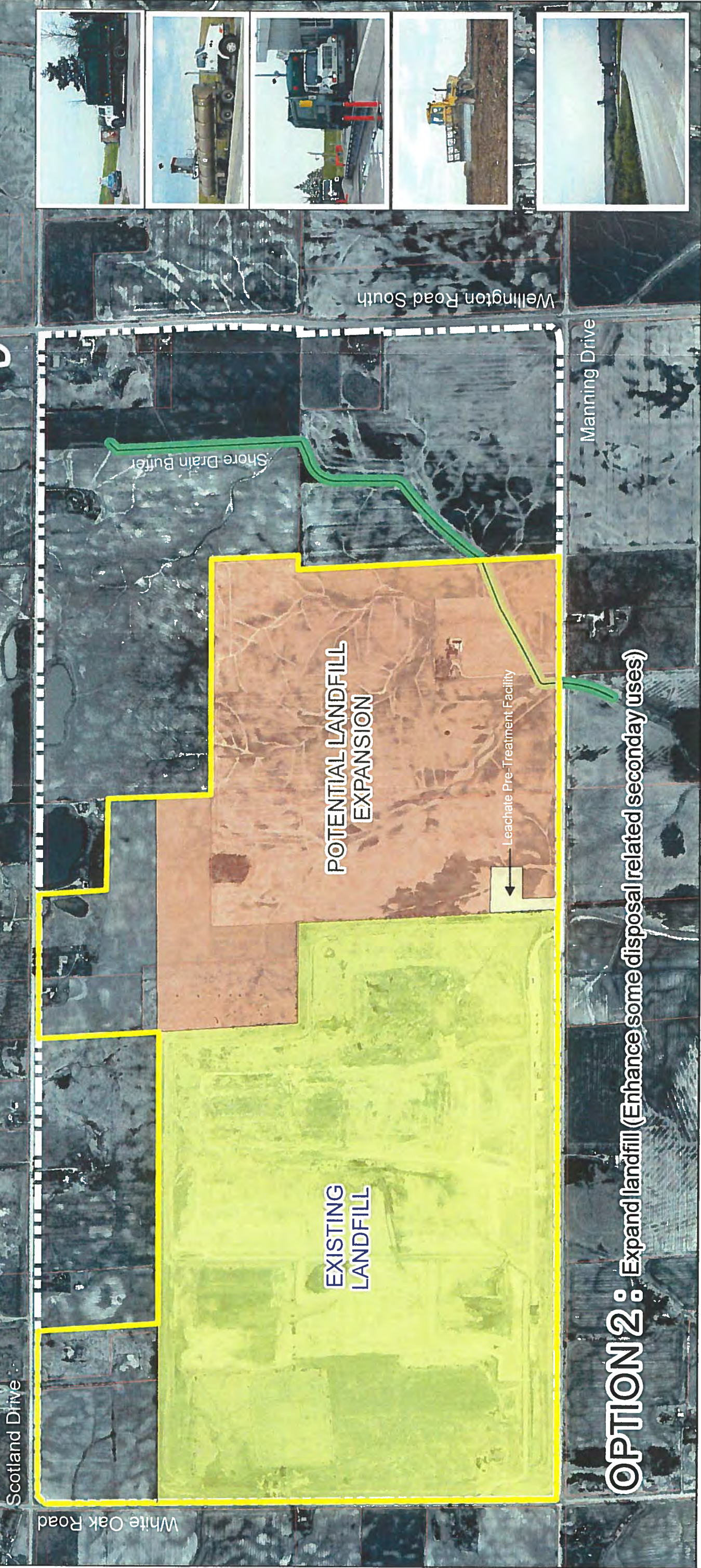


OPTION 1 : Status Quo (Use existing landfill capacity, new greenfield landfill required)

- CITY OWNED PROPERTY
- CORE AREA
- PARCELS
- EXISTING LANDFILL



W12A Landfill Area Plan Study



OPTION 2: Expand landfill (Enhance some disposal related secondary uses)

CITY OWNED PROPERTY

CORE AREA

PARCELS

EXISTING LANDFILL

POTENTIAL LANDFILL EXPANSION

SHORE DRAIN BUFFER

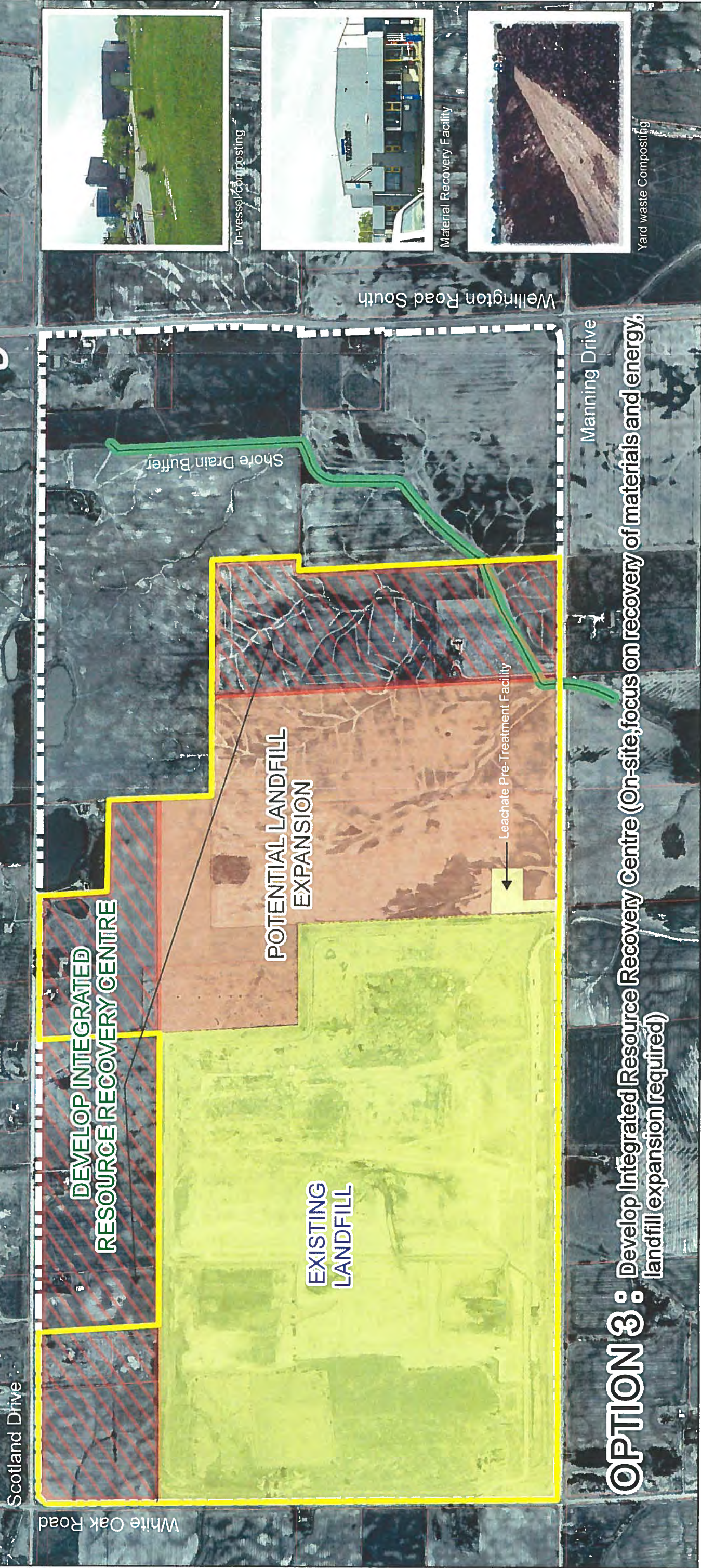


0 125 250 500 750 1,000 Metres

SCALE 1:10,000



W12A Landfill Area Plan Study



OPTION 3 : Develop Integrated Resource Recovery Centre (On-site, focus on recovery of materials and energy, landfill expansion required)

CITY OWNED PROPERTY

CORE AREA

PARCELS

EXISTING LANDFILL

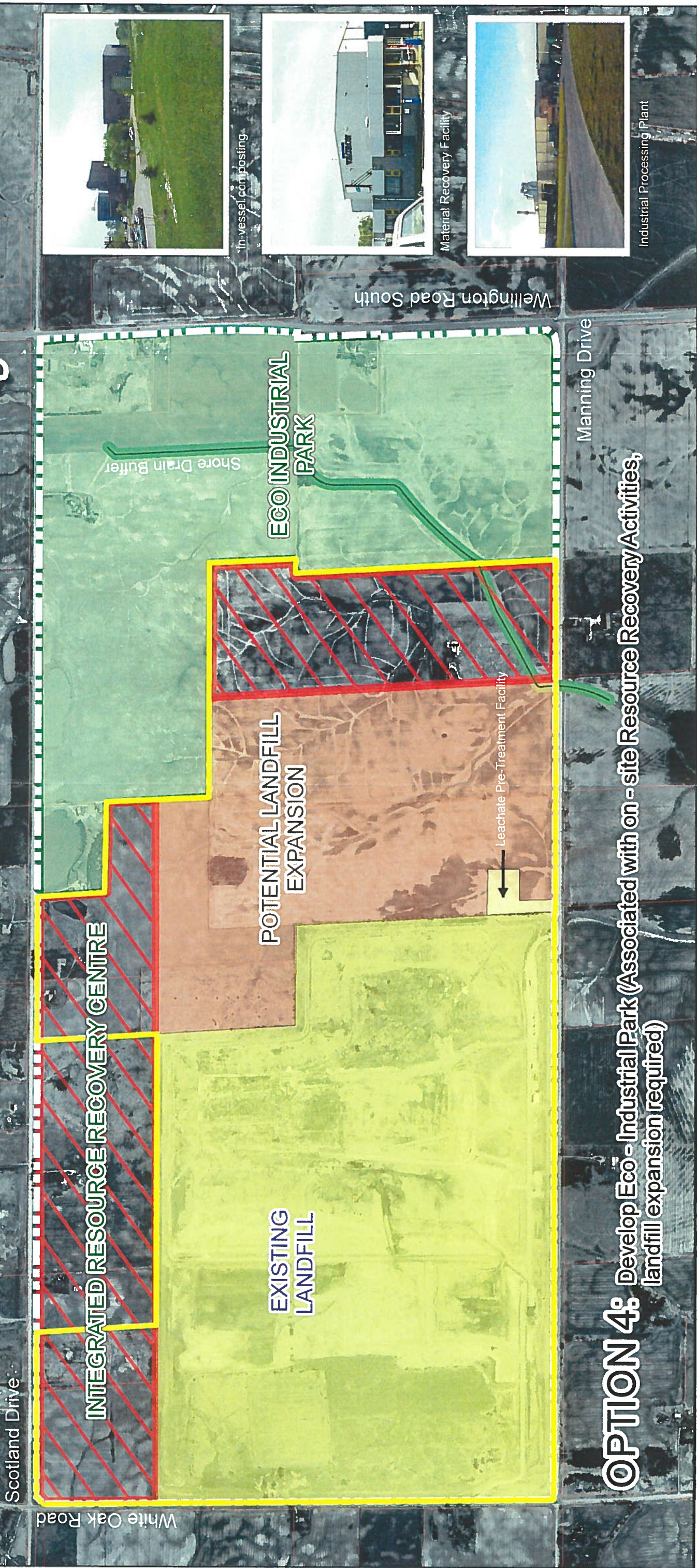
POTENTIAL LANDFILL EXPANSION

SHORE DRAIN BUFFER

INTEGRATED RESOURCE RECOVERY CENTRE

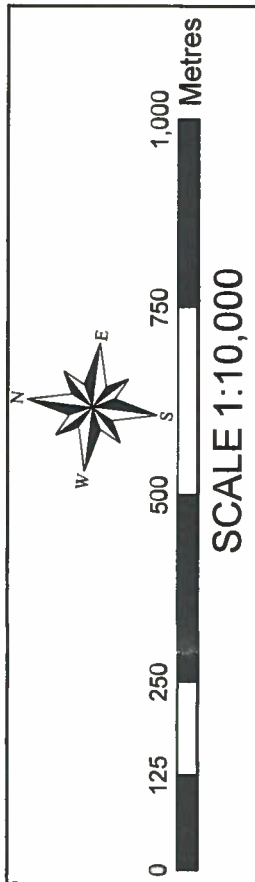
SCALE 1:10,000

W12A Landfill Area Plan Study



OPTION 4: Develop Eco - Industrial Park (Associated with on - site Resource Recovery Activities, landfill expansion required)

- CITY OWNED PROPERTY
- CORE AREA
- PARCELS
- EXISTING LANDFILL
- ECO INDUSTRIAL PARK
- POTENTIAL LANDFILL EXPANSION
- SHORE DRAIN BUFFER
- INTEGRATED RESOURCE RECOVERY CENTRE



W12A Landfill Area Plan Study

Scotland Drive

White Oak Road

APPROVED
CAPACITY
NOT USED

EXISTING
LANDFILL

Leachate Pre-Treatment Facility

Wellington Road South

Manning Drive

OPTION 3: Close W12A Landfill Site on August 31, 2006



CITY OWNED PROPERTY

CORE AREA

PARCELS

EXISTING LANDFILL



0 125 250 500 750 1,000 Metres

SCALE 1:10,000



London
CANADA



IBI
GROUP

W12A Landfill Area Plan Study

Scotland Drive

White Oak Road

EXISTING
LANDFILL

Leachate Pre-Treatment Facility

Manning Drive

Wellington Road South

OPTION 6: Export Garbage to other Municipality after Existing Capacity Used



CITY OWNED PROPERTY

CORE AREA

PARCELS

EXISTING LANDFILL



0 125 250 500 750 1,000 Metres

SCALE 1:10,000



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W12A Landfill Area Plan Study

Scotland Drive

White Oak Road

EXISTING
LANDFILL

POTENTIAL LANDFILL
EXPANSION

DEVELOP
INTEGRATED
RESOURCE
RECOVERY
CENTRE

Leachate Pre-Treatment Facility

Shore Drain Buffer

Wellington Road South

Manning Drive



In-vessel Composting



Material Recovery Facility



Yard waste Composting

OPTION 7 : Accelerated Diversion-maximize Site Life

CITY OWNED PROPERTY

CORE AREA

PARCELS

EXISTING LANDFILL

POTENTIAL LANDFILL EXPANSION

SHORE DRAIN BUFFER



0 125 250 500 750 1,000 Metres

SCALE 1:10,000



London
CANADA



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GROUP

APPENDIX 3

EVALUATION CRITERIA TABLES PRESENTED TO THE PUBLIC NOVEMBER 2005

CRITERIA	RATIONALE	INDICATOR
Natural Environment Evaluation Criteria		
Impact on Surface Water and Ground Water Quality	Protection of water quality.	Qualitative assessment of the potential effect on surface and ground water quality. Qualitative assessment of the protection of identified recharge areas.
Loss/Disturbance of terrestrial and aquatic Natural Heritage features and functions	Protection of significant natural heritage features in the core study area and buffer area.	Qualitative assessment of the potential loss/impact on significant natural heritage features.
Consumption/ Preservation of Non-renewable resources	Ability to meet Provincial diversion targets; Effect related to changes in the consumption of resources.	Qualitative assessment of potential to increase municipal diversion rate. Qualitative assessment of potential to generate or reduce consumption of non-renewable energy sources.
Social / Cultural Evaluation Criteria		
Land Use Change	Protection of prime agricultural lands.	Change in use of agricultural lands to other land uses.
Land Use Compatibility	The Official Plan sets out land use compatibility as a planning goal for the City of London.	Qualitative assessment of the type and degree of potential nuisance impacts of noise, dust, odour and litter based on operational experience; The number of sensitive land uses in proximity to the core area.
Traffic volume and pattern changes	Consideration of the capacity of the existing network to accommodate traffic.	Qualitative assessment of the potential traffic impact.
Impact on archaeological and built heritage features	Protection of significant archaeological and built heritage structures.	Qualitative assessment of the potential impact on significant archaeological or built heritage features.
Identification of an alternative landfill site in the City	The need to provide this component of a sustainable waste management system in the City.	Qualitative assessment of the ability to locate an alternative site in the City of London.

CRITERIA	RATIONALE	INDICATOR
Technical / Economic Evaluation Criteria		
Cost of Waste Management Service to the Taxpayer	Ensure the Municipality has the ability to provide efficient and effective waste management service.	Potential Capital Cost range Potential Operational Cost range Potential Range of Revenues
Level of Public Waste Management Service	To provide necessary waste management services to businesses, industries and residents of London.	Qualitative assessment of the potential changes to the level of service provided.
Land Availability	Acquisition and assembly of appropriate lands for development.	Existing land acquisition by the City of London and future potential for land acquisition.
Changes in Land Value	To understand the long term impact of the landfill on land value for surrounding uses.	A qualitative assessment of opportunities for compensation to surrounding land owners; High level land value assessment for properties within the core area and the buffer area of the study area.
Potential for Employment	Waste management activities may create employment opportunities that can benefit the municipality as a whole.	Qualitative evaluation of potential for direct and indirect employment.
Potential for New Business Opportunities and Public Private Partnerships	New opportunities may be created for local businesses supplying products or services and for public private partnerships creating economic benefits.	Qualitative evaluation of potential for business opportunities related to development and operation of landfill system components. Qualitative assessment of the interest by the waste management sector to partner with the City.
Regulatory / Legal and Administrative Evaluation Criteria		
Consistent with the Provincial Policy Statement 2005	The Planning Act sets out that all planning decisions shall be consistent with the Provincial Policy	Qualitative assessment of consistency with the Provincial Policy Statement.

CRITERIA	RATIONALE	INDICATOR
	Statement.	
Conformity to the Official Plan	Decisions of Council shall conform to the long term land use plan for the City of London.	Qualitative assessment of the Official Plan policies and conformity.
Implementation of zoning, site plan approval and subdivision requirements	Ability to implement the proposed land use option within the existing regulatory framework.	Ability to create zone regulations, site plan criteria and guideline documents suitable for the option.
Policy impacts outside of the core planning area	Protection of existing and future land uses outside of the secondary plan area.	Potential need to change land use policy within the 1.5 kilometre buffer area.
Land use planning, engineering and environmental assessment approvals	Each alternative will require municipal and provincial approvals for services, land use changes and environmental assessment.	Qualitative assessment of the requirements to obtain the approvals and meet functional requirements for development of the option.

APPENDIX 4

TABLE 4.1 – Natural Environment Evaluation

TABLE 4.2 – Social/Cultural Evaluation

TABLE 4.3 – Technical/ Economic Evaluation

TABLE 4.4 – Regulatory/ Legal and Administrative Evaluation

Table 4.1 - Natural Environment Evaluation					
RATING					
Strong Positive	Positive	Neutral	Negative	Strong Negative	
Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco-park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used Option 7: Accelerated Diversion - Maximize Site Life
Detail: use existing landfill capacity, no expansion of public services, 50 - 110 ha needed for new greenfield landfill	Detail: Expand landfill (35 - 90 ha required), enhance some disposal related secondary uses	Detail: Develop Integrated Resource Recovery Centre on-site, focus on recovery of materials and energy, smaller landfill expansion required (30-70 ha required assuming 60% diversion achieved). Additional 5 - 10 hectares required for siting / development of diversion facilities depending on technologies used.	Detail: Develop Eco-industrial Park associated with on-site Resource Recovery Activities, smaller landfill expansion required. Additional 5 - 10 hectares required for siting / development of diversion facilities depending on technologies used.	Detail: Close W12A Landfill in 2006, no expansion of public services, new greenfield landfill or export contract required	Detail: Accelerated diversion - 60% within two years, and discourage IC&I waste from landfill to increase site life. Expand landfill by 20 to 40 hectares
Impact on Surface Water and Ground Water Quality					
Qualitative assessment of the potential effect on surface and groundwater quality. Qualitative assessment of the protection of identified recharge areas					
New landfill capacity must be developed in accordance with Provincial Standards to protect surface / groundwater quality. Potential greenfield site unknown, but most likely south of Hwy 401. Background Study determined that surface water management did not impose specific limitations on development within core study area. However pockets of sandy deposits outside core study area in areas that could be considered for greenfield landfill development would be more susceptible to erosion. Potential for gravel / organic / sand deposits could increase potential for impacts to groundwater. Mitigation of potential impacts on surface / ground water needed and continued upon closing. Would increase cost of water impacts at two locations.	New landfill capacity must be developed in accordance with Provincial Standards to protect surface / groundwater quality. Background Study determined that surface water management did not impose specific limitations on development within core study area. Low permeability soils of core study area result in minimal potential for infiltration, lowering potential for groundwater impacts.	New landfill capacity must be developed in accordance with Provincial Standards to protect surface / groundwater quality. Background Study determined that surface water management did not impose specific limitations on development within core study area. Low permeability soils of core study area result in minimal potential for infiltration, lowering potential for groundwater impacts. Reduction of quantity of material landfilled and diversion of organic materials will reduce potential for groundwater impacts	New landfill capacity must be developed in accordance with Provincial Standards to protect surface / groundwater quality. Additional areas required for development of Eco-industrial Park, increasing requirements for surface water management.	Closure would greatly reduce feasibility of developing other waste management facilities on site. City would have to contract for export and disposal of +150,000 tonnes of waste per year. Assuming status quo, +9 million tonnes (10 million cu/m) of landfill space required over next 40 years. If capacity provided in part by greenfield landfill located in City, potential for surface / ground water impacts could be higher than W12A site, given geomorphology of area south of Hwy 401 which is most likely area for new landfill site within City.	Following closure all waste from City would be exported to other municipality (most likely large private sector landfill). Since these landfills need required approvals, potential for impacts to surface / groundwater assumed to be roughly equivalent to continued use of W12A site.
Negative	Neutral	Strong Positive	Positive	Negative	Neutral
Loss / Disturbance of Terrestrial and Aquatic Natural Heritage Features and Functions					
Qualitative assessment of the potential loss/impact on significant natural heritage features					
The review of ecological constraints indicates that within the core study area, ecological constraints are limited to the Shore Drain which has been identified as having a medium to low aquatic constraint. No constraints regarding terrestrial natural heritage features within the core study area were noted. Outside of the Core Study Area, a number of constraints regarding both aquatic and terrestrial ecosystems were noted, increasing the potential that a green field landfill could have some ecosystem impacts. Certainly the landfill requirements under the status quo have the potential to displace terrestrial vegetative communities.	The review of ecological constraints indicates that within the core study area, ecological constraints are limited to the Shore Drain which has been identified as having a medium to low aquatic constraint. No constraints regarding terrestrial natural heritage features within the core study area were noted. Notwithstanding the constraints, the landfill requirements under the status quo do have the potential to displace terrestrial vegetative communities.	Reduction in land requirements reduces potential to displace terrestrial vegetative communities.	Additional areas would be required for development of Eco-industrial Park, increasing potential to displace terrestrial vegetative communities. There may be opportunity to establish a higher standard of protection provided through industrial park.	Closure would greatly reduce feasibility of developing other waste management facilities on site. City would have to contract for export and dispose of +150,000 tonnes of waste per year. Assuming status quo, +9 million tonnes (10 million cu/m) of landfill space required over next 40 years. If capacity provided in part by greenfield landfill located in City, potential for terrestrial / ecosystem impacts could be higher than W12A site, given ecological constraints noted outside core study area.	Following closure all waste from City would be exported to other municipality (most likely large private sector landfill). Since that these landfills need required approvals, potential for impacts to terrestrial / aquatic ecosystems assumed to be same as with continued use of W12A.
Negative	Neutral	Positive	Neutral	Negative	Neutral
Consumption / Preservation of Non-renewable Resources					
Qualitative assessment of potential to increase municipal diversion rate. Qualitative assessment of potential to generate or reduce consumption of non-renewable energy sources.					
Limited potential for increase in residential diversion and no change in IC&I diversion. Potential to reduce consumption of resources and generate or reduce consumption of non-renewable energy sources is very limited. Some opportunity for landfill gas energy development.	Limited potential for increase in residential diversion and no change in IC&I diversion. Potential to reduce consumption of resources and generate or reduce consumption of non-renewable energy sources is very limited. Opportunity for landfill gas energy development for longer period.	City would achieve and maintain 60% diversion rate from 2012 onwards through implementation of source separate organics processing / user pay for waste / expansion of diversion services located at W12A site. Potential to reduce consumption of resources higher, with higher potential to generate energy offsets related to use of recycled materials and potentially through anaerobic digestion of source separated organic materials.	City would achieve and maintain 60% diversion rate from 2012 onwards through implementation of source separate organics processing / user pay for waste / expansion of diversion services located at W12A site. Potential to reduce consumption of resources higher, with higher potential to generate energy offsets related to use of recycled materials and potentially through anaerobic digestion of source separated organic materials. Development of Eco-industrial park could further increase resource recovery. Opportunities for district heating systems.	Minor increase in residential diversion to 40% and no change in IC&I diversion. Potential to reduce consumption of non-renewable energy sources very limited. Limited, or no opportunity for landfill gas energy development.	Minor increase in residential diversion to 40% and no change in IC&I diversion. Potential to reduce consumption of resources and to generate / reduce consumption of non-renewable energy sources very limited. City would lose opportunity for landfill gas energy development.
Negative	Negative	Positive	Strong Positive	Negative	Negative
OVERALL NATURAL ENVIRONMENT EVALUATION					
Negative	Neutral	Positive	Positive	Negative	Positive

Table 4.2 - Social / Cultural Evaluation						
RATING						
Strong Positive	Positive	Neutral	Negative	Strong Negative		
Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco-park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used	Option 7: Accelerated Diversion - Maximize Site Life
Detail: use existing landfill capacity, no expansion of public services, new greenfield landfill required	Detail: Expand landfill, enhance some disposal related secondary uses	Detail: Develop Integrated Resource Recovery Centre on-site, focus on recovery of materials and energy, smaller landfill expansion required	Detail: Develop Eco-industrial Park associated with on-site Resource Recovery Activities, smaller landfill expansion required	Detail: Close W12A Landfill in 2006, no expansion of public services, new greenfield landfill or export contract required	Detail: use existing landfill capacity, no expansion of public services, following closure of landfill export waste to another municipality	Detail: Accelerated diversion and ban IC&I waste from landfill to increase life of W12A landfill
Land Use Change						
Change in use of agricultural lands to other land uses.						
No expansion of landfilling or diversion activities at W12A, and thus no change in use of agricultural lands within core study area for waste management purposes. greenfield landfill required which would most likely be sited on agricultural lands located elsewhere within City. No apparent land use conflicts between W12A site and surrounding agricultural operations, but not certain that site with similar characteristics could be found within City.	Existing landfill would be expanded onto adjacent Class 1 agricultural land. No apparent land use conflicts between W12A site and surrounding agricultural operations, and not anticipated that expansion of landfill would create significant land use constraints (ie. traffic, soil contamination, water usage).	Smaller landfill expansion onto adjacent Class 1 agricultural land, coupled with use of agricultural lands for integrated resource recovery centre. No apparent land use conflicts between W12A site and surrounding agricultural operations. Since less land converted from agricultural use, this option has potential for less land use change impacts.	Smaller landfill expansion onto adjacent Class 1 agricultural land, coupled with use of agricultural lands for integrated resource recovery centre and Eco-industrial Park. No apparent land use conflicts between W12A site and surrounding agricultural operations. Since less land would be converted from agricultural use, this option has potential for less land use change impacts.	Closure of W12A in 2006 would result in City exporting +150,000 tonnes of waste annually out of City for disposal. Assuming status quo, over 9 million tonnes (10 million cu/m) of landfill space required over next 40 years. If capacity were provided in whole or in part by greenfield landfill located in City, this option would have as great or greater potential to change land use as generally agricultural lands are suitable for landfill siting.	No expansion of waste management activities at W12A, and upon closure of site in approx. 15 yrs, in the order of 150,000 tonnes per year of waste would be exported to landfills outside City. These landfills would generally be sited within areas of predominantly agricultural land-use, and would be expected to have same potential for change in land use as options that rely on expansion of W12A.	Smaller landfill expansion necessary, but new diversion facilities including facility to process source separated organics would be located within core study area. Wind turbine farm proposed as part of option. No apparent land use conflicts between W12A landfill site and surrounding agricultural operations. Since least amount of land converted from agricultural use with this option, it has potential for less land use change impacts.
Negative	Neutral	Neutral	Neutral	Negative	Neutral	Positive
Land Use Compatibility						
Qualitative assessment of the type and degree of potential nuisance impacts of noise, dust, odour and litter based on operational experience. The number of sensitive land uses in proximity to the core area.						
Potential for nuisance impacts related to noise, dust, odour and litter would remain equivalent to that experienced from current operations, except that improvements to gas management system are expected to reduce potential for odour impacts. Most sensitive land uses are 9 "estate residential" and farm residential dwellings identified within the core study area. 87 residential dwellings and institutional/recreational landuses (8) located within total study area would be next sensitive land uses.	Expansion of landfill would be expected to include mitigative measures to reduce nuisance impacts. Significant landfill expansion expected to reduce total amount of buffer lands located between landfill site and sensitive land uses, particularly estate / farm dwellings located to north of site. Prevailing wind directions / good operational practices should prevent increase in potential for nuisance impacts.	Smaller landfill expansion necessary, but new diversion facilities including facility to process source separated organics would be located within core study area. Increased potential for nuisance impacts associated with processing of organics, notwithstanding use of in-vessel facility for high-rate phase of composting. Wind turbines would have to be carefully located to address potential for noise impacts.	Smaller landfill expansion necessary, but new diversion facilities including a facility to process source separated organics would be located within the core study area, as well as Eco-industrial park. Increased potential for nuisance impacts associated with processing of organics, notwithstanding use of in-vessel facility for high-rate phase of composting. Wind turbines need to be carefully located to address potential for noise impacts. Noise, dust and litter impacts could be associated with Eco-industrial park.	W12A landfill closure would reduce the potential to impact on adjacent landuses. However, waste would have to be transferred / hauled outside of City for disposal and / or new greenfield landfill would be required for facilities can have dust, odour, noise and litter issues, and host community for landfill receiving exported waste can be affected by the haul traffic.	Would remain equivalent to current operations, with exception that improvements to leachate management system are expected to reduce potential for odour impacts. However following closure of W12A, waste from City would have to be transferred/hauled outside of City for disposal and / or new greenfield landfill would be required for disposal. Transfer / haul facilities can have dust, odour, noise and litter issues, and host community for landfill receiving exported waste can be affected by haul traffic.	Smaller landfill expansion necessary, but new diversion facilities including a facility to process source separated organics would be located within core study area. Increased potential for nuisance impacts associated with processing of organics, notwithstanding use of in-vessel facility for high-rate phase of composting. Wind turbines need to be carefully located to address the potential for noise impacts. Noise, dust and litter impacts could be associated with the Eco-industrial park.
Negative	Negative	Strong Negative	Strong Negative	Neutral	Negative	Strong Negative
Traffic Volume and Pattern Change						
Qualitative assessment of the potential traffic impact.						
No change to traffic associated with W12A landfill. Closure would reduce vehicle trips to site by approximately 400 per day, but traffic impacts would be "moved" to new greenfield site. While roads in the vicinity of W12A landfill have been determined to have sufficient reserve capacity to accommodate traffic (Wellington Rd. may require widening in future) it is not possible to predict impact that new landfill would have elsewhere in City.	Expansion of landfill would result in continuation of landfill traffic to site, escalating over time as potential tonnages increase. Roads in vicinity of the W12A landfill have been determined to have sufficient reserve capacity to accommodate traffic (Wellington Rd may require widening in the future).	Smaller landfill expansion necessary, but new integrated resource recovery centre could increase traffic flow to site, particularly if new Materials Recycling Facility were located at W12A.	Smaller landfill expansion necessary, but new integrated resource recovery centre could increase traffic flow to site, particularly if new Materials Recycling Facility were located at W12A. Eco-park component would also increase potential for traffic impacts.	W12A closure would result in City exporting +150,000 tonnes of waste per year from City for disposal. Potential for traffic impacts would shift to transfer station and haul route out of City. If waste disposed at greenfield landfill within City there may be increased or decreased potential for traffic impact.	No expansion of waste management activities at W12A. Upon closure of site in approx. 15 years, +150,000 tonnes per year of waste would be exported to landfills outside of City. For operating period of W12A, potential for traffic impacts would remain same as present and is unknown as to future potential for traffic impacts. Contingent on transfer / haul component and location of host landfill.	Smaller landfill expansion necessary, but new diversion facilities including facility to process source separated organics located within the core study area. Potential for increases in traffic impacts related to additional traffic to serve both integrated resource recovery centre. Offset by reduced waste and no IC&I waste.
Neutral	Neutral	Negative	Strong Negative	Neutral	Neutral	Neutral
Impact on Archaeological and Built Heritage Features						
Qualitative assessment of the potential impact on significant archaeological or built heritage features.						
Low impact to heritage resources in surrounding area but has potential to create greater impacts with development of new greenfield location.	Only impacts 3290 Manning Drive, which is recommended for controlled demolition	Impacts 3290 Manning Drive and 3713 Scotland Drive. Neither of which are recommended for heritage status. Impacts large area of moderate to high archaeological potential.	Directly impacts five heritage structures, including one recommended for Priority Level 2. Impacts large area of moderate to high archaeological potential.	Low impact to heritage resources in surrounding area but has potential to create greater impacts with development of new greenfield location.	No impacts to heritage resources in surrounding area.	Only impacts 3290 Manning Drive, which is recommended for controlled demolition.
Neutral	Positive	Neutral	Neutral	Neutral	Positive	Positive
Identification of an Alternative Landfill Site in the City						
Qualitative assessment of the ability to locate an alternative site in the City of London.						
New landfill of approx. 5.7 million cu/m. would be required in approx. 15 years. Outside of urban boundary of City, predominantly south of the urban core and south of Hwy 401 that could be examined in an E.A., process to develop new landfill capacity. However, pool of available land is not extensive, and there are constraints regarding the ecology, hydrology, hydro-geology and land use patterns that would make it very difficult to find a site comparable to W12A.	An alternative site in City would not be required.	An alternative site in City would not be required.	An alternative site in City would not be required.	An alternative site for approx. 10 million cu/m. of waste would be required. Possible, but not likely that a site of sufficient size with required parameters could be found within City.	An alternative site in City would not be required. An alternative site would be required outside of the City boundary.	An alternative site in City would not be required.
Negative	Strong Positive	Strong Positive	Strong Positive	Strong Negative	Neutral	Strong Positive
OVERALL SOCIAL / CULTURAL EVALUATION						
Negative	Neutral	Neutral	Neutral	Negative	Neutral	Neutral

Table 4.3 - Technical / Economic Evaluation						
Strong Positive		RATING		Strong Negative		
		Positive	Neutral	Negative		
Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco-park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used	Option 7: Accelerated Diversion - Maximize Site Life
Detail: use existing landfill capacity, no expansion of public services, new Greenfield landfill required	Detail: Expand landfill, enhance some disposal related secondary uses	Detail: Develop Integrated Resource Recovery Centre on-site, focus on recovery of materials and energy, smaller landfill expansion required	Detail: Develop Eco-Industrial Park associated with on-site Resource Recovery Activities, smaller landfill expansion required	Detail: Close W12A Landfill in 2006, no expansion of public services, new greenfield landfill or export contract required	Detail: use existing landfill capacity, no expansion of public services, following closure of landfill export waste to another municipality	Detail: Accelerated diversion and ban IC&I waste from landfill to increase life of W12A landfill
Cost of Waste Management Service to the Taxpayer Potential capital cost range, operational cost range, range of revenues						
Lowest cost disposal option is continued operation of W12A. Closure of W12A would require siting / development of new landfill disposal capacity, at Greenfield site and would increase cost of disposal.	Lowest cost disposal option is continued operation of W12A. Expansion of W12A is most cost effective way of developing new disposal capacity.	Lowest cost disposal option is continued operation of W12A. Expansion of W12A is most cost effective way of developing new disposal capacity. Development of integrated resource recovery centre would increase capital cost of option, but may be more cost effective for operation of processing recyclables over time. City could incur additional development costs associated with Eco-industrial park.	Lowest cost disposal option is continued operation of W12A. Expansion of W12A is most cost effective way of developing new disposal capacity. Development of integrated resource recovery centre would increase capital cost of option, but may be more cost effective for operation of processing recyclables over time.	Lowest cost disposal option is continued operation of W12A. Closure of W12A would require siting / development of new landfill disposal capacity at Greenfield site or transfer / haul and export of waste for disposal that will be more expensive.	Lowest cost disposal option is continued operation of W12A. The transfer / haul and export of waste for disposal will be more expensive.	Lowest cost disposal option is continued operation of W12A landfill. Expansion of W12A is most cost effective way of developing new disposal capacity. Accelerated expansion of diversion programs, coupled with loss of IC&I revenue will escalate net costs for operations at site.
Positive	Strong Positive	Neutral	Neutral	Strong Negative	Negative	Negative
Level of Public Waste Management Service Qualitative assessment of the potential changes to the level of service provided.						
No improvements to level of waste management service offered by City. Closure of W12A and opening of Greenfield landfill elsewhere, may reduce service to some residents if new site is further from population centre of City.	No change either positive or negative to the waste management services offered by the City.	Increased diversion services offered through development of Integrated Resource Recovery Centre. No change to disposal services offered at W12A.	Increased diversion services offered through development of Integrated Resource Recovery Centre. Potential access to new private sector services through the development of the Eco-industrial park.	Potential to reduce services to residents, particularly if no new facilities are developed within City, and waste is exported for disposal elsewhere through private sector transfer facilities.	No change to current services while W12A remains open. Potential to reduce services upon closure of the site particularly if waste is exported for disposal elsewhere through private sector transfer facilities.	Increased diversion services offered through development of Integrated Resource Recovery Centre. If future waste disposal capacity is provided through an expansion of W12A, no disruption in services during 40 year planning period.
Neutral	Neutral	Positive	Strong Positive	Negative	Negative	Positive
Land Availability Existing land acquisition by the City of London and future potential for land acquisition.						
Depends on ability of City to acquire new land elsewhere in City for siting Greenfield landfill site.	City has sufficient holdings in vicinity of W12A to develop this option, but should acquire remaining property within core study area to secure interests at site.	City has sufficient holdings in vicinity of W12A to develop this option, but should acquire remaining property within core study area to secure interests at site.	The City has sufficient holdings in vicinity of W12A to develop this option, but should acquire remaining property within core study area to secure interests at site.	Depends on ability of City to acquire new land elsewhere in City for siting Greenfield landfill site OR upon City securing a long-term contract for disposal capacity.	Depends on ability of City to secure long-term contract for disposal capacity, and not land acquisition. Will require acquisition of land for a waste transfer station.	City has sufficient holdings in vicinity of W12A to develop this option, but should acquire remaining property within core study area to secure interests at the site.
Negative	Positive	Positive	Positive	Negative	Positive	Positive
Changes in Land Value A qualitative assessment of opportunities for compensation to surrounding land owners. High level land value assessment for properties within the core area and the buffer area of the Study area.						
Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use.	Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use.	Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use. Potential impact from higher level of diversion activities which may impact surrounding value with additional waste diversion activities.	Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use. There is potential impact from a higher level of diversion activities which may impact surrounding value with additional waste diversion and eco-industrial activities.	No opportunity for compensation	Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use.	Opportunity for compensation to surrounding land owners. Details regarding potential compensation will be examined. Compensation typically tied to use. Potential impact from higher level of diversion activities which may impact surrounding value with additional waste diversion activities.
Strong Negative	Negative	Negative	Negative	Strong Negative	Neutral	Negative
Potential for Employment Qualitative evaluation of the potential for direct and indirect employment						
Direct and indirect employment would remain at status quo, with exception of capital works associated with development of new Greenfield landfill.	Direct and Indirect employment would remain at status quo, with exception of capital works associated with expansion of W12A.	Increase in direct and indirect employment associated with capital works for Integrated Resource Recovery Centre and expansion of W12A. Addition of organic processing facility and other new diversion components, would increase direct and indirect employment associated with site.	Increase in direct and indirect employment associated with capital works for Integrated Resource Recovery Centre, expansion of the W12A landfill site and development of Eco-industrial park. Addition of organic processing facility and other new diversion components as well as Eco-park, would increase direct and indirect employment associated with site.	Potential to decrease both direct and indirect employment related to waste management activities within City.	Direct and Indirect employment would remain at status quo during the operational period of W12A, and decrease upon closure of landfill.	Increase in direct and indirect employment associated with capital works for Integrated Resource Recovery Centre and expansion of the W12A landfill site. Addition of organic processing facility and other new diversion components, would increase direct and indirect employment associated with site.
Neutral	Neutral	Positive	Strong Positive	Neutral	Neutral	Positive
Potential for New Business Opportunities and Public / Private Partnerships Qualitative evaluation of the potential for business opportunities related to the development and operation of landfill system components. Qualitative assessment of the interest by the waste management sector to partner with the City.						
Little potential for business opportunities related to development and operation of landfill system components during operating period of W12A, with exception of potential partnerships to develop new landfill capacity and to develop landfill gas utilization plant for site.	Little potential for business opportunities related to development and operation of landfill system components during operating period of W12A, with exception of potential partnerships to expand landfill and to develop landfill gas utilization plant for site.	Greater potential for partnerships with private sector in development of Integrated Resource Recovery Centre. Experience in Ontario indicates private sector is very interested in pursuing municipal partnerships to develop recycling and organics processing facilities.	Greater potential for partnerships with private sector in development of Integrated Resource Recovery Centre. Experience in Ontario indicates private sector is very interested in pursuing municipal partnerships to develop recycling and organics processing facilities. Additional potential for business opportunities associated with development of Eco-industrial park.	With closure of W12A in 2006 there is little potential for partnerships.	There is little potential for business opportunities during operating period of W12A, with exception of developing landfill gas utilization plant for the site.	Greater potential for partnerships with private sector in development of Integrated Resource Recovery Centre. Experience in Ontario indicates private sector is very interested in pursuing municipal partnerships to develop recycling and organics processing facilities.
Neutral	Neutral	Positive	Strong Positive	Negative	Strong Negative	Positive
OVERALL TECHNICAL / ECONOMIC EVALUATION						
Neutral	Neutral	Positive	Positive	Negative	Negative	Neutral

Table 4.4 - Regulatory / Legal and Administrative Evaluation						
RATING						
Strong Positive	Positive	Neutral	Negative	Strong Negative		
Option 1: Status Quo	Option 2: Expand Landfill	Option 3: Develop Integrated Resource Recovery Centre	Option 4: Develop Industrial Eco-park	Option 5: Close W12A Landfill Site on August 31, 2006	Option 6: Export garbage to other Municipality after existing capacity used	Option 7: Accelerated Diversion - Maximize Site Life
Detail: use existing landfill capacity, no expansion of public services, new Greenfield landfill required	Detail: Expand landfill, enhance some disposal related secondary uses	Detail: Develop Integrated Resource Recovery Centre on-site, focus on recovery of materials and energy, smaller landfill expansion required	Detail: Develop Eco-industrial Park associated with on-site Resource Recovery Activities, smaller landfill expansion required	Detail: Close W12A Landfill in 2006, no expansion of public services, new greenfield landfill or export contract required	Detail: use existing landfill capacity, no expansion of public services, following closure of landfill export waste to another municipality	Detail: Accelerated diversion and ban IC&I waste from landfill to increase life of W12A landfill
Consistent with the Provincial Policy Statement 2005						
Not consistent with policies regarding providing for future waste	Accomplishes goal of providing for future waste, but does not encourage and promote reduction, reuse, and recycling	Provides for future waste through limited expansion, and large-scale initiatives aimed at diversion of landfill material	Provides large-scale initiatives aimed at diversion and reuse of landfill material; Impacts on agricultural land offset by benefits to natural environment / economic prosperity of community	Not consistent with policies regarding providing for future waste requirements	City provides for future waste requirements, but not in manner that promotes reduction, reuse, recycling, nor has regard for natural heritage	Encourages and promotes reduction, reuse, recycling; does not provide for long-term future waste/IC&I requirements
Conformity to the Official Plan	Neutral	Strong Positive	Strong Positive	Strong Negative	Negative	Positive
Not consistent with policies regarding providing for future waste; No exploration of new technologies to reduce, reuse, recycle landfill destined materials	Accomplishes goal of providing for future waste, but does not address goals and objectives of encouraging and promoting reduction, reuse, and recycling	Addresses all waste reduction goals and objectives	Addresses all waste reduction goals and objectives	No consideration to waste recovery through new technology; Short-term consequences regarding provision of land for future waste	Contrary to City's objective to provide for City solid waste, contrary to goals looking at ways to reduce, reuse, and recycle waste	Encourages and promotes reduction, reuse, recycling; Prolongs landfill use; Does not provide for long-term future waste/IC&I requirements
Implementation of Zoning, Site Plan Approval and Subdivision Requirements	Neutral	Strong Positive	Strong Positive	Strong Negative	Negative	Positive
No changes required to current regulations	Expansion will trigger regulatory measures, possibly leading to increased safeguards and design which mitigates environmental and surrounding land use concerns	Expansion will trigger regulatory measures, possibly leading to increased safeguards and design which mitigates environmental and surrounding land use concerns	Full development of core study area would allow for maximum improvements to lands and surrounding roads/public works	Minimal changes to regulations to reflect revised land use standards for closed waste disposal site	No changes required during lifetime of landfill; would be followed by minor changes to update status of lands as closed waste disposal site	No changes to continued operation as landfill site; This option may involve off-site developments.
Policy Impacts Outside of the Core Planning Area	Neutral	Positive	Positive	Neutral	Neutral	Neutral
No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary	No expected change in land use in surrounding areas due to location outside Urban Growth Boundary
Land Use Planning, Engineering, and Environmental Assessment Approvals	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Majority of EA Approvals granted for new landfill disposal capacity in Ontario, have been for expansions / alterations of existing disposal facilities. EA approval for new landfill facility, without significant expansion of diversion programs would have less likelihood of approval.	Majority of EA Approvals granted for new landfill disposal capacity in Ontario, have been for expansions / alterations of existing disposal facilities. EA approval for expansion of W12A, without significant expansion of diversion programs would have less likelihood of approval.	Majority of EA Approvals granted for new landfill disposal capacity in Ontario, have been for expansions / alterations of existing disposal facilities. EA approval for smaller expansion of W12A, coupled with significant expansion of diversion programs has greater likelihood of approval.	Majority of EA Approvals granted for new landfill disposal capacity in Ontario, have been for expansions / alterations of existing disposal facilities. EA approval for smaller expansion of W12A, coupled with significant expansion of diversion programs has greater likelihood of approval.	Dependent upon host facility (municipal / private contractor) having requisite approvals to dispose City's waste for next 40 years or new greenfield location. EA approval for new landfill facility, without significant expansion of diversion programs would have less likelihood of approval.	Does not involve development of disposal capacity within City. Dependent upon host facility (municipal / private contractor) having requisite approvals to dispose City's waste for over 20 years.	Majority of EA Approvals granted for new landfill disposal capacity in Ontario, have been for expansions / alterations of existing disposal facilities. EA approval for much smaller expansion of W12A, coupled with significant expansion of diversion programs has greater likelihood of approval.
Strong Negative	Negative	Positive	Positive	Strong Negative	Negative	Positive
OVERALL REGULATORY / LEGAL AND ADMINISTRATIVE EVALUATION						
Negative	Neutral	Positive	Positive	Negative	Negative	Positive

APPENDIX 5

MATRIX - LANDFILL EVOLUTION OPTIONS AND COMPONENTS

MATRIX OF COST ASSUMPTIONS

Matrix of Landfill Evolution Options and Components

Landfill Evolution Components															
Landfill Evolution Options	Disposal						Disposal Related Secondary Uses				Resource Recovery				
	Existing Landfill for 15 to 26 years	Landfill Expansion	Mechanical / Biological Processing	Thermal Processing	New Greenfield Landfill	Contract to Export Waste	Existing Public Drop-off Depot	Expanded Public Drop-off / Community Recycling Centre	Landfill Gas Collection	Leachate Collection and On-site Treatment Facility	Yard Waste Composting Facility	Material Recovery Facility (Recycling Processing)	Construction and Demolition Waste Processing Facility	In-vessel Composting Facility	Household Special Waste Facility
Option 1: Status Quo Detail: use existing landfill capacity, no expansion of public services, new Greenfield landfill required	✓				✓		✓		✓	✓					✓
Option 2: Expand Landfill Detail: Expand landfill, enhance some disposal related secondary uses	✓	✓					✓	*	✓	✓					✓
Option 3: Develop Integrated Resource Recovery Centre Detail: Develop Integrated Resource Recovery Centre on-site, focus on recovery of materials and energy, smaller landfill expansion required	✓	✓	*	*				✓	✓	✓	■	■	*	■	✓
Option 4: Develop Industrial Eco-park Detail: Develop Eco-industrial Park associated with on-site Resource Recovery Activities, smaller landfill expansion required	✓	✓	*	*				✓	✓	✓	■	■	*	■	✓
Option 5: Close W12A Landfill Site on August 31, 2006 Detail: Close W12A Landfill in 2006, no expansion of public services, new greenfield landfill or export contract required					✓	✓			✓	✓					
Option 6: Export the garbage to another Municipality after existing capacity used Detail: use existing landfill capacity, no expansion of public services, following closure of landfill export waste to another municipality	✓					✓	✓		✓	✓					✓
Option 7: Look at aggressive diversion of household waste Detail: Aggressive diversion and ban IC&I waste from landfill to increase life of W12A landfill	✓	✓	*	*				✓	✓	✓	■	■	*	■	✓



A checkmark indicates those components that are required.



A square block indicates those components that are included as Desirable components.



An asterisk indicates those components that may be considered as a future component.

Matrix of Landfill Evolution Options and Cost Assumptions for Major New Elements to the Systems

Note: costs for elements that are Common across all systems are not included.

Includes Annual Cost per Tonne (both capital and operating), and total new Capital costs

Landfill Evolution Components																			
Landfill Evolution Options	Disposal						Disposal Related Secondary Uses					Resource Recovery					Green Energy		Other Secondary Uses
	Existing Landfill for 15 to 20 years	Landfill Expansion	Mechanical/Biological Processing	Thermal Processing	New Greenfield Landfill	Contract to Export Waste	Existing Public Drop-off Depot	Expanded Public Drop-off / Community Recycling Centre	Landfill Gas Collection	Leachate Collection and On-site Treatment Facility	Yard Waste Composting Facility	Material Recovery Facility (Recycling Processing)	Construction and Demolition Waste Processing Facility	In-vessel Composting Facility	Household Special Waste Facility	Landfill Gas Utilization	Wind Turbine Farm		
Option 1: Status Quo	\$25 - \$30 per tonne				\$ 40 - \$50 per tonne		No change to current cost to City		Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems					No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital over 15 - 20 years. \$250,000 - \$350,000 annual operating cost			
Option 2: Expand Landfill	\$25 - \$30 per tonne	\$ 30 - \$35 per tonne					No change to current cost to City	\$ 500,000 - \$1 million in new capital, \$50 - \$70 per tonne	Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems					No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital staged over 15 - 20 years. \$250,000 - \$350,000 annual operating cost			
Option 3: Develop Integrated Resource Recovery Centre	\$25 - \$30 per tonne	\$ 30 - \$35 per tonne	\$ 70 - \$90 million in new capital, \$85 to \$100 per tonne	\$ 120 - \$130 million in new capital, \$110 - \$130 per tonne				\$ 500,000 - \$1 million in new capital, \$50 - \$70 per tonne	Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$12 to \$15 million in new capital, \$50 to \$65 per tonne	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$ 9 - \$11 million in new capital, \$90 - \$110 per tonne	No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital over 15 - 20 years. \$250,000 - \$350,000 annual operating cost	Variable depending on wind capability and form of contractual arrangement.		
Option 4: Develop Industrial Eco-park	\$25 - \$30 per tonne	\$ 30 - \$35 per tonne	\$ 70 - \$90 million in new capital, \$85 - \$100 per tonne	\$ 120 - \$130 million in new capital, \$110 - \$130 per tonne				\$ 500,000 - \$1 million in new capital, \$50 - \$70 per tonne	Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$12 - \$15 million in new capital, \$50 - \$65 per tonne	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$ 9 - \$11 million in new capital, \$90 - \$110 per tonne	No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital over 15 - 20 years. \$250,000 - \$350,000 annual operating cost	Variable depending on wind capability and form of contractual arrangement.	range of capital investment for site works varies, some cost recovery potential	
Option 5: Close W12A Landfill Site on August 31, 2006					\$ 40 - \$50 per tonne	\$65 - \$90 per tonne (depending on transfer/haul options)	No change to current cost to City		Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems					No change to current cost to City. Common to all systems.				
Option 6: Export the garbage to another Municipality after existing capacity used	\$25 - \$30 per tonne					\$65 - \$90 per tonne (depending on transfer/haul options)	No change to current cost to City		Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems					No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital over 15 - 20 years. \$250,000 - \$350,000 annual operating cost			
Option 7: Look at Accelerated diversion of household waste	\$25 - \$30 per tonne	\$ 30 - \$35 per tonne	\$ 70 - \$90 million in new capital, \$85 - \$100 per tonne	\$ 120 - \$130 million in new capital, \$110 - \$130 per tonne				\$ 500,000 - \$1 million in new capital, \$50 - \$70 per tonne	Included in Disposal Cost	20-year Life Cycle costs of \$9.95 million. Common to all Systems	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$12 - \$15 million in new capital, \$50 - \$65 per tonne	\$ 500,000 - \$1 million in new capital, \$50 - \$65 per tonne	\$ 9 - \$11 million in new capital, \$90 - \$110 per tonne	No change to current cost to City. Common to all systems.	\$5 - 10 million in new capital over 15 - 20 years. \$250,000 - \$350,000 annual operating cost	Variable depending on wind capability and form of contractual arrangement.		



The Corporation of the City of London

W12A LANDFILL AREA PLAN

REPORT

OCTOBER 2008



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1. INTRODUCTION

The W12A landfill planning area is located in the south central part of the City (See Map 1). The study area identified in the Terms of Reference includes the block of land bounded by Wellington Road, Manning Drive, White Oak Road and Scotland Drive. These lands are identified as the core area for the Study. The site is located approximately two kilometres south of the urban growth boundary, southeast of the Highway 401 and south of the 401 / Wellington Road interchange.

In order to consider the possible impacts of the existing and landfill area expansion, the study area was expanded to include a buffer area. The buffer area constitutes all land within 1,500 metre around the core area, comprising approximately 2,000 hectares where impacts from existing and future facilities will be considered.

In November 2004, the City of London Planning and Development Department and Environmental and Engineering Services Department brought forward a Draft Terms of Reference to the City of London Planning Committee for consideration. The Terms of Reference were prepared jointly by the two Departments to identify the studies required and the process to be undertaken to provide for the continued evolution of the W12A landfill facility towards an integrated waste management centre. It would use environmentally responsible and sustainable operations to achieve a high standard of compatibility with the environment and the neighbours. This Terms of Reference recognizes the changing nature of landfill operations, the potential to recover materials from landfill sites and potential production of energy from waste.

In May 2005, IBI Group, London office, was retained together with associated firms to undertake this Area Plan Study. The Terms of Reference included completion of a Land Use Study, Agricultural Resources Study and Archaeological Heritage Resources Study. Parallel background studies for W12A landfill, included Natural Heritage Study, Transportation Study, Surface Water Study Hydrology and Hydrogeology Review to be used as background for the Area Plan.

1.1 Area Plan Background

Area planning studies are completed in order to provide a framework for the future development of lands within the City of London. Section 19.2.1 of the Official Plan states that area studies are to function as guideline documents for the review of development applications and for the planning of public facilities and services within the subject area. In the case of the W12A landfill site, the following six purposes were identified in the Terms of Reference.

- 1) Create a Vision and Plan for the long-term future of the W12A landfill and surrounding area. Give full consideration to opportunities and constraints related to long-term development of an Eco-Industrial Park.
- 2) Identify agricultural, cultural and heritage resources within the study area and identify the need for specific archaeological survey requirements.
- 3) Consider and report on land use, agricultural, cultural and heritage and related opportunities and constraints regarding the future expansion of the W12A landfill operations.
- 4) Consider the planning implications on development outside of the study area.
- 5) Prepare the necessary Official Plan policies and guideline documents relating to future growth and evolution of the W12A landfill site.

- 6) Identify and plan for opportunities to minimize and mitigate land use conflicts.

1.2 W12A Landfill History

The purpose of this section is to establish past approvals and agreements applicable to the W12A landfill site. This information is a summary of materials provided for in the Terms of Reference with additional material from the Report by the Greater London Area Arbitrator and the Vision London Infrastructure Plan. The City of London initiated studies to develop a long-term solid waste disposal plan in 1969. The W12A landfill site began operation in 1977. In 1983 the City of London and the Township of Westminster agreed to change the agreement, increasing the life of the landfill site to twenty-nine years unless continued use of the site was considered by the Township.

All of the lands in the former Township of Westminster, including the landfill site, were annexed to the City of London in 1993. The previous agreements are no longer in effect, as the rights and benefits of the Town of Westminster were transferred to the City.

In 1991, the Province of Ontario appointed an arbitrator in response to a request by the City of London for annexation of additional lands. The Arbitrator's report makes specific reference that large jurisdictional areas are necessary for effective and comprehensive planning. The report specifically references London's landfill site as the region's most desirable location. "The areas immediately adjacent to the present site are probably suitable for an additional landfill site. So with proper development, this can become a resource that contributes to the economic growth of the entire region." (Page 6, Greater London Area Arbitrator Report) This report identifies that the City of London, being the primary urban centre, requires access to a significant landfill site with expansion capacity, for city growth and economic development.

In 1995, the London-Middlesex Waste Management Plan, a cooperative project of the City of London and the County of Middlesex was initiated. The Plan is being developed to ensure that environmentally sound and economically integrated waste management system is in place to serve the needs of the City and the County for a twenty-five to forty year period. In December 1997, City of London Council approved a long-term waste management strategy known as the continuous improvement system. Phase II of this strategy focuses on the long-term disposal component of the overall plan. The expansion of the W12A landfill has always been considered one of the options being considered under the London-Middlesex Waste Management Plan.

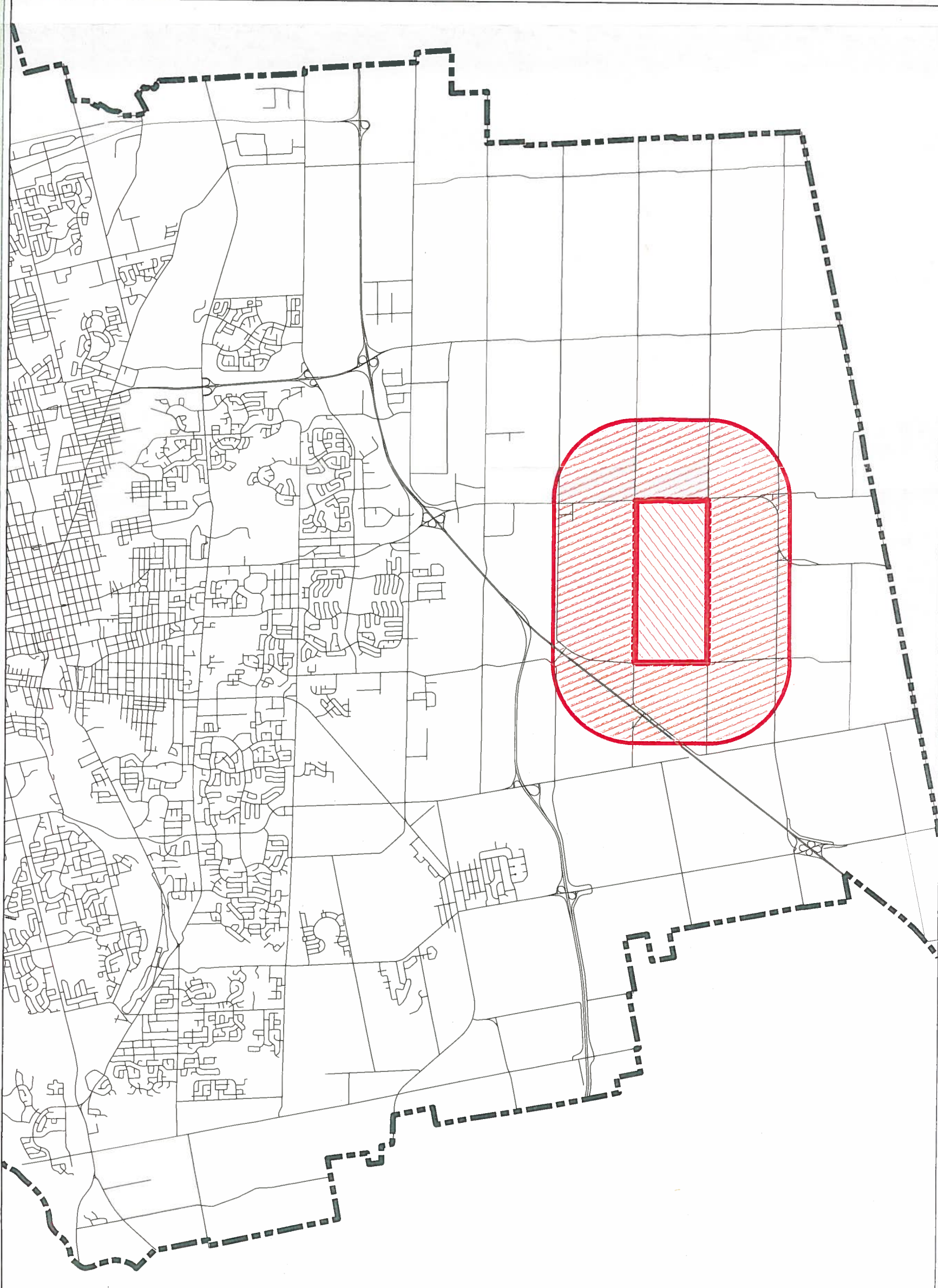
As part of the London-Middlesex Act 1992, the W12A landfill site was annexed into the City of London on January 1, 1993. This legislation required the City to undertake a new Official Plan for the entire annexed area in order to establish new land use policies. As a result of the annexation legislation, the City undertook land use planning studies as part of a broader strategic planning program named "Vision 96". These Official Plan background studies addressed future land uses, transportation infrastructure, and natural heritage including the significance of the W12A landfill site. The recommendations of these background reports were implemented through the policies adopted in Official Plan Amendment #88.

One of the Vision 96 background studies prepared for the Land Use Plan was the Infrastructure Plan completed in June 1996. The direction for the future of London is based on "a City that works". The Vision is stated as follows:

"We are a community which provides a well-built and maintained infrastructure (i.e.: gas, hydro, sewage and water system; telecommunications; parks and recreation facilities; transportation; and waste management). It is responsive to our changing way of life, our economy and our environment." (Page 3).

W12A Landfill Area Plan Study

LOCATION MAP



Section 9 of the Infrastructure Background Study recognizes solid waste as a priority for the provision of an economical, efficient and reliable and environmentally sound system of programs, policies and facilities to reduce and control waste generation. The W12A Landfill Area Study is deemed by Council as an important land use planning initiative to secure future landfill and waste management infrastructure in the City.

2. LAND USE POLICY AND REGULATION CONTEXT

2.1 Provincial Policy Statement 2005

There are three areas of the Provincial Policy Statement 2005 (PPS) that will be considered relative to this Area Plan. The first policy looks at the future of waste management systems; the second considers the Ontario land use planning system vision; and the third addresses potential impacts on other land use features. The Provincial Policy Statement is "a policy-led system which recognizes and addresses the complex interrelationships among environmental, economic and social factors in land use planning." (PPS p.1)

2.1.1 WASTE MANAGEMENT SPECIFIC POLICIES

The PPS identifies waste management as an infrastructure necessary for the long term prosperity of the municipality through Policies 1.6.8 Waste Management and 1.7.1 Long-Term Economic Planning. It is interpreted to mean that each municipality will provide facilities and services to accommodate their current and future waste management needs. The definition of waste management systems is broad including sites and facilities for the processing and landfilling of solid waste. Review of existing landfill capabilities, long-term expansion and provision of ancillary recycling operations will be a key consideration of the study. This PPS policy review is provided in more detail in the Land Use Background Study.

The definitions of waste management and infrastructure provide an opportunity for the City to consider additional land uses as consistent with the PPS. The uses include processing of solid waste which extends beyond the traditional forms of landfill and diversion. The definition of infrastructure emphasizes the importance of infrastructure as a foundation for new development.

Waste management systems: means sites and facilities to accommodate solid waste from one or more municipalities and includes land fill sites, recycling facilities, transfer stations, processing sites and hazardous waste depots.

Infrastructure: means physical structures (facilities and corridors) that form the foundation for development. Infrastructure includes: sewage and water systems, septage treatment systems, waste management systems, electric power generation and transmission, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities.

These definitions recognize opportunities for landfill sites to evolve and change the perspective of waste from the landfill material to a resource input for further waste processing.

2.1.2 VISION FOR ONTARIO'S LAND USE PLANNING SYSTEM

Part IV of the Provincial Policy Statement creates the context for land use planning in the Province. It is intended to set out overarching policy direction for individual municipalities. Three key excerpts from the Vision are as follows:

The long-term prosperity and social well-being of Ontarians depend on maintaining strong communities, a clean and healthy environment and a strong economy.

Efficient development patterns optimize the use of land, resources and public investments in infrastructure and public service facilities.

The Province's natural heritage resources, water, agricultural lands, mineral resources and cultural heritage and archaeological resources provide important environmental, economic and social benefits. The wise use and management of these resources over the long term is a key provincial interest.

The future evolution of the landfill area to incorporate a range of waste management activities will help to support the City's long term prosperity with an accessible and efficient form of waste management for the City of London. An efficient use of the site for landfill, recycling or processing of waste will optimize the use of this infrastructure. This use must be balanced with the need to consider the features on and surrounding the site to ensure there is wise use and management of the surrounding resources.

By applying this Vision to the W12A Area Plan Study, the PPS establishes the following principles:

- A waste management system should be designed to maintain a clean and healthy environment;
- A waste management system should be efficient in its use of land and investment in public infrastructure; and
- A waste management system should promote the wise use and management of identified resources on site and consider the impacts on the surrounding areas.

2.1.3 POLICIES APPLICABLE TO RESOURCES

The Provincial Policy Statement includes a number of policies related to the protection of resources including water, agricultural land, natural heritage features and archaeological resources. In developing the land use plan these policies must be considered where there is an expansion or new development of the site.

Policy 2.2.1 of the PPS sets out measures to protect water quality both surface and groundwater. Previous water resources studies supported a landfill site at this location. Water resource study updates for this Area Plan include the surface water background study and hydrogeological background study. These studies identify that surface and groundwater characteristics can accommodate the expansion of the landfill and other waste management functions. Recommended detailed studies and implementation measures will be undertaken through the approval process consistent with the Provincial Policy Statement.

The Provincial Policy Statement in Section 2.3.5 discourages the removal of prime agricultural areas from agricultural production. As part of the background study analysis the Consultants have considered these policies and provide the following conclusions:

- The landfill and Integrated Resource Recovery Centre is a limited non-residential use needed for the City of London over the City's planning horizon. Consideration was given to locating the landfill site within the urban growth boundary assuming a new greenfield waste management facility of 160 hectares, plus a minimum 1.5 kilometres setback from the edge of the landfill to the nearest residential designation. Based on this criteria and subsequent

analysis, there are no suitable locations for a landfill within the urban growth boundary.

- The Study has considered whether there are reasonable landfill alternative locations in prime agriculture areas with lower priority land classification. Based on the review of the Canadian Land Inventory Soils Mapping, in the agricultural area, the core area lands have the lowest proportion of Class 1 Lands and the highest proportion of Class 3 Lands due to topographic constraints. Based on this review there are no reasonable alternatives in the agricultural designation with lower priority agricultural lands.
- Consideration was given to impacts of the landfill to any new or expanding livestock operations. The landfill is not sensitive to the odour generated by livestock operations because it creates its own odour. Therefore it will not impact new or expanding livestock operations for a required minimum distance separation to mitigate livestock odours.

Policy 2.1.1 Natural Features and Area policies of the PPS have identified the need to protect natural features and areas for the long term. As part of the background study the City conducted an ecological resources and natural heritage study for the core and buffer areas. The Study concluded the Shore drain was the only natural heritage feature of significance within the core area and that further expansion of the landfill within the core area had sufficient land area to recognize the drain and be consistent with the PPS.

Policy 2.6 sets out criteria to protect archaeological resources. Archaeological resources were evaluated for the core and buffer area. Based on the background study there were no identified archaeological resources in the core area. Prior to development or expansion of the landfill a Stage 2 Archaeological Assessment should be conducted on the lands for expansion. It was recommended that further buffering be considered for the existing built heritage dwellings within the buffer area.

Based on the review of the applicable PPS policies, an Official Plan amendment to allow the expansion of the land fill and a broader range of waste management use at this location is consistent with the Provincial Policy Statement 2005.

2.2 Official Plan Policies

The following section provides an overview of the text and mapping as it applies to both the core area and buffer area for the Area Plan Study. It provides an overview of the applicable general land use policies and policies for specific areas as it applies to the landfill. Waste management policies support the need for the City to manage its' own solid waste through a variety of methods including landfill. The Official Plan has strong policies to maintain the agricultural characteristics of the surrounding area and as a result there has been no new non-farm residential development in proximity to the landfill site for some time.

2.2.1 WASTE MANAGEMENT POLICIES

The Official Plan sets out policies to direct the distribution of land uses in the City of London. Specifically Section 2.9.3 xviii) sets out policies for waste reduction by the City of London. This policy says the City shall support reduction, reuse, recycling and recovery of materials from waste. This includes developing a long term strategy to recycle and recover materials from waste and consider technologies for the use and / or disposal of waste.

Section 17.1.3 – Solid Waste Management objective identifies the need to provide for disposal of solid waste materials at acceptable locations and in a manner that will minimize negative impacts on the environment and surrounding land uses.

Together these two policies establish the framework in which the Area Study was initiated and considered for future land use evaluation.

Section 17.4 – Operating and Closed Landfill Sites sets out policies for existing and future landfill sites including the W12A site. It requires that the Environmental Assessment Act and Environmental Protection Act must be considered for the expansion or alternative siting of landfill sites in the City. Any new landfill sites must be approved through an amendment to the Official Plan.

Additional policies for alternative waste management and treatment facilities are found in Section 17.5. This section encourages cost effective alternative methods of disposing of or utilizing solid waste including recycling, reduction, recovery and reuse. The location of such facilities including major waste transfer stations will only be permitted in the General Industrial land use designation; require an amendment to the zoning by-law and require the approval from the Ministry of the Environment. These sites must also be planned, designed and operated and maintained in such a way to promote compatibility with adjacent existing land uses and to minimize any adverse impacts on the natural environment and surrounding areas.

The W12A landfill site is designated agriculture in the Official Plan. In addition to the designation the lands are subject to Policy for Specific Areas in Section 10.1.3 xliii) which allows a municipal waste disposal facility on Part Lots 18, 19 and 20, Concession 6 in the former geographic Township of Westminster.

2.2.2 OFFICIAL PLAN SCHEDULE 'A' – LAND USE

The Agricultural designation covers just over 90% of the Study Area. While the W12A Landfill is permitted in the Agriculture designation as a Specific Area Policy, the remainder of the core Study Area is designated Agriculture as shown on Map 2 an excerpt from Schedule 'A' Land Use Plan. The main objectives of the Agriculture designation are to protect agricultural resources; maintain the viability of farming as part of London's economy; minimize the loss of agricultural land and lot fragmentation; and to prohibit the introduction of land uses that are incompatible with farming.

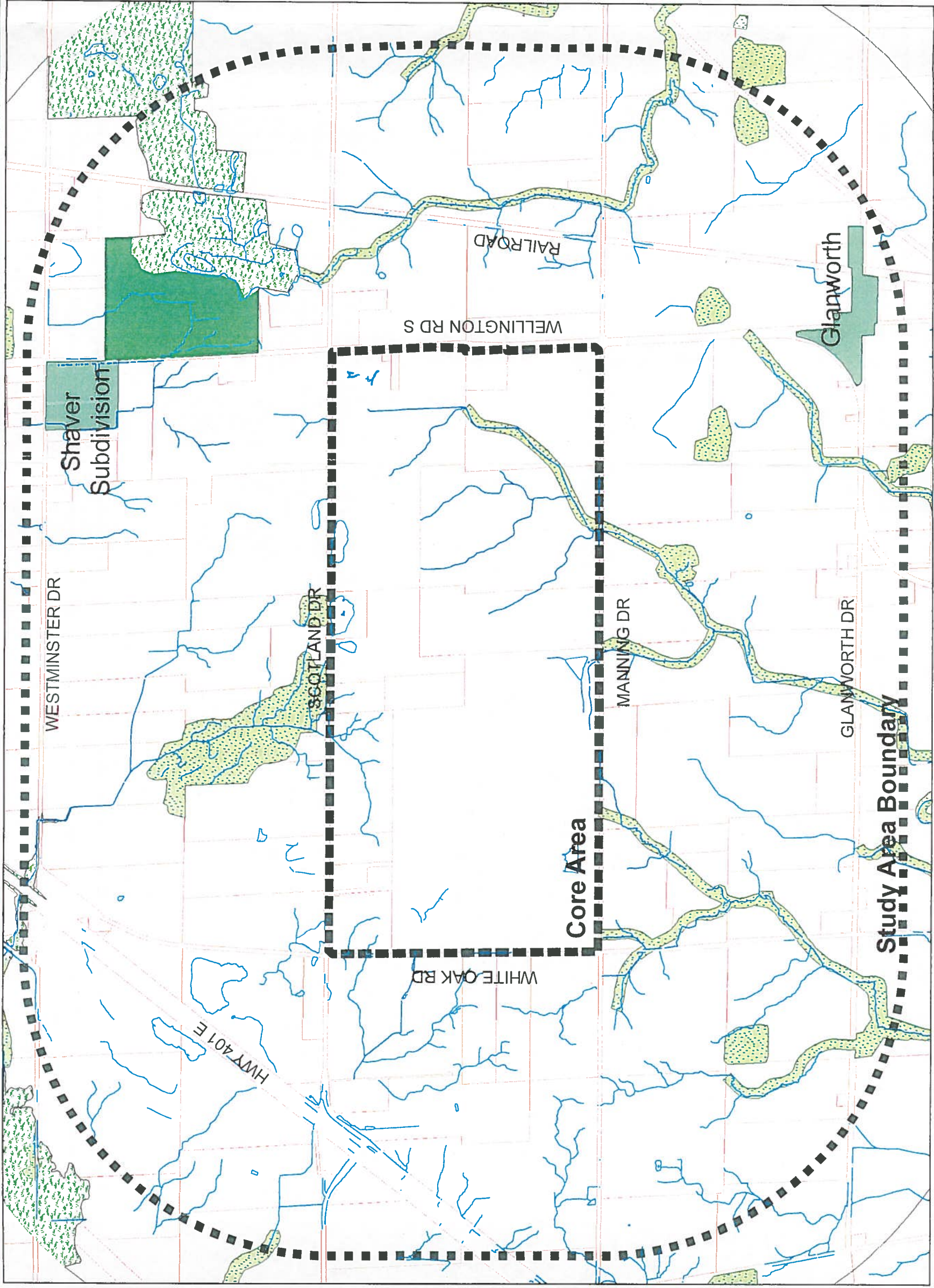
Permitted Uses in the Agriculture designation include a full range of farming uses, a farm residence, home occupations, secondary farm occupations, and secondary uses including secondary farm dwellings, agriculturally-related commercial and industrial uses, public open space and conservation uses, public utilities, and storm water management facilities. These lands are not intended to be serviced by municipal water or sanitary sewage facilities, and it is the City's intent to protect these lands in the long-term for agricultural purposes, and prohibit activities that will inhibit agricultural uses.

The Environmental Review designation shown on Map 2 includes a small area along the Shore drain in the southeast portion of the core area. There are a number of other areas in the buffer area that are also identified as Environmental Review. The intent of the Environmental Review designation is to protect the features and functions of these natural areas until such time as their significance is determined by more detailed studies during the area planning process. If these areas are deemed significant, they would be designated as Open Space in the Official Plan.

While there are no "Community Facility" designations within the core area, there is a 33 hectare designation on the east side of Wellington Road, north of Scotland Drive. This particular designation recognizes Regina Mundi Secondary School and the London District Catholic School Board offices.

W12A Landfill Area Plan Study

Schedule A to the City of London Official Plan - Land Use



Legend

- Agriculture
- Community Facility
- Open Space
- Rural Settlement
- Environmental Review

BASE MAP FEATURES

- Study Area
- Rivers/Streams
- Streets / Roads



0 250 500 1,000
Meters

SCALE 1:20,000
September 19, 2008

MAP 2



IBI
GROUP

The "Rural Settlement" designation recognizes existing small communities within the agricultural areas surrounding urban areas of London. This designation provides policies which allow for residential, commercial, and industrial opportunities within these areas relieving pressure for development in the "Agriculture" designation. There are two (2) separate designations located in the buffer area. The Glanworth settlement area is a cluster of mixed land uses located southeast of the core area at the intersection of Wellington Road and Glanworth Drive. The second area is the Shaver subdivision, comprised of a residential subdivision located northeast of the core area. Each designation is approximately 11 hectares each in area.

The "Open Space" designation is applied to lands that are used as park space or are to be maintained in their natural state. The "Open Space" designation applies to a 48 hectare area to the south of Regina Mundi Secondary School. This area is part of the Kirk Cousins Wetland Environmentally Significant Area.

2.2.3 OFFICIAL PLAN, SCHEDULE 'B' FLOODPLAIN AND ENVIRONMENTAL FEATURES

Based on the natural heritage study and the land use survey work there are no environmentally significant areas or potentially significant areas within the core area. The only natural feature is a watercourse being the Shore Drain (floodplain) as shown on Map 3. In addition to this feature, approximately 25.6 hectares of the core area are subject to fill-line regulations.

With respect to the buffer area there is an established environmentally significant area being a Class 1 to 3 Wetlands known as the Kirk Cousins Wetland Environmentally Significant Area (27.8 ha) wetland located approximately two kilometres northeast of the existing landfill site. There is no anticipated impact between the proposed landfill activities and the significant area.

2.2.4 TRANSPORTATION POLICIES

All roads surrounding the core area are classified as arterial roads on Schedule 'C' – Transportation Corridors in the Official Plan. Arterial roads are intended to serve high volumes of intra-urban traffic (two to six lanes) at moderate speeds (50 to 80 km/h) with limited property access. Road allowances for arterial roads range from 26 metres to 60 meters in width depending on the number of lanes. There are no limitations on the types of vehicles expected to use arterial roads. Where arterial roads intersect with one another such intersections are intended to be at grade and may provide for traffic signalization.

2.2.5 OFFICIAL PLAN CONCLUSION

Based on the review of the Official Plan policies the predominant Agriculture land use designation in the study area will remain for the long term. There are no significant environmental areas designated within the core area. An existing wetland is designated Environmentally Significant Area in the buffer area. The Official Plan policies are consistent with the Provincial Policy Statement and set out appropriate criteria to designate expansion of the landfill site subject to approval of the Ministry of the Environment and the Environmental Assessment processes.

2.3 Zoning By-law Regulations

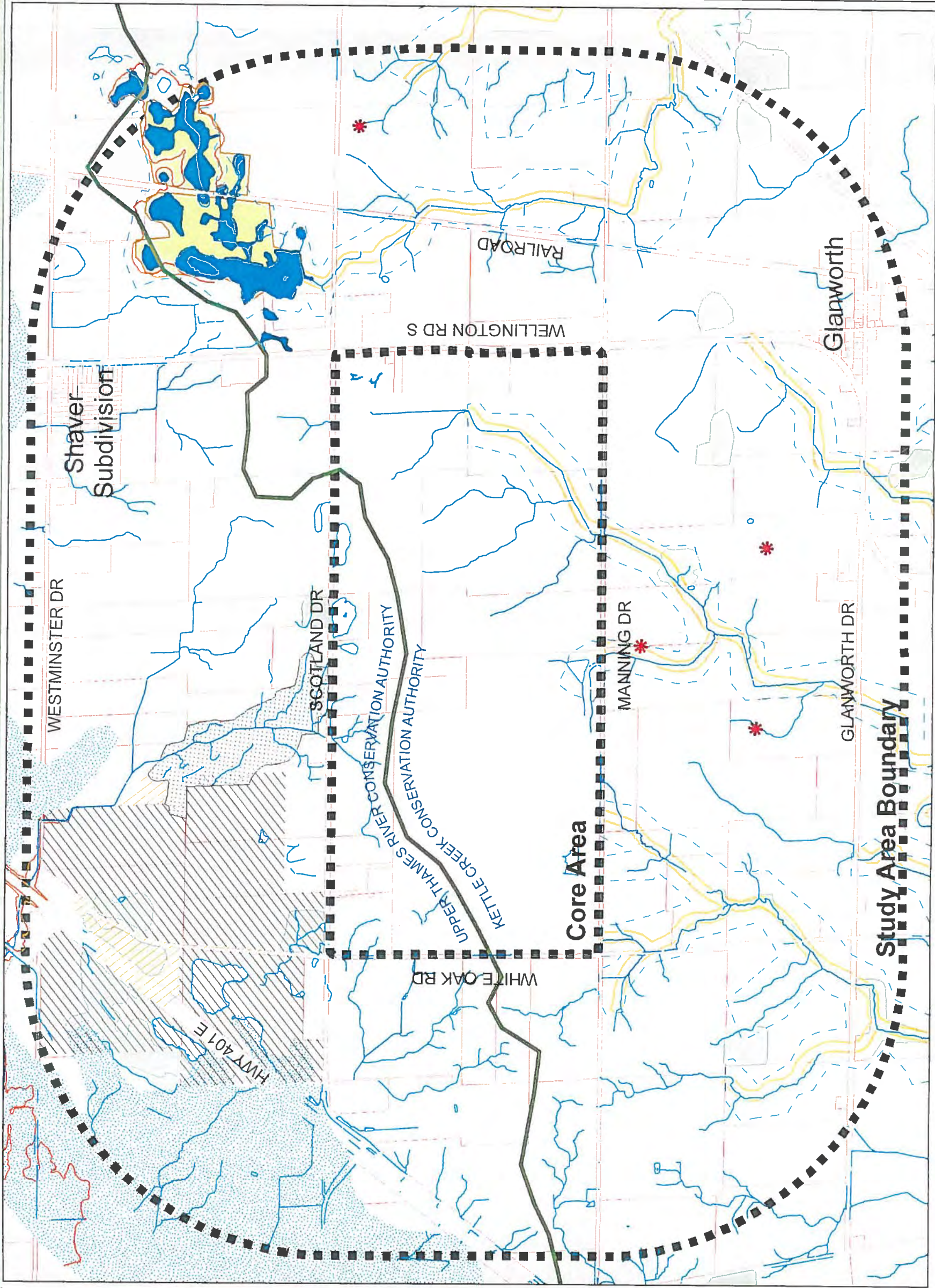
The predominant Study Area zone in the Annexed Area Zoning By-law is the Agricultural (AG2) zone, which provides for a full range of agricultural land uses including the raising and keeping of livestock. This zoning is consistent with the previous agricultural zoning in the former Town of Westminster Zoning By-law. A site specific zoning applies to the W12A site which permits a "municipal waste disposal facility" in addition to the full range of agricultural land uses. A zoning by-law amendment is required to expand the range of potential uses in addition to a municipal waste disposal facility.

The recent development of the Catholic School Board administrative offices on the east side of Wellington Road, is significant distance from the landfill and is not expected to create a constraint on future development at the W12A site.

The Islamic Cemetery located to the south of the landfill has proceeded with the full knowledge of the existing landfill and the associated land use impacts. It was approved through Official Plan amendment No. 239 and an associated zoning by-law amendment in 2004. The evolution of the landfill operation will not create a new impact as new land use opportunities would generally proceed to the north and east of the existing landfill site and further away from the cemetery.

W12A Landfill Area Plan Study

Schedule B to the City of London Official Plan - Flood Plain and Environmental Features



NATURAL HERITAGE SYSTEM

- ESA's
- Potential ESA's
- Vegetation Patches Outside ESA's and Wetlands
- River, Stream, and Ravine Corridors Outside Flood Plain
- Regulation Corridors
- Wetlands Class 1-3
- Ground Water Recharge Areas

NATURAL RESOURCES

- Extractive Industrial
- Aggregate Resource
- Abandoned Oil/Gas Wells

NATURAL HAZARDS

- Flood Line
- 100 Year Erosion Line
- Fill Lines

BASE MAP FEATURES

- Study Area
- Rivers/Streams
- Streets / Roads

SCALE 1:20,000

September 19, 2008

MAP 3

3. BACKGROUND STUDIES

3.1 Land Use

A land use survey of the Study Area was conducted in July 2005 and updated in 2008, including both in core and buffer area. Map 4 identifies the existing land uses within the study area. Map 5 is a 2007 aerial photographic mosaic identifying the core and buffer areas of this Study. The key observations from the land use survey are as follows:

- The predominant land use of more than 80%, includes farming activities, vacant farm land, farm dwellings and three farms each with two dwellings.
- There were a total of 9 residential dwellings in the core area including seven rural residential and two related farm dwellings. There were a total of 87 rural and farm dwellings located in the buffer area.
- There are very few businesses identified in the study area. Those present include a truck terminal, exterior aluminium products installation, a retail plant store and a vehicle compound.
- The Shaver Subdivision is located within the buffer area at the southwest corner of Westminster Drive and Wellington Road south. This subdivision consists of 44 residential lots with no vacancies.
- A second hamlet area is Glanworth with a total of 39 residential lots, 8 commercial lots and 2 other lots.
- Both residential areas are approximately 1,000 metres from the core area and approximately 1,900 metres from the existing landfill site.

3.2 Character of Predominant Land Uses

The predominant land use in the Study Area is agricultural. These uses are generally land extensive, using large areas for the planting, maintenance and harvesting of cash crops, which also require the use of large agricultural equipment to undertake such activities. There is potential for significant land use conflicts with non-farm land uses in the form of machinery noise, dust generated from cultivation, or odour from agricultural chemical applications/ application of livestock manure. Sometimes during planting, birds are attracted to freshly turned farm fields searching for food. The activity on the land is concentrated to long hours at seasonally critical times of the year related to planting and harvesting of crops.

The activity at the W12A Landfill is land extensive, occupying a large area for the placement of solid waste and a buffer area around the landfill to screen and contain the activities. There are approximately 400 vehicle trips on a typical weekday of which 200 are garbage trucks coming and going from the landfill. There is heavy machinery distributing the solid waste and placing a soils layer overtop of the waste, effectively burying the materials. The machinery and activity has the potential to create noise, debris, dust and odour attributed to the solid waste and the landfill gas emitted from the site. The site can also attract nuisance birds and animals looking for food. The activity is daily and ongoing throughout the year. There is potential for significant impact on non-farm land uses in the vicinity of the Landfill.

There are differences in the two land uses from the perspective of time intensity. The Landfill operates six days per week, while a farm field may only have farm equipment six times a year depending on the nature of the crop. The use of the agricultural land occurs annually with a crop being harvested each year. The use of the landfill site is a year round activity. Nuisance birds are attracted to the landfill more frequently than farm fields because the food source is readily available. The landfill attracts a significant amount of traffic which is directed to a dedicated entrance to the site, whereas the agricultural traffic is localized and less intense.

At the same time the agricultural and landfill uses are similar regarding the operation of large noisy equipment for the operation and the creation of odour and dust. Both uses have the potential to create significant off site impacts for non-farm uses and have fewer operational constraints where they are separated from non-farm uses. The farm activities surrounding the landfill create important separation distances between the non-farm uses located in the rural settlement of Glanworth, Shaver subdivision and estate residential uses along Westminster Drive and Glanworth Drive.

3.3 Land Ownership Core Area

The core area is comprised of 397 hectares of which the City of London owns 264.4 hectares. The landfill site as approved by the Ministry of the Environment comprises 147 hectares of land owned by the City. Remaining lands are retained in agriculture production by the City and function as a separation area between the landfill and land uses to the east and north.

There are eight parcels of land within the core area which remain in private ownership comprising 132.6 hectares of land.

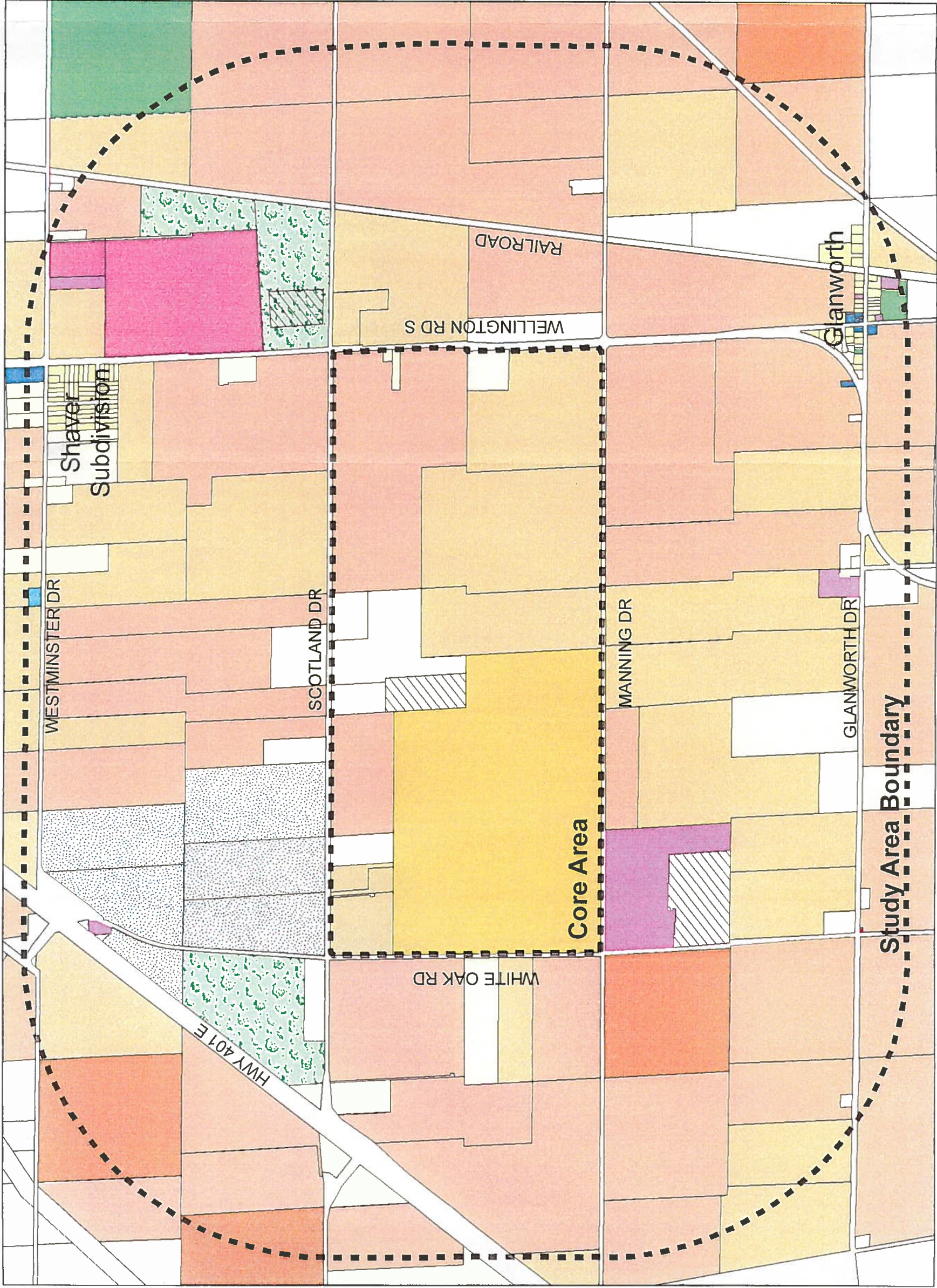
3.4 Agricultural Resources

The purpose of the Agricultural Resources Background Study is to inventory the Agricultural activities, policies and regulations applicable to the Study Area for the purpose of identifying the types of agricultural activities currently in operation and any potential constraints and opportunities.

- An inventory of existing agricultural activities was undertaken on July 22, 2005. A total of fifty-one (51) farm residential dwellings were identified in the study area, and only two (2) in the core area.
- Agricultural uses include the cultivation and harvesting of corn, wheat, other row crops, or a mixture thereof.
- Currently there are no large livestock operations located within the Study Area, and given the proximity of the area to the Urban Growth Boundary, combined with the amount of non-farm development that currently exists across the Study Area it is considered highly unlikely that any large livestock operations will be established within the Study Area in the future.
- The quality and operation of crop farming in the core area and within the Study area does not appear to be impacted by the proximity of the landfill site. There were no examples of abandoned farms or farm buildings. Where sufficient contiguous land area was available the lands appeared to be in agricultural production.
- There were no observed constraints to normal farm practices originating from the operation or location of the landfill site.

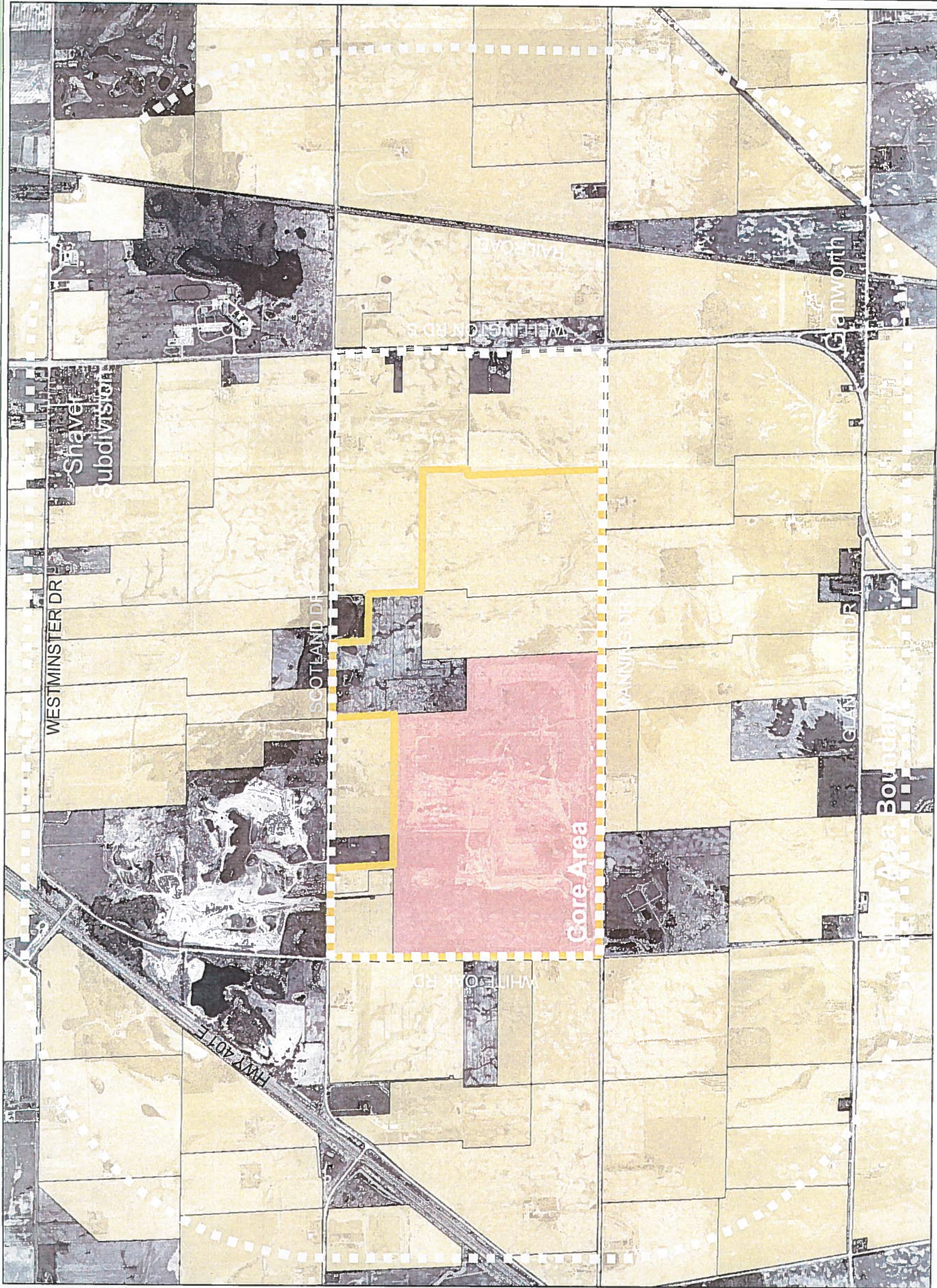
W12A Landfill Area Plan Study

Existing Land Use



W12A Landfill Area Plan Study

Aerial Photography



- Possible nuisance impacts on farming may include the operation of city garbage equipment on public roads, the presence of scavenger birds and debris originating from the landfill site.

3.5 Hydrogeologic Review

The major hydrostratigraphic units in the Study Area were divided into aquitards and aquifers. An aquitard consists of low permeability soils that inhibit groundwater flow. An aquifer consists of permeable soils that can transmit significant quantities of water such that when water wells are installed they produce usable quantities of water.

Significant groundwater protection is provided in the core area by an aquitard (referred to as the "Surficial Aquitard") which overlies the area's aquifers. The Surficial Aquitard is thickest (15 to 20 m thick) in the western part of the Core Area. In the southeastern portion of the Core Area the Surficial Aquitard varies in thickness from 6 m to 15 m. Tests completed on the Surficial Aquitard underneath the existing landfill areas indicated that groundwater movement is extremely slow (a few centimetres per year). Therefore, the Surficial Aquitard provides groundwater protection for most potential land uses within the Core Area. It is critical that the integrity of the Surficial Aquitard be retained. Any penetration of the Surficial Aquitard should be completed with this in mind (e.g., all wells should be fully grouted, and if not used decommissioned and any foundation piles or deep excavations should be completed using methods ensuring that the natural protection provided by the aquitard is retained).

If the existing landfill is expanded either vertically or to the east, a detailed hydrogeological assessment is required to meet the requirements of the Environmental Protection Act (EPA). These requirements include ensuring that the groundwater quality in the underlying aquifers is better than the Ontario Drinking Water Standards.

3.6 Surface Water Study

The surface water assessment was undertaken to identify, assess and map any surface water resources within the study area. A key component of the study is the completion of an inventory summarizing the existing characteristics of the study area. Summarized in this study is a full range of hydrologic, hydraulic, and geomorphic baseline parameters used to assist in the designation of special policy areas and the development of design criteria for any potential future development.

The W12A core study area is uniquely situated between two large subwatersheds. Divided diagonally from the southwest to northeast corner, the northerly portion of the core study area falls within the Dingman Creek Subwatershed, while the southerly portion of the study area falls within the Dodd's Creek Subwatershed.

The findings of the report can be used to establish a comprehensive set of design criteria in order to guide design of any Area Plan and allow seamless integration of surface water management into the development plan. Design criteria will be based on the classification of the individual receiving watercourses, pre-development flow rates and additional site-specific recommendations outlined by this report.

In terms of overall findings for City of London policy development, surface water management does not impose any specific limitations on the preferred study area development scenario. The nature of the drainage areas, specifically their location at the top end of both the Dingman Creek and Dodd's Creek subwatershed, limit the requirements for extensive retention of stormwater run-off for quality and quantity control. The surficial geology of the core study area will require moderate control of sediment during construction phases but generally seasonal watercourses within the core study area are not particularly sensitive to erosion and scour potential. Watercourses to the south of

the core study area may require monitoring and complete pre to post development reduction of flow rates in order to control increased downstream erosion potential.

3.7 Transportation Study

Based on recent data from the City of London, the existing W12A Landfill receives approximately 180,000 to 200,000 tonnes of residential and commercial waste annually. The site generates approximately 400 vehicle trips on a typical weekday, with truck traffic representing approximately 48% of the total volume.

Wellington Road is the major carrier of traffic within the study area and is currently the designated haul route for landfill trucks using the W12A site. Both anecdotal evidence from local residents and observed data from our traffic count program indicate that a significant number of trucks are using other routes to access the landfill, although there was some observed inconsistencies in the truck data collected from the various sources. The City should undertake additional traffic counts at the Manning Drive / White Oak intersection and at the Landfill entrance to confirm the extent of landfill truck traffic using these local roads.

As part of the area study for the W12A lands, the City should review the current designated truck routes for the landfill and review the need for commercial vehicle restrictions on adjacent roadways. Given the variety of routes that landfill vehicles appear to be using within the study area, the designation of a "landfill haul route" (currently via Wellington Road) does not appear to be eliminating truck traffic on local roads.

The majority of the roads in the study area appear to be in good condition, with the exception of White Oak Road, which has poor pavement surface condition based on data collected by the City of London. The data collected for this study indicates that a significant number of trucks are using this route. White Oak Road, with the existing connection across Highway 401, provides a key alternate route for vehicles wishing to travel to the west end of the City of London and allows vehicles to avoid the Wellington Road corridor, which is very busy during peak periods. As a minimum, based on the existing road surface conditions, White Oak Road should be considered for improvements. Depending on the development alternatives being assessed for the lands surrounding the W12A landfill site, this route may need to be upgraded to accommodate new traffic generated by area development.

The analysis undertaken as part of this study indicates that the road network in the vicinity of the W12A landfill is currently operating at a satisfactory level of service. All of the study area intersections are operating much better than the current City of London standard of Level of Service D, and this is expected to continue throughout the 2015 planning horizon based on a historical background traffic growth rate of 1.0-1.5% per annum.

Given the relatively high volumes on Wellington Road, the existing two lane section is currently operating at a Level of Service D during peak periods, and this will continue throughout the 2015 planning horizon based on current traffic growth rates.

A capacity assessment for the 2015 horizon year indicates that the two lane section of Wellington Road will have a reserve capacity of approximately 400 vehicles per hour (two way volume) before reaching Level of Service E. Depending on the extent of potential development on the W12A lands, Wellington Road may need to be widened to four lanes to maintain an acceptable operation in the future. The need for widening of Wellington Road should be examined in conjunction with the development and assessment of land use alternatives for the study area.

This study has concluded that there is sufficient reserve capacity on the other study area roadways to accommodate additional traffic generated by new growth and redevelopment of the lands surrounding the W12A landfill site.

3.8 Ecological Resources and Natural Heritage Study

The Ecological Resources Background Report and its Natural Heritage Strategy provides the framework for environmentally sound planning decisions and reasoned management of natural resources for the area. The report provides: a description of the existing natural heritage features, an assessment of ecosystem function, and evaluation of significant features, recommendations regarding development constraints and opportunities and an outline of the requirements for more detailed environmental impact studies.

Field investigations for this study were undertaken from May to September, 2005 and involved 3 season aquatic and terrestrial assessments focusing on lands near to the Landfill Site. Aquatic assessments included benthic invertebrate and fisheries investigations to determine the water quality and fish species composition of the branches of Dodds Creek. Terrestrial investigations focused on the woodland patches within close proximity to the landfill.

The main aquatic features identified within the W12A Landfill study area are Shore Drain, Sterling Drain, Wright Drain, Bannister Johnson Drain, and an unnamed watercourse along White Oak Road towards the western side of the study area boundary. In addition, there are various natural, intermittent watercourses, swales conveying overland flows, and isolated irrigation/aesthetic ponds throughout the study area.

Based on the results of the benthic macroinvertebrate survey and an assessment on the presence/absence of key indicator species, the benthic community is of poor overall quality and indicative of shallow, organically and nutrient enriched aquatic environments. All of the sites exhibited unbalanced communities that severely lacked the presence of pollution-intolerant taxa (i.e. high quality taxa). Lastly, the dominant presence of collector-filterers at all of the sites, who typically thrive in degraded habitat conditions, currently suggests significant water quality impairment.

Preliminary evaluations were conducted to assess the significance of the woodland patches. Assessments consisted of Environmentally Significant Area and Significant Woodland evaluations using guidelines developed by the City of London. These preliminary evaluations indicated one new Environmentally Significant Area (ESA), two Significant Woodlands, two Non-significant Woodlands, all situated outside of the Core Study Area.

The recommended Natural Heritage Strategy for the W12A Landfill Area Plan is based on the identification of natural heritage areas that meet criteria for inclusion as significant components of the City of London's Natural Heritage System. The Natural Heritage Strategy for the W12A Landfill Area Study includes the following components:

- Existing identified Natural Heritage System features as identified in the City of London's Official Plan,
- Recommendations for Natural Heritage System features and candidate natural heritage features,
- Recommendations for areas requiring an Environmental Impact Study,
- Recommendations for natural heritage areas requiring additional investigations to complete evaluations of significance and status.

3.9 Archaeological Resources and Built Heritage Study

A Stage 1 archaeological and built heritage report was completed as part of the W12A Landfill Area Study. The objectives of the Stage 1 assessment were to compile all available information about the known and potential cultural heritage resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources, consistent with the requirements of the City of London Archaeological Master Plan (Wilson and Horne 1995) and the Ministry of Culture Stage 1-3 Guidelines (MCzCR, 1993).

As per the Archaeological Master Plan and the Ministry of Culture Guidelines, any development application that in all or part impinges on an area predetermined by the City of London to have moderate to high archaeological potential, or known archaeological sites, will require an archaeological assessment. Similarly, any development application that includes a structure predetermined by the City of London to be historically significant will require a detailed built heritage assessment conducted by a qualified researcher.

The city-owned barn and house at 3290 Manning Road has been documented with measured drawings and photographs in the course of a controlled demolition. This occurred in accordance with the recommendations of the Study.

While the study included an assessment only of the core area defined in the Terms of Reference for the W12 Landfill Site Area Study and of the buildings immediately along its periphery, we consider it important that a built heritage assessment of the buffer area defined in the Terms of Reference be undertaken before any commitments are made to further development in that area.

More intense efforts should be made through landscaping to screen the landfill site from surrounding properties. The heritage buildings in the area will continue to survive and to be adequately maintained only if the surroundings make them desirable places to live.

4. LAND USE OPTIONS

The Land Use Options Evaluation Report was intended to identify landfill evolution options; establish the criteria to undertake the evaluation; apply the rating system to the various options and identify the preferred landfill evolution options. The following section will provide an overview of this Report.

Landfill evolution options were developed by the Consulting team and discussed with the City of London staff. Those options were presented at a public meeting and additional options were included in review process. The Consulting team undertook an evaluation of all options presented and applied the rating system to those options. The evaluation was undertaken using the land use planning, waste management experience and specialized expertise of members of the Consulting Team.

4.1 Landfill Evolution Alternatives

The following paragraphs identify the seven options considered by the Study.

4.1.1 STATUS QUO

This option is based on continued existing use of the landfill capacity for the next fifteen to twenty years. A new Greenfield landfill site would need to be found within the municipal boundaries of the City of London and assumes no change to the operating procedures onsite.

4.1.2 EXPAND THE LANDFILL

This option is based on the addition of land area to increase the life of the landfill to the forty-year time horizon. Additional lands would include 94 hectares of land currently owned by the City.

4.1.3 DEVELOP AN INTEGRATED RESOURCE RECOVERY CENTRE

This option is intended to support the onsite recovery of materials and energy provided through the waste materials brought to the site. It assumes achieving a target rate of 60% diversion in accordance with the direction from the Province of Ontario. This option would extend the life landfill site beyond the forty-year time horizon.

4.1.4 DEVELOP AN INDUSTRIAL ECO-PARK

The basis of this option is to capitalize on the use of garbage and recyclables as raw material inputs into the manufacture of new products onsite. It is intended to add value to the outputs onsite and complete the recycling process. This option would require a small expansion at the landfill, add resource recovery lands and add land for the Eco-Industrial Park. This option would accommodate waste management beyond the forty-year time horizon.

4.1.5 CLOSE THE LANDFILL SITE ON AUGUST 31, 2006

Based on public feedback on November 10, 2005 the option of closing the landfill site on August 31, 2006 was considered. The premature closure of the site would necessitate consideration of other options including the export of solid waste beyond the municipal boundaries for the short term and to consider a new Greenfield waste site within the municipal boundaries for the next forty years.

4.1.6 EXPORT GARBAGE TO ANOTHER MUNICIPALITY AFTER USING THE EXISTING CAPACITY

This option would allow continued use of the landfill site for the next fifteen to twenty years. Beyond this time the City would contract to have the garbage exported outside of the municipality. The City would have to establish a waste transfer station.

4.1.7 ACCELERATED WASTE DIVERSION - MAXIMIZE LANDFILL SITE LIFE

This option is based on change in waste management, accelerating to a waste diversion rate of 60% within the next three to five years. It requires land for the full range of waste management activities including landfill, landfill expansion, resource recovery options with consideration of mechanical, biological and thermal processing of waste. This option assumes a heavy investment in waste and diversion and would extend the waste disposal site life beyond the forty-year time horizon.

4.2 Evaluation Criteria

The evaluation methodology and criteria take into consideration the results of the background studies, sound waste management practices, City of London Official Plan, the Provincial Policy Statement 2005 and sound land use planning principles. The criteria start with the following guiding principles and assumptions:

- The City will continue to manage waste produced within the municipal boundaries through various methods of reduction, diversion, disposal and conversion to other usable products.
- The City of London will make decisions on waste management issues using principles of sustainable development which are socially, environmentally and economically responsible.
- The City Council has recommended a 60% waste diversion target to be established in 2012 to 2018 providing adequate time for changes in waste management.
- The existing W12A Landfill has defined capacity to accommodate additional landfill for seventeen to twenty years.
- The Official Plan for the City of London and the Provincial Policy Statement 2005 are the applicable land use planning documents.

The rating criteria were established for four categories as follows:

- Natural environment evaluation criteria
- Social / cultural evaluation criteria
- Technical and economic evaluation criteria
- Regulatory and administrative evaluation criteria

Each category is then subdivided into a number of sub-criteria as outlined in Appendix 3 of the Evaluation Report. Each of the criterions is given equal weight in the methodology and there has

been no ranking of importance in the criteria within each category or between categories. Each of the evaluation criteria is given a qualitative phrase describing the potential effects for each alternative land use option.

The rating system includes a numeric measure on a scale from one to five; and five qualitative measures as follows:

RATING	NUMERIC MEASURE	QUALITATIVE MEASURE
Strong Positive	5	The indicator shows a significant positive effect for this criterion.
Positive	4	The indicator shows some positive effect for this criterion.
Neutral	3	The indicator shows no effective positive or negative for this criterion.
Negative	2	The indicator shows some negative effect for this criterion.
Strong Negative	1	The indicator shows significant negative effect for this criterion.

4.3 Evaluation Methodology

The Consultants created four tables related to the criteria headings; Natural Environment, Social / Cultural, Technical and Economic, and Regulatory and Administrative. Each of the evolution alternatives was evaluated for each criterion, given a description and ranking according to the rating system. The evaluation was based on an assigned numeric measure and a qualitative measure. The two approaches combine to provide a robust evaluation process.

The evaluation process included two perspectives. The first perspective is the city-wide need to provide for landfill disposal within municipally boundaries. It is based on the larger public interest and sound municipal management of public waste management programs. The second perspective relates to the impact of the particular option on the study area. It focuses on the impact on the surrounding community.

The Evaluation Report sets out evaluation, constraints and opportunities for each of the seven land use option.

4.4 Recommended Alternative

Based on the analysis of each of the land use evolution options the following are the ratings of the options in the same order presented in Section 4.1.

	LANDFILL EVOLUTION ALTERNATIVES	NUMERIC RATING	QUALITATIVE RATING
1	Status Quo	2.32	Negative
2	Expand Landfill	3.10	Neutral
3	Develop an Integrated Resource Recovery Centre	3.71	Positive
4	Develop an Industrial Eco-Park	3.70	Positive
5	Close the Landfill Site on August 31, 2006	2.01	Negative
6	Export Garbage to Another Municipality After Using the Existing Capacity	2.64	Neutral / Negative
7	Accelerated Waste Diversion – Maximize Landfill Site Life	3.67	Neutral / Positive

An analysis was undertaken to determine the degree of congruence between the principles and assumptions, and the seven landfill evolution options. Based on the analysis the preferred land use evolution options are 3, 4 and 7. They each score high and very close in the numeric rating system. The rating for these three options also provided a positive qualitative rating. Combined the numeric and qualitative ratings make these three options preferable land use evolution options for future waste management.

Options 1, 5 and 6 were less congruent with the principles and assumptions, with lower numeric ratings and negative qualitative ratings.

Option 2 to had a numeric rating that fell into the middle of the seven options and had a neutral qualitative rating.

At the public meeting of June 26, 2008, the City of London presented the three preferred alternatives noted above and indicated that the preferred alternative by the City of London was Option 3. The preference is to develop an Integrated Resource Recovery Centre to focus on recovery of materials and energy and provide landfill expansion at the site. In addition to these activities a leachate pre-treatment facility and haul septage facility is being proposed abutting the existing landfill site.

5. PUBLIC CONSULTATION

5.1 Public Participation Meetings

In accordance with the Terms of Reference the Consultants and the City of London undertook an extensive public consultation and agency consultation process. Notice was sent by direct mail to area residents and stakeholders. Notice was published in the London Free Press and placed on the City website inviting stakeholders and residents to public meetings. Notice was mailed to government review agencies. Each time a notice was provided, written requests for comments were invited. A total of four public meetings have been held regarding the W12A Study. The following is a summary of those public meetings.

5.1.1 OPEN HOUSE AND PUBLIC MEETING NO. 1 - JUNE 29, 2005

The purpose of this meeting was to review the Terms of Reference, introduce municipal staff and the planning consultants to the public. The meeting also provided an opportunity for residents to ask some initial questions about the project. The following points highlight significant comments made at the meeting by the consulting team and the City of London.

- The City of Toronto will not be dumping garbage in the W12A because the Certificate of Approval does not allow waste from outside the City.
- The City has not made a decision to accept waste from any area municipality in Middlesex County and the Certificate of Approval limits waste to that generated by the City.
- The City of London garbage diversion rate is 37% while the province has a target diversion rate of 60% by 2008. The recent initiative to set a garbage bag limit is part of a longer term solution for waste diversion.
- The focus of this study is not only to expand the W12A Landfill site but to consider alternative uses for these lands and waste. Consideration of recycling, diversion and creation of input materials, will be part of the Study.
- Residents suggested the operation should be considered a revenue generating facility with additional investments made back into operation. City staff has been given direction to look at applying a utility concept to financing the waste management system in the City.
- The City will be installing a waterline around the landfill for operational reasons including eliminating a dead end waterline and providing water to the landfill operation.
- A property value protection plan will be considered as part of the W12 Area Study. This portion of the study will be the responsibility of the City Environmental and Engineering Services Department.

5.1.2 OPEN HOUSE AND PUBLIC MEETING NO. 2 - NOVEMBER 10, 2005

The purpose of the second meeting was to provide an update of landfill and waste management information by the City of London. The consultants provided an update on the background studies. The waste management consultant reviewed the draft landfill evolution alternative options. The following points highlight comments from the public and responses by the Consultants.

- Residents from the hamlet of Glanworth asked about extension of water from the municipality to the hamlet. Residents expressed interest in getting service and concern that the cost would be too great.
- Following the discussion the City committed to add three new landfill evolution alternatives being to close the landfill site on August 31, 2006; export garbage to another municipality; and look at aggressive diversion of household waste to increase life expectancy without landfill expansion.
- City staff will consider mitigation and compensation measures for the existing landfill site as part of improved operations. These measures consider community enhancement, mitigation measures including compensation, and nuisance control measures.
- Residents expressed concerns they have been treated badly for the past twenty-eight years and are looking for some confidence that the commitments made in this review will be met. Staff responded that the amalgamation of the Town of Westminster with the City of London resulted in previous agreements no longer in effect for the landfill. New commitments will be made by City Council and included in the Landfill Certificate of Approval.

The meeting concluded with a list of future actions.

5.1.3 OPEN HOUSE AND PUBLIC MEETING NO. 3 - JUNE 29, 2006

The purpose of this meeting was to provide information on landfill waste management from the Engineering Department; present the results of the evaluation of options for evolution and to provide information regarding mitigation measures and compensation policy by the City of London for the W12A. The following comments were made with respect to the evaluation of the evolution options.

- Residents in the area were hoping to see a numbering system to rate the options. The qualitative approach using the evaluation is consistent in undertaking this type of evaluation. Consultants will be revising and updating the report to include a quantitative analysis to assist residents in understanding the document.
- Consideration was not given to impacts on the larger area beyond 1.5 kilometres from the study boundary area.
- Consideration was not given to recent announcements regarding a private facility just outside the study boundary. It was not part of the Terms of Reference.
- Concerns were expressed about the proposed treatment facility for "Hauled Liquid Waste". Staff confirmed that a class environmental assessment will be undertaken for a new facility to be constructed adjacent to the W12A Landfill.

- With respect to composting organics at this location as per Option 3 no decision has been made by the City Council regarding this type of operation at this location.

5.1.4 OPEN HOUSE AND PUBLIC MEETING NO. 4 – JUNE 26, 2008

A fourth public meeting was held providing an update to the community with respect to compensation and mitigation measures around the W12A Landfill and an update of the W12A Area Study. This was the last public meeting held for the Area Study prior to proceeding to Planning Committee with the Area Plan Study Report. The Manager of Land Use Planning Policy provided a presentation of the Area Study – Next Steps for the Area Study.

6. RECOMMENDED LAND USE PLAN

6.1 Vision

The City of London recognizes the significance of sound waste management practices. Through this Area Study it has confirmed the shift in emphasis from landfill waste material to resource material recovery from waste. Public attitudes, government policy and technologies support this transition to use waste as a valuable input into creating products, materials and energy. The City's ownership of a landfill site is an important component of the City's infrastructure to provide waste management services to the community.

The recommended policies are based on the background studies, evaluation of alternatives and public discussion which supports a vision for the evolution of the W12A Landfill into an Integrated Resource Recovery Centre. This process must be environmentally sound, socially responsible and fiscally acceptable. The W12A site will provide a location with limited impacts on the surrounding agricultural community and the exiting residential and institutional areas. The City owned lands have sufficient area, road access and separation distance from sensitive land uses to continue operation for the next 40 years based on sound management practices.

6.2 Landfill and Integrated Resource Recovery Centre Uses

This preferred land use alternative for the W12A is to retain the landfill waste functions; create energy from renewable resources; and evolve the landfill to Resource Recovery Centre (Map 6). The Centre will process materials to divert from the landfill and use the materials as input to other industrial/commercial processes. This range of activities will evolve over time, with a greater volumes of resource recovery and smaller volumes of waste material being disposed. It will provide waste management facilities to accommodate present and future waste management needs for the City of London to the forty-year horizon.

The existing landfill includes approximately 147 hectares of land area. The future landfill area could increase to approximately 170 to 210 hectares if there was an expansion easterly from the existing limits of the landfill towards Wellington Road South. It could also expand higher on the existing lands. This expansion will occur on lands identified by area-specific policy of the Official Plan. It will be subject to detailed studies in accordance with the Environmental Assessment Act prior to development and an associated zoning by-law amendment.

An important function which complements the resource recovery use is a leachate pre-treatment / hauled liquid waste facility. The leachate pre-treatment facility will cover approximately 2.5 hectares of land located on Manning Drive immediately east of the existing landfill site.

The initial Integrated Resource Recovery Centre facilities are to be located on Manning Drive east the of the leachate pre-treatment facility. It will provide proximity to the landfill for disposal of waste material that cannot be fully recovered. It will provide approximately 22 ha. of land for a variety of resource recovery activities. Additional Resource Recovery Centre facilities could be located on the south side of Scotland Drive and north of the existing and future landfill expansion area. It will cover an area of approximately 50 ha. of land of which approximately 27 ha. are privately owned.

The total area of the Policy for Special Area of the W12A Landfill and Resource Recovery Centre would be between 260 and 300 hectares of land for all waste management activities. This is an increase of 120 to 160 hectares of land from the existing landfill site.

6.3 Land Use Compatibility

In evaluating the recommended land use evolution option, consideration was given to three forms of impact as follows: the difference between agricultural operations and the proposed range of land uses; the environmental impacts on water resources; and the potential future impact of new sensitive land uses in the buffer area on the future land uses.

It is recognized that the long term use of the buffer area in the Official Plan is for agricultural purposes. Landfill activities have impacts related to noise, dust and odour which are similar to the main permitted agricultural uses. As the range of land uses evolve at the Resource Recovery Centre, it is expected that the similarities in impact will continue and that there will be no significant impact on the predominant agricultural land uses in the buffer area.

With respect to the impact on water resources and the natural heritage features of the core area, it has been demonstrated through the background studies that this site is well suited to the continuation of landfill activities and expansion to include integrated resource recovery functions. There are no significant natural heritage features in the core area. The plan will protect the Shore Drain by designating it Open Space on Schedule "A". Implementing the Natural Heritage Strategy recommendations will provide for improvements to water quality in the drain.

There are existing sensitive residential, institutional and recreational uses within the 1.5 km buffer area. The existing setbacks have an acceptable level of distance to mitigate potential noise, odour and dust to levels comparable to the surrounding agricultural areas. Expansion of these sensitive land uses and intensification should be discouraged to protect the long term use of the landfill and Integrated Resource Recovery Centre. A special policy should be included to discourage encroachment of non-agricultural and sensitive land uses closer to the W12A landfill site.

6.4 Landscaping and Naturalization

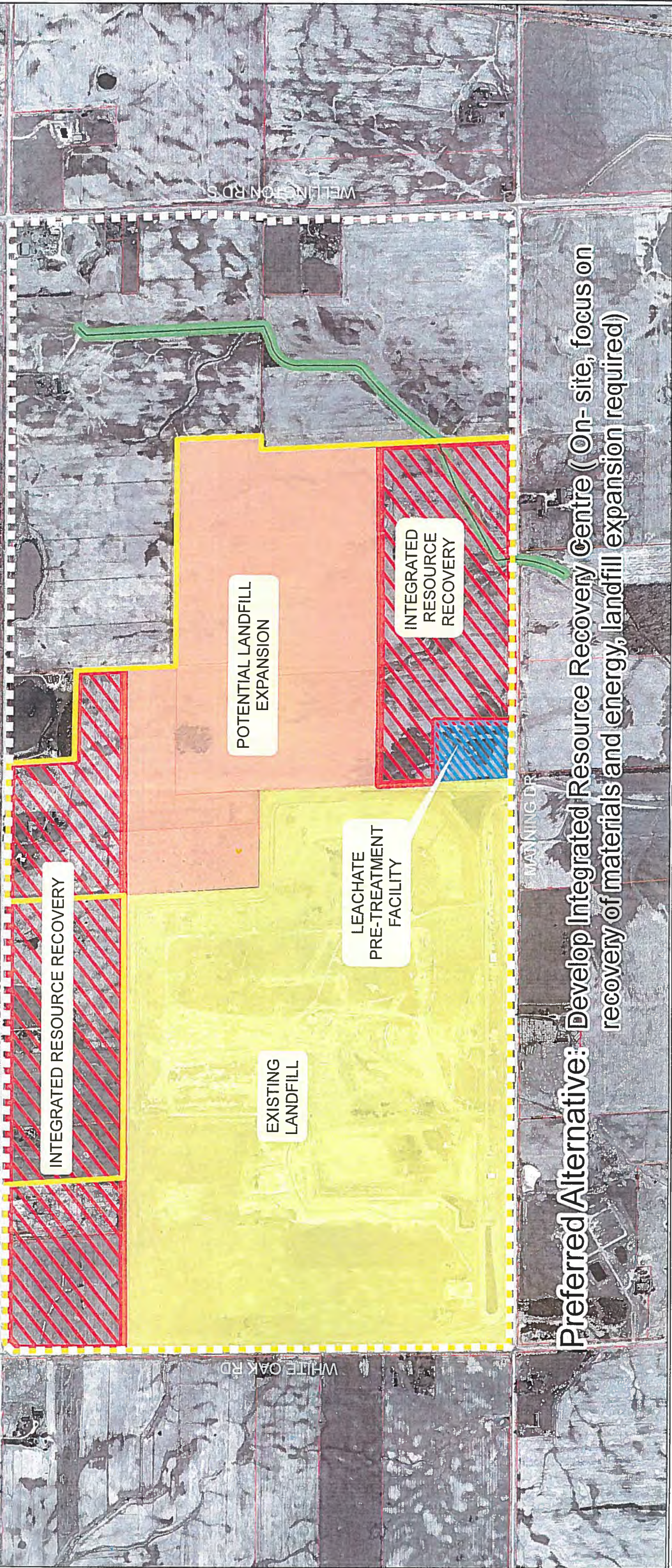
The purpose of landscaping and naturalization is to reduce the visual impacts of the landfill and associated waste management and resource recovery activities; naturalize the completed landfill area creating habitat; and reduce maintenance costs. The City has undertaken extensive plantings around the perimeter of the landfill along Manning Road and White Oak Drive. They provide relief to the visual scale of the landfill area. These areas should have continued tree plantings and maintenance using a variety of native species that are tolerant to the soil and climate conditions.

Naturalization areas should occur on the areas of the landfill that have been capped and are intended to remain unused. A variety of native grasses should be planted, while other vegetation groups may naturally evolve on these areas. Planting of trees and larger plant material is not recommended as there may be future maintenance requirements to access the capped landfill area.

Tree planting along the perimeter roads including Wellington Road from Scotland Drive to Manning Drive; Manning Drive from Wellington Road to the landfill entrance and Scotland drive from Wellington Road to the beginning of the City owned lands is encouraged. This will provide a visual screen between road traffic, the school board office / secondary school and the two settlement areas. It will help to reduce the perceived scale and impact of the landfill site in this area.

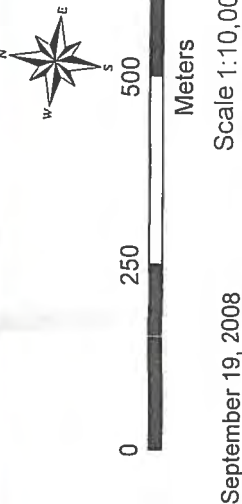
The three approaches of on site tree planting; naturalization of the capped landfill and perimeter tree planting will improve the visual character of the land fill site.

W12A Landfill Area Plan Study



Preferred Alternative: Develop Integrated Resource Recovery Centre (On- site, focus on recovery of materials and energy, landfill expansion required)

- CITY OWNED PROPERTY
- CORE AREA
- PARCELS
- EXISTING LANDFILL
- INTEGRATED RESOURCE RECOVERY CENTRE
- LEACHATE PRE-TREATMENT FACILITY
- POTENTIAL LANDFILL EXPANSION
- SHORE DRAIN BUFFER



MAP 6



6.5 Transportation

The primary access to the W12A Landfill and Resource Recovery Centre will be from Wellington Road South and west along Manning Drive. Based on the background transportation study, the existing and future truck traffic associated with all activities can be accommodated on the existing road network which is designated as Arterial in the Official Plan. No amendments are required to the Transportation schedule of the Official Plan.

6.6 Water Services

Municipal water services have been provided to the perimeter of the core area along, Wellington Road, Manning Drive, White Oak Road and Scotland Drive for operational purposes. Water services have also been extended to the Catholic School Board Administrative Offices/ Regina Mundi High School and the settlement area of Glanworth. The cost of these services has been shared between the residents and the City of London. These services are primarily intended to provide domestic water services to existing land uses and are not intended to encourage urban forms of development outside of the Urban Growth Boundary of the City.

A policy will be added applicable to the study area to clearly indicate the intended use of the water system will be to service uses legally existing at the adoption of this amendment for domestic purposes and not for new industrial or commercial activities.

6.7 Natural Heritage Strategy

The Natural Heritage Study did not identify any significant woodland within the core area. The most significant feature is the Shore Drain which is of poor overall quality. The drain has potential for improved fish habitat with some additional enhancement. The Shore Drain should be designated Open Space to recognize this potential with the ability to provide a 15 m buffer on either side of the drain for naturalization of the watercourse.

7. IMPLEMENTATION

7.1 Recommended Official Plan Designations

Schedule "A" Land Use Plan of the City of London shall maintain the Agricultural designation for these lands within the Study Area. The City may consider developing area-specific policies relating to the lands within the Core Area owned by the City of London including the existing landfill, landfill expansion area, the leachate pre-treatment facility, and the integrated Resource Recovery Centre.

The lands abutting and including the Shore drain located in the core area be changed from Agriculture to Open Space.

7.2 Recommended Official Plan Special Policy

That Special Policy Section 10.1.3 City Landfill Site xliii) be deleted and replaced with the following Special Policy:

"The City of London recognizes the importance of the W12A landfill and the suitability of the existing location to minimize environmental and social impact while providing an important economic function of waste management. This site is the preferred location for the existing landfill operation, expansion of the landfill and the development of an Integrated Resource Recovery Centre for waste reduction, waste disposal, waste diversion and waste processing, using principles of sustainability which are socially, environmentally and fiscally responsible. The following policies will apply to the evaluation of zoning by-law amendments for these lands by Council.

- The range of uses considered for these lands include but is not limited to the following: existing landfill operation; landfill gas collection to mitigate air and odour emissions; landfill energy production system from landfill gas; a leachate pre-treatment facility; public drop-off depot for hazardous waste; community recycling; material recovery facility; yard waste composting facility; thermal, mechanical and biological processing of wastes to reduce volumes, stabilize materials, treat residual waste and remove recyclables; and other similar waste collection, processing and recovery functions.
- The City shall continue to work with the surrounding agricultural and residential community within 1.5 kilometres of the City's lands for the management of the landfill and Integrated Resource Recovery Centre to mitigate impacts related to odour, dust, litter and traffic.
- The City shall discourage the development of new residential, commercial, recreational and institutional uses or other sensitive land uses within a 1.5 km of the boundary of the landfill and Integrated Resource Recovery Centre to provide separation distance to mitigate impacts.
- The establishment of new land uses for the expansion of the landfill site shall be subject to the provincial environmental assessment provisions under the Environmental Assessment Act and Environmental Protection Act as set out by the Ministry of the Environment.
- The City of London, where possible, shall maintain agriculture land uses on future resource recovery lands until such time as the land is needed for development.
- The City will implement the natural heritage strategy with respect to the protection of the Shore drain and enhancement of the potential fish habitat.

- The City through the development of the site shall incorporate landscape design measures to reduce the visual impact of the Integrated Resource Recovery Centre site. Consideration will be given to establishing the landscape buffer on the west side of Wellington Road South and around the perimeter of the landfill site, being Manning Drive, White Oak Road and Scotland Drive.

