

Environmental and Ecological Planning Advisory Committee

Report

The 5th Meeting of the Environmental and Ecological Planning Advisory Committee
April 11, 2019
Committee Rooms #1 and #2

Attendance PRESENT: S. Levin (Chair), E. Arellano, C. Dyck, P. Ferguson, S. Hall, B. Krichker, I. Mohamed, S. Sivakumar, R. Trudeau and I. Whiteside and H. Lysynski (Secretary)

ABSENT: A. Boyer, R. Doyle, A. Duarte and K. Moser

ALSO PRESENT: G. Barrett, C. Creighton, P. Lupton, J. MacKay, A. Macpherson, L. McDougall, L. Pompili, A. Rosentals and S. Stafford

The meeting was called to order at 5:02 PM

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that no pecuniary interests were disclosed.

2. Scheduled Items

2.1 Parks and Recreation Master Plan

That the following actions be taken with respect to the Parks and Recreation Master Plan:

- a) a Working Group BE ESTABLISHED consisting of S. Hall, S. Levin and R. Trudeau, to review and provide comments to the Civic Administration prior to April 23, 2019; and,
- b) the Environmental and Ecological Planning Advisory Committee (EEPAC) BE GRANTED delegation status when the Parks and Recreation Master Plan is presented to the Community and Protective Services Committee;

it being noted that the EEPAC reviewed and received the following with respect to this matter:

- the attached presentation from A. Macpherson, Division Manager, Parks Planning and Operations and S. Stafford, Managing Director, Parks and Recreation;
- the attached Children & Nature Facts from A. Macpherson, Division Manager, Parks Planning and Operations; and,
- a communication from A. Macpherson with respect to responses to the EEPAC comments on this matter.

2.2 (ADDED) City of London Long Term Water Storage Municipal Class Environmental Assessment

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee heard the attached presentation from A. Rosentals, Division Manager, Environmental and Engineering Services, P. Lupton, Environmental Services Engineer and B. Holden, Ecologist, AECOM, with respect to the City of London Long Term Water Storage.

3. Consent

3.1 4th Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the 4th Report of the Environmental and Ecological Planning Advisory Committee, from its meeting held on March 21, 2019, was received.

3.2 3rd Report of the Trees and Forests Advisory Committee

That it BE NOTED that the 3rd Report of the Trees and Forests Advisory Committee, from its meeting held on March 27, 2019, was received.

3.3 Municipal Council Resolution - 2nd Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the Municipal Council resolution adopted at its meeting held on March 26, 2019, with respect to the 2nd Report of the Environmental and Ecological Planning Advisory Committee, was received.

3.4 Proposed 2019 City Funded ESA Capital Projects

That it BE NOTED that the proposed 2019 City Funded Environmentally Significant Areas Capital Projects list, was received.

3.5 ESA Management Committee Meeting Minutes

That it BE NOTED that the ESA Management Committee Meeting minutes from its meeting held on October 24, 2018, were received.

3.6 Notice of Study Commencement - Dingman Drive East of Wellington Road to Highway 401 and Area Intersections - Municipal Class Environmental Assessment

That the Project Managers BE REQUESTED to advise the Environmental and Ecological Planning Advisory Committee (EEPAC) of the correlation between the Dingman Creek Subwatershed Study and the Municipal Class Environmental Assessment currently being undertaken; it being noted that the EEPAC reviewed and received the Notice of Study Commencement for Dingman Drive East of Wellington Road to Highway 401 and area intersections Municipal Class Environmental Assessment, from M. Elmadhoon, Project Manager, The Corporation of the City of London and P. McAllister, Project Manager, AECOM Canada Ltd.

3.7 Notice of Planning Application - Official Plan and Zoning By-law Amendments - 146 Exeter Road

That it BE NOTED that the Notice of Planning Application relating to the property located at 146 Exeter Road, from N. Pasato, Senior Planner, was received.

4. Sub-Committees and Working Groups

4.1 Draft Plan Subdivision and Zoning By-law Amendment - 1938 and 1964 Commissioners Road East and Portion of 1645 Hamilton Road

That the following actions be taken with respect to the Draft Plan of Subdivision and Zoning By-law Amendment for the properties located at 1938 and 1964 Commissioners Road East and 1645 Hamilton Road:

- a) B. Krichker BE INCLUDED in the Environmental and Ecological Planning Advisory Committee (EEPAC) existing Working Group; and,
- b) the Working Group comments relating to the Draft Plan of Subdivision and Zoning By-law Amendment for the properties located at 1938 and 1964 Commissioners Road East and 1645 Hamilton Road BE POSTPONED to the next EEPAC meeting to allow the EEPAC to meet with staff.

5. Items for Discussion

5.1 Notice of Proposed Changes to the Site Plan Control By-law - Bird Friendly Development - Site Plan Control By-law Proposed Changes

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee held a general discussion and reviewed and received a Notice of proposed changes to the Site Plan Control By-law relating to Bird Friendly Development.

5.2 Strategic Plan

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee held a general discussion and reviewed relevant pages of the Strategic Plan.

6. Deferred Matters/Additional Business

6.1 (ADDED) London Invasive Plant Strategy

That, the following actions be taken with respect to the communication dated April 8, 2019, from T. Cooke, Executive Director, Invasive Species Centre, congratulating the City of London on their excellent work on the London Invasive Plant Management Strategy:

- a) the Civic Administration BE CONGRATULATED on their achievement; and,
- b) the above-noted communication BE RECEIVED.

6.2 (ADDED) Notice of Planning Application - Draft Plan Subdivision and Zoning By-law Amendment - 1176, 1200 and 1230 Hyde Park Road and a Portion of 1150 Gainsborough Road

That a Working Group BE ESTABLISHED consisting of S. Hall, S. Levin and S. Sivakumar, to review the Notice of Planning Application relating to the properties located at 1176, 1200 and 1230 Hyde Park Road and a portion of 1150 Gainsborough Road, from C. Smith, Senior Planner and to report back at the next Environmental and Ecological Planning Advisory Committee meeting.

7. Adjournment

The meeting adjourned at 7:09 PM.



City of London Parks and Recreation Master Plan

April 2019

Environmental & Ecological Advisory Committee



About the Master Plan

Creating a "Game Plan" for Parks, Recreation Programs, Sport Services and Facilities

- The Master Plan provides an overall vision and direction for making decisions.
- It is based on public input, participation trends and usage, best practices, demographic changes and growth forecasts.
- The Plan will be used by the City to guide investment in parks, recreation programs, sport services, and facilities over the next ten years and beyond.



Project Scope



- **Recreation Programming**, such as aquatic, sport, wellness, arts/crafts, dance/music, and general interest programs provided by the City and other sectors



- **Recreation and Sport Facilities**, such as community centres, pools, sports fields, playgrounds and more



- **Parks & Civic Spaces**, such as major parks, neighbourhood parks, gardens and civic squares



- **Investment in the Community**, such as neighbourhood opportunities, public engagement, sport tourism and more



Project Scope

Items out of Scope:

- **Parkland Dedication Policies** (guided by the London Plan and Parkland Conveyance & Levy By-Law)
- **Cycling and Bike Lanes** (addressed in the London Plan and Cycling Master Plan)
- **Environmentally Significant Areas** (guided by the London Plan policies and technical recommendations within individual Conservation Master Plans)
- **Arts, Culture and Heritage** (guided by the Cultural Prosperity Plan and related reports)

Although these items are addressed in other studies, the Master Plan will ensure [alignment](#)



Project Overview



Phase One

Research and Consultation



Phase Two

Development of Recommendations and Strategies



Phase Three

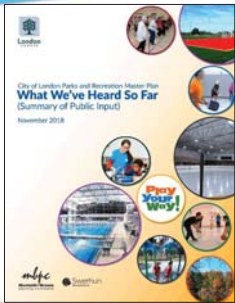
Testing the Master Plan and Project Finalization



What We've Heard So Far (Background report)

Consultation Summary





PARTICIPATION IN PARKS, RECREATION AND SPORT ACTIVITIES – TOP 3:

- 1 - Walking for leisure - 72%
- 2 – Hiking on Nature trails – 54%
- 3 – Cycling – 50%

Purpose of That Session

To **learn** about your challenges and priorities.

To **share** your experiences with us.

To **discuss** ideas and opportunities to be considered within the Master Plan.

We shared our notes back with you to ensure we had recorded the information correctly.



-EEPAC would like guidance as to how to assist staff to achieve the objective to, "improve awareness and understanding about the importance of the City's natural heritage system, the city's urban forest and their broader role within Carolinian Canada"

...further comments on 2009 Plan provided by EEPAC

- Recommend the Master Plan exclude ESAs and other components of the Natural Heritage System
- Define Accountability (guiding principle of 2009 Plan)– what does it mean in this context and how does it relate to any of this Plan?
- Unwise to include the Natural Heritage System in this plan

- Artificial turf – question why we would invest in this if it causes more injuries?
- Supporting volunteers – what is the role of the expert volunteer?
- Role of AODA and the impact of these regulations on trail development in ESAs
- Gaps in Thames Valley Parkway – should only be addressed outside the Natural Heritage System
- Use of term Natural Heritage – needs its own guiding principle if being kept in the plan

- Use of term parks
- Use of term environment – it has a number of common meanings
- Cats in ESAs – only dogs were addressed
- Awareness of natural heritage system – no work done on private land just for public land; encourage awareness of environmental sensitivity
- State the Bicycle Master Plan avoids the Natural Heritage system
- Guidelines for the use of Significant Woodlands is needed
- Natural Heritage System – not recreation over protection and enhancement

- City is not required to follow the advice of any advisory committees
- Define passive recreation – use increase in Natural Heritage System is in conflict with protection
- Completion of pathway and trails network is in conflict with protecting the Natural Heritage System
- Thames Valley Corridor Plan is more about recreation than preservation

KEY ISSUES:

- Exclude the whole Natural Heritage System from the Plan
- Pathways and trails can be in conflict with the NHS
- The Thames Valley Corridor Plan is only about recreation
- Clarify terminology / definitions
- Additional comments – many covered in the Staff submission

What the Draft Parks and Recreation Master Plan says....

- Did we hear you and respond appropriately?
- Did we miss anything?
- Anything else you would like to add?

VISION

- *In London, all residents – regardless of age, ability, culture, gender, income, or where they live – have opportunity to participate and share in meaningful and accessible parks, recreation and sport experiences.*

	Goal 1: ACTIVE LIVING	We will support and promote opportunities for active living. This will be achieved through unstructured and structured experiences that encourage regular physical activity and healthy aging.
	Goal 2: INCLUSION & ACCESS	We will remove barriers to participation by adopting a model of "access for all". This will be achieved by welcoming and including all residents.
	Goal 3: CONNECTING PEOPLE & NATURE	We will strengthen residents' connections with their neighbourhoods and nature. This will be achieved through public awareness, neighbourhood-driven activities and decision-making, and opportunities to animate and enjoy London's outdoor spaces and places.
	Goal 4: SUPPORTIVE ENVIRONMENTS	We will invest strategically in parks, recreation, and sport infrastructure to support the Master Plan goals. This will be achieved by responding to demonstrated community needs through the thoughtful design, provision, and management of parks, facilities, and spaces.
	Goal 5: RECREATION CAPACITY	We will deliver exceptional parks, recreation, and sport services. This will be achieved through the use of effective and responsive practices, partnerships, innovation, leadership, and accountability at all levels.

Note: The goals of this Parks and Recreation Master Plan are aligned with the Framework for Recreation in Canada (2015).

Issue Response

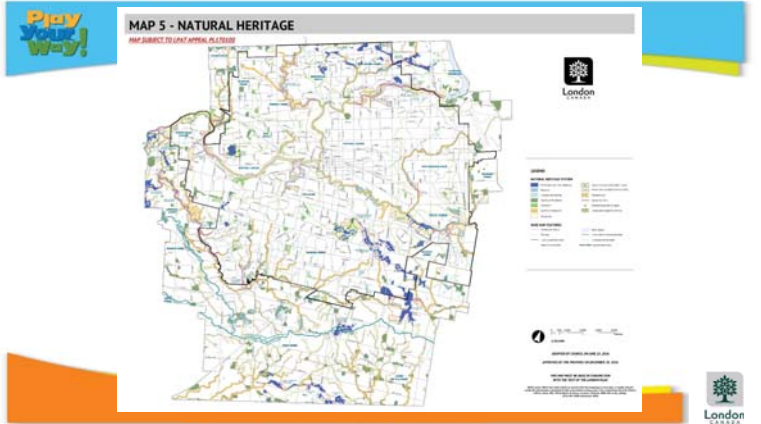
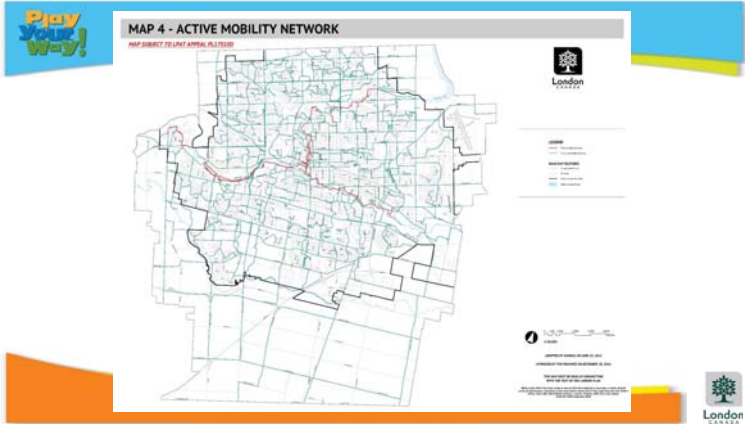
KEY ISSUE:

Exclude the whole Natural Heritage System from the Plan

- PPS has policies to identify and protect significant features and functions, and has policies to provide recreational opportunities in nature and at shorelines while "minimizing impacts on those areas"
- OP has dozens of policies about the identification, protection and management of significant features and functions and for the provision of an interconnected park system and pathway system
- Studies say that humans need more interaction with nature for their physical and mental health, especially kids

Issue Response

- ESAs are excluded from the Plan, other than to note that Londoners clearly value hiking in nature as their #2 recreational activity
- The NHS overlaps with much of the parks system. In our urban context, the natural environment and recreation have co-existed for decades
- In an urban setting, river and stream corridors can provide cultural, aesthetic, recreational and environmental benefits
- Criteria used for determining woodland significance include cultural and recreational use
- The City has enhanced the NHS by naturalization of over 15% of its parkland in the last 20 years.





Issue Response

KEY ISSUE:

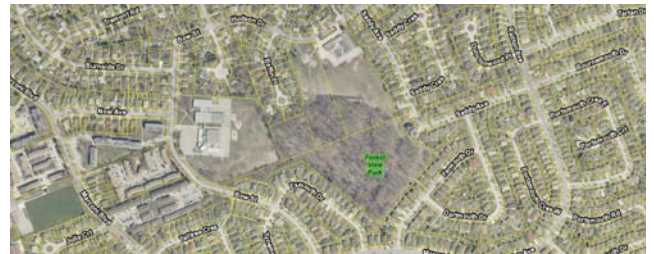
Pathways and trails can be in conflict with the NHS

- Agreed, if no trail planning is done
- If done well, trails and pathways help protect the NHS from user impacts by directing use away from sensitive features/functions
- Properly planned trails and pathways can allow all Londoners access to enhance their appreciation of nature
- Pathways and trails can be 4 season, free recreational opportunities
- Pathways and trails are relatively inexpensive to construct and maintain



Issue Response

- Increased positive trail use can deter inappropriate/illegal uses
- Various levels of trail planning / design are carried out
- All new and rebuilt recreational trails must meet AODA requirements, unless exempted due to "significant impacts" on the environment
- Appropriate ecological studies are done
- Required regulatory approvals are sought and received – MNFR / UTRCA / DFO / MOE / OBC
- Projects include environmental enhancements, such as invasive species removal



Issue Response

KEY ISSUE:

The Thames Valley Corridor Plan is only about recreation

- TVCP Vision:

The Thames Corridor is London's most important natural, cultural, recreational and aesthetic resource. The City and community partners will preserve and enhance the natural environment, Thames River health, vistas, beauty and cultural heritage while accommodating compatible infrastructure, accessibility and recreation.



Issue Response

1. Establish a continuous corridor with a minimum width and identify linkages to tributary sub-watersheds.
2. Preserve and enhance natural heritage features including vegetation, wildlife habitat, water quality, improved erosion control (storm/sewage impacts).
3. Preserve and enhance cultural heritage through educational signage, building preservation and identification of historical significance.
4. Develop guidelines and policies to ensure development along the corridor is compatible with the goals and objectives of the Plan.
5. Preserve and enhance the aesthetic beauty of the corridor.





Issue Response

6. Determine what infrastructure is compatible for inclusion in the corridor (such as utilities and buildings).
7. Determine and map compatible recreation uses. Identify suitable points of access, pathway and trail systems, lookout points and linkages to communities and Thames Valley Parkway.
8. Engage citizens in plans for the corridor through education, sharing of information and consultation. Create signage and promote stewardship and riverside clean-ups.
9. Determine what measures are necessary to ensure safe use of the Thames Valley Corridor (such as safe trails and access points).
10. Determine appropriate policies, regulations and enforcement through integration with the Official Plan.



Issue Response

KEY ISSUE:

Clarify terminology / definitions

- Can edit Plan to include definitions for:
 - Natural Heritage System – OP term
 - Open Space – traditional term for lands that were not maintained parks
 - Green Space – new OP term for all lands
 - Park – unique to London / park classifications
 - Passive Recreation – new term
 - Trail – Unique to London



Recommendations

- Recreational Trails and Pathways – opportunities for immersion in, experience, respect and value nature, where ecologically appropriate – ensure new trails are AODA compliant, address gaps in recreational trail and pathway network (site specific analysis, including application of applicable policies and guidelines)
- Make parks and facilities walkable and accessible by residents
- Use recreation to help people connect with nature and be stewards of the natural environment.



Recommendations

- Connecting People with Nature/Thames River – through program design, between centres and their outdoor spaces, shoreline access (in keeping with best environmental practices), education and nature appreciation
- Environmental Health and Stewardship – enhanced management of municipal woodlands, stakeholder and resident stewardship of parks, awareness and understanding of Natural Heritage System, naturalization, greening efforts, management of urban wildlife and invasive species
- Outdoor Play – develop strategy for more challenging play



Recommendations

- Apply effective designs and management strategies that support healthy and sustainable environments, such as natural landscapes, native plants, and natural heritage education opportunities.

Other recommendations cover the main Goals of the Plan in the Areas of:

- Active Living
- Inclusion and Access
- Supportive Environments
- Recreation Capacity



Parks and Recreation
MASTER PLAN

We want your feedback
on the Parks and Recreation Master Plan draft recommendations

Visit getinvolved.london.ca to review the recommendations and provide feedback.

Or if you would prefer to provide input in person please visit one of our **Open Houses**:

- Kinsmen Recreation Centre, 20 Granville St.
- Wednesday, April 3 | 1 - 3 p.m.
- Kiwanis Seniors' Community Centre, 78 Riverside Dr.
- Wednesday, April 3 | 6 - 8 p.m.



You may still provide input by April 23:

1. Any questions or comments to:
dbaxter@london.ca
2. You are encouraged to read through all of the recommendations online and provide comments online:
getinvolved.london.ca/playyourway



AODA Regulations

Obligated organizations shall ensure that **any** recreational trails that they construct or redevelop, and that they intend to maintain, meet the following technical requirements:

1. A recreational trail must have a minimum clear width of 1,000 mm.
2. A recreational trail must have a clear height that provides a minimum head room clearance of 2,100 mm above the trail.
3. The surface of a recreational trail must be firm and stable.
4. Where a recreational trail has openings in its surface,
 - i. the openings must not allow passage of an object that has a diameter of more than 20 mm, and 32
 - ii. any elongated openings must be orientated approximately perpendicular to the direction of travel.

1 of 5 Exceptions

There is a **significant** risk that the requirements, or some of them, would adversely affect water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values, whether the adverse effects are direct or indirect



FACTS CHILDREN & NATURE



PHYSICAL HEALTH & DEVELOPMENT

MENTAL HEALTH & EMOTIONAL WELL-BEING

SOCIAL & COGNITIVE DEVELOPMENT



PHYSICAL ACTIVITY

Children who have greater access to nature are more physically active

FOOD

Children who have access to school and community gardens eat more fruits and vegetables



OBESITY

Children are less likely to be overweight or obese when living within walking distance to a park or playground in their neighbourhood



ADHD

Spending more time in green space and proximity to green space is associated with milder ADHD symptoms

MENTAL HEALTH & WELL-BEING

Proximity to green space or parks is associated with better mental health and well being

Neighbourhood green space has the potential to help children from low income families have better emotional health early in life



SCHOOL

Direct and indirect contact with natural environments surrounding schools has a positive affect on academic success

Learning outdoors in nature can benefit self-esteem, confidence, and cognitive functioning

BEHAVIOUR

Adolescents that have greater access to nature in their environments have fewer behavioural and conduct problems



LAWSON
FOUNDATION



HEAL
HUMAN ENVIRONMENTS ANALYSIS LABORATORY

CONNECTING CHILDREN WITH NATURE



Connecting children with nature has benefits for their physical health, mental and emotional well-being, and social and cognitive development. We recommend encouraging children's contact with nature at home, in school, and in community settings by increasing their access to greenspace, parks, and natural landscapes, and by developing opportunities for hands-on outdoor learning.

BACKGROUND

In recent decades, children's overall exposure to nature has steadily declined,¹ while childhood obesity rates and mental health issues have continued to rise.² In an age of electronic gadgets and video screens, children are spending less time outdoors engaging with nature. Meanwhile, growing evidence indicates that connecting children to nature can improve their physical and psychological health.³

To learn more, we conducted three systematic reviews to investigate the impact of nature exposure on children's physical health and development, mental health and emotional well-being, and social and cognitive development. This fact sheet illustrates actions for researchers, policy-makers, practitioners, and parents.

EVIDENCE

How does nature benefit physical health and development?

Children who are exposed to gardens in school or community settings are more likely to eat fruits and vegetables, try new ones, choose them over unhealthy snacks, and to find them tastier if they helped grow them!⁴ School gardening and nutrition programs have had positive effects in preventing obesity.⁵

Children who live in "walkable" neighbourhoods with greenspace, parks, and many trees tend to have lower rates of obesity and asthma, and higher rates of physical activity and health-related quality of life.⁶ Children are more likely to walk to school if their route is well treed.⁷

Children with access to parks, playgrounds, and outdoor amenities are more likely to be physically active, play with higher intensity, and are less likely to be overweight and obese. This is especially true if the parks are within walking or biking distance and have facilities that encourage physical play.⁸

How does nature benefit mental health and emotional well-being?

Nature has a positive impact on children's mental health and emotional well-being, particularly for vulnerable populations. Children generally report positive feelings while in nature, and green, natural environments have been shown to increase concentration and decrease symptoms of ADHD.⁹

Children who live further away from parks are more likely to have poorer mental health. Having more neighbourhood greenspace is associated with better emotional resilience in poor children, and has been shown to buffer stressful life events.¹⁰

Children's participation in outdoor adventure and wilderness therapy programs has led to improvements in clinical symptoms, resiliency, self-esteem, and behaviour disorders.¹¹

How does nature benefit social and cognitive development?

Greenery surrounding schools is associated with enhancements in memory and focus, reductions in inattentiveness, and improvements in academic success.¹²

School garden programs have been shown to improve academic success, reduce dropout rates, and to have positive effects on interpersonal relationships.¹³

Children who engaged in outdoor education programs or "forest schools" improved their math skills, social skills, self-esteem, confidence, communication, and cognitive function.¹⁴

Wilderness therapies have been shown to decrease behavioural problems in adolescents and to effect positive changes in identity, sense of purpose, and self-worth.¹⁵

Access to parks and greenspace has been associated with increased pro-social behaviour, and fewer conduct problems and difficulties with peers.¹⁶

RECOMMENDATIONS

For Researchers

Conduct more research into the design of home environments, schoolyards, parks and other neighbourhood settings in relation to how best to promote physical activity.

Investigate the impact of nature during different seasons, locations, and quality/types of vegetation (e.g. winter, rural).

Develop new methods and study designs that include natural experiments, longitudinal, qualitative, and mixed-method designs, and more precise measures of location.

Examine the impact of nature exposure on other critical aspects of children's health, including sleep, anxiety, and depression.

Conduct more research to measure the duration of the effects, types and "doses" of exposure to nature, and of structured vs. everyday contact.

For Policymakers

Enact and reform municipal policies to add more green space, parks, and trees in more neighbourhoods.

Support school-based policies that encourage physical activity in natural environments, outdoor learning, school gardens, and nature exposure in curricula.

Develop strategies and programs to foster positive attitudes towards outdoor recreation among parents.

Develop policies at all levels of government to support greener environments for children, particularly vulnerable populations.

For Practitioners

Urban planners: build and renew/renovate parks to foster physical activity in a safe and accessible environment, increase trees and grass in public housing developments, allocate green space within urban settings, and include community garden sites in parks and recreation areas.

Incorporate more greenery, trees, gardens, and large windows for green views into the design and renovation of schools.

Recognize green school grounds and outdoor environments as an effective intervention for promoting children's health and well-being. Emphasize the effects nature has on health.

Foster multidisciplinary strategies to incorporate urban nature and ecological planning considerations into decision-making processes.

For Parents

Engage in gardening activities with children around home and in the community.

Encourage children to spend more time playing in parks and natural areas.

Take nature walks with children and plan walking routes to school to maximize nature exposure.

Lobby school boards and municipal policymakers to incorporate more greenspace and maximize nature exposure in children's environments.


For References & Full Report:
www.theheal.ca/projects

NATURE CAN IMPROVE HEALTH AND WELLBEING

Spending time in nature provides children with a wide range of health benefits.

HEALTHY BABIES

Nature exposure for mothers can promote:


BETTER
FETAL GROWTH¹


HEALTHIER
BIRTH WEIGHTS^{1,2,3}

HEALTHY EYES AND VITAMIN D LEVELS

Time spent in bright sunlight can:

REDUCE
NEARSIGHTEDNESS^{5,6,7}

INCREASE
VITAMIN D LEVELS⁸

NATURE CONTACT IS
especially beneficial for mothers of
lower education and socio-economic levels^{2,3,4}

INCREASED PHYSICAL ACTIVITY

Access to parks and
greenspace can foster:

INCREASED
PHYSICAL
ACTIVITY^{11,12}

REDUCED
RISK OF
OBESITY¹³

OUTDOOR PLAY
increases the likelihood
that girls will remain
active into adolescence¹⁴

Children are better able to cope with stress
when they live near trees and other greenery.^{15,16}

SOCIAL-EMOTIONAL WELLBEING

Learning in nature can support:



IMPROVED
RELATIONSHIP SKILLS^{17,20}



REDUCED STRESS¹⁷
ANGER^{10,19}
AND AGGRESSION^{10,19}

children & nature
NETWORK

NLC
NATIONAL
LEAGUE
OF CITIES

THE
JIB
FOUNDATION

ADDITIONAL RESEARCH ON THE BENEFITS OF NATURE AVAILABLE AT childrenandnature.org/research

SUPPORTING RESEARCH

Dzhambov et al. (2014). Association between residential greenness and birth weight. Systematic review and meta-analysis. *Urban For Urban Gree*, 13(4), 621-629. ¹ Markevych et al. (2014). Surrounding greenness and birth weights: Results from the GINIplus and LISAplus birth cohorts in Munich. *Health Place*, 26, 39-46. ² Davdand et al. (2014). Inequality, green spaces, and pregnant women: Roles of ethnicity and individual and neighbourhood socioeconomic status. *Environ Inter*, 71, 101-108. ³ Agay-Shay et al. (2014). Green spaces and adverse pregnancy outcomes. *Occup Environ Med*, 71(8), 562-9. ⁴ French et al. (2013). Time outdoors and the prevention of myopia. *Exp Eye Res*, 114, 58-68. ⁵ He et al. (2015). Effect of time spent outdoors at school on the development of myopia among children in China. *JAMA*, 314(11), 1142-1148. ⁶ Dolgin (2015). The myopia boom: Short-sightedness is reaching epidemic proportions. Some scientists think they have found a reason why. *Nature*, 519, 276 - 278. ⁷ McCurdy et al. (2010). Using nature and outdoor activity to improve children's health. *Curr Prob Pediatr Adolesc Health Care*, 40(5), 102-117. ⁸ Pagels et al. (2014). A repeated measurement study investigating the impact of school outdoor environment upon physical activity across ages and seasons in Swedish second, fifth and eighth graders. *BMC Public Health*, 14(1), 803. ⁹ Almanza et al. (2012). A study of community design, greenness, and physical activity in children using satellite, GPS and accelerometer data. *Health Place*, 18(1), 46-54. ¹⁰ Hartig et al. (2014). Nature and health. *Annual Rev Publ Health*, 35, 207-28. ¹¹ Christian et al. (2015). The influence of the neighborhood physical environment on early child health and development: A review and call for research. *Health Place*, 33, 25-36. ¹² Wolch et al. (2011). Childhood obesity and proximity to urban parks and recreational resources: A longitudinal cohort study. *Health Place*, 17(1), 207-214. ¹³ Duncan et al. (2014). The effect of green exercise on blood pressure, heart rate and mood state in primary school children. *Int J Environ Res Public Health*, 11(4), 3678-3688. ¹⁴ Wells & Evans (2003). Nearby nature: A buffer of life stress among rural children. *Environ Behav*, 35(3), 311-330. ¹⁵ Corraliza et al. (2012). Nature as a moderator of stress in urban children. *Procedia - Soc Behav Sci*, 38, 253-263. ¹⁶ Chawla et al. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health Place*, 28, 1-13. ¹⁷ Roe & Aspinall (2011). The restorative outcomes of forest school and conventional school in young people with good and poor behavior. *Urban For Urban Gree*, 10, 205-212. ¹⁸ Younan et al. (2016). Environmental determinants of aggression in adolescents: Role of neighborhood green space. *J Am Acad Child Adolesc Psychiatry*, 55(7), 591-601. ¹⁹ Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452.

C&NN recognizes that not all studies support causal statements.

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NATURE CAN IMPROVE ACADEMIC OUTCOMES

Spending time in nature enhances educational outcomes by improving children's academic performance, focus, behavior and love of learning.

BETTER ACADEMIC PERFORMANCE

Learning in natural environments can:



BOOST PERFORMANCE
in reading, writing, math, science and social studies
1, 2, 3, 4, 5



ENHANCE
creativity, critical thinking and problem solving⁹

Seeing nature from school buildings can foster academic success^{9, 7, 8}

ENHANCED ATTENTION

Spending time in nature can help children focus their attention:



FOCUS AND ATTENTION
10, 11, 12, 15



ADHD SYMPTOMS
14, 15

The greener the setting, the better the focus^{14, 15}

INCREASED ENGAGEMENT & ENTHUSIASM

Exploration and discovery through outdoor experiences can promote motivation to learn:



INCREASED ENTHUSIASM FOR LEARNING
1, 16



GREATER ENGAGEMENT WITH LEARNING¹⁷



MORE IMPULSE CONTROL¹⁰



LESS DISRUPTIVE BEHAVIOR
20

SUPPORTING RESEARCH

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Welcome City of London Long Term Water Storage

Municipal Class Environmental Assessment Public Information Centre #2

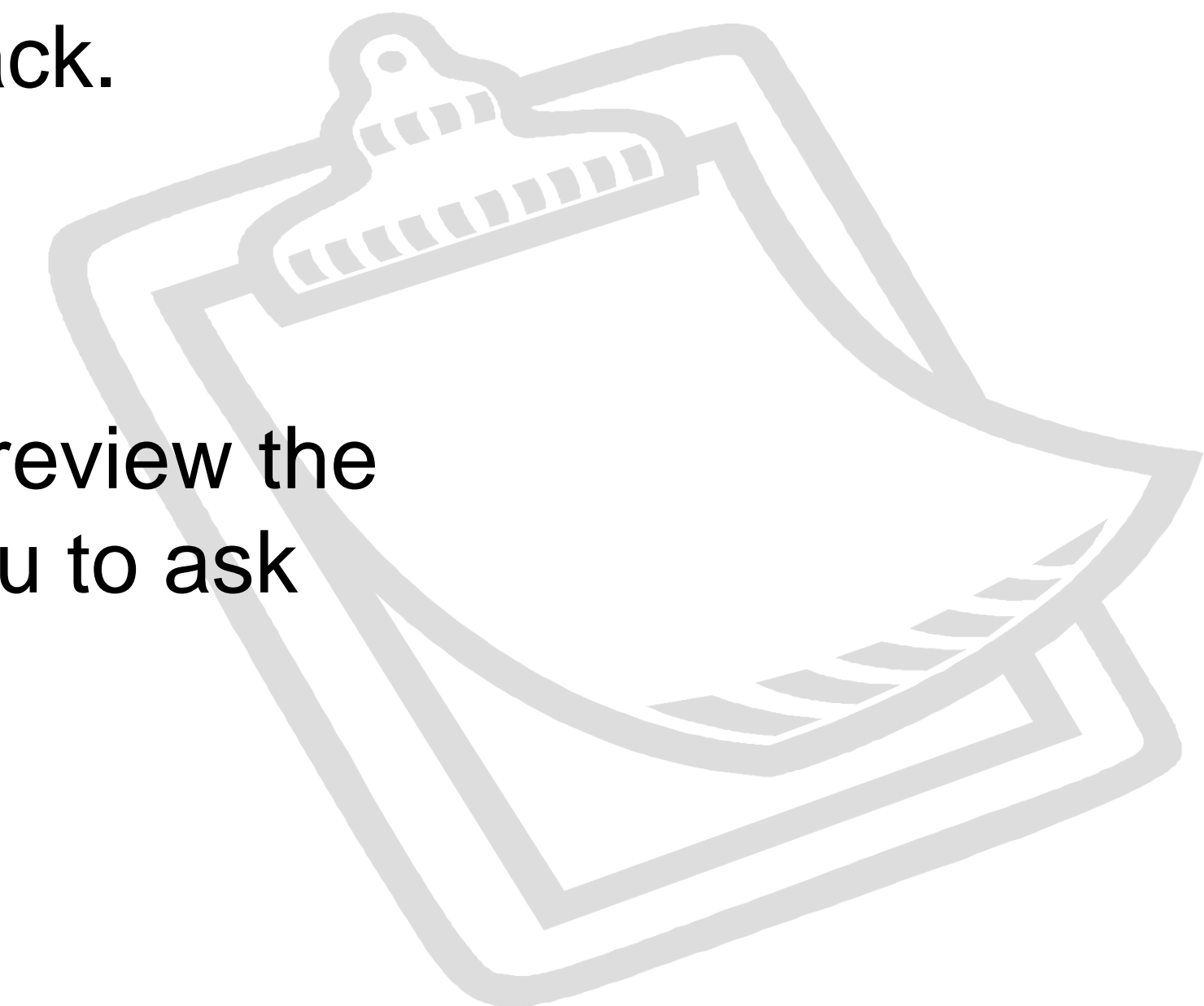
November 28, 2018



The purpose of this Public Information Centre (PIC) is to:

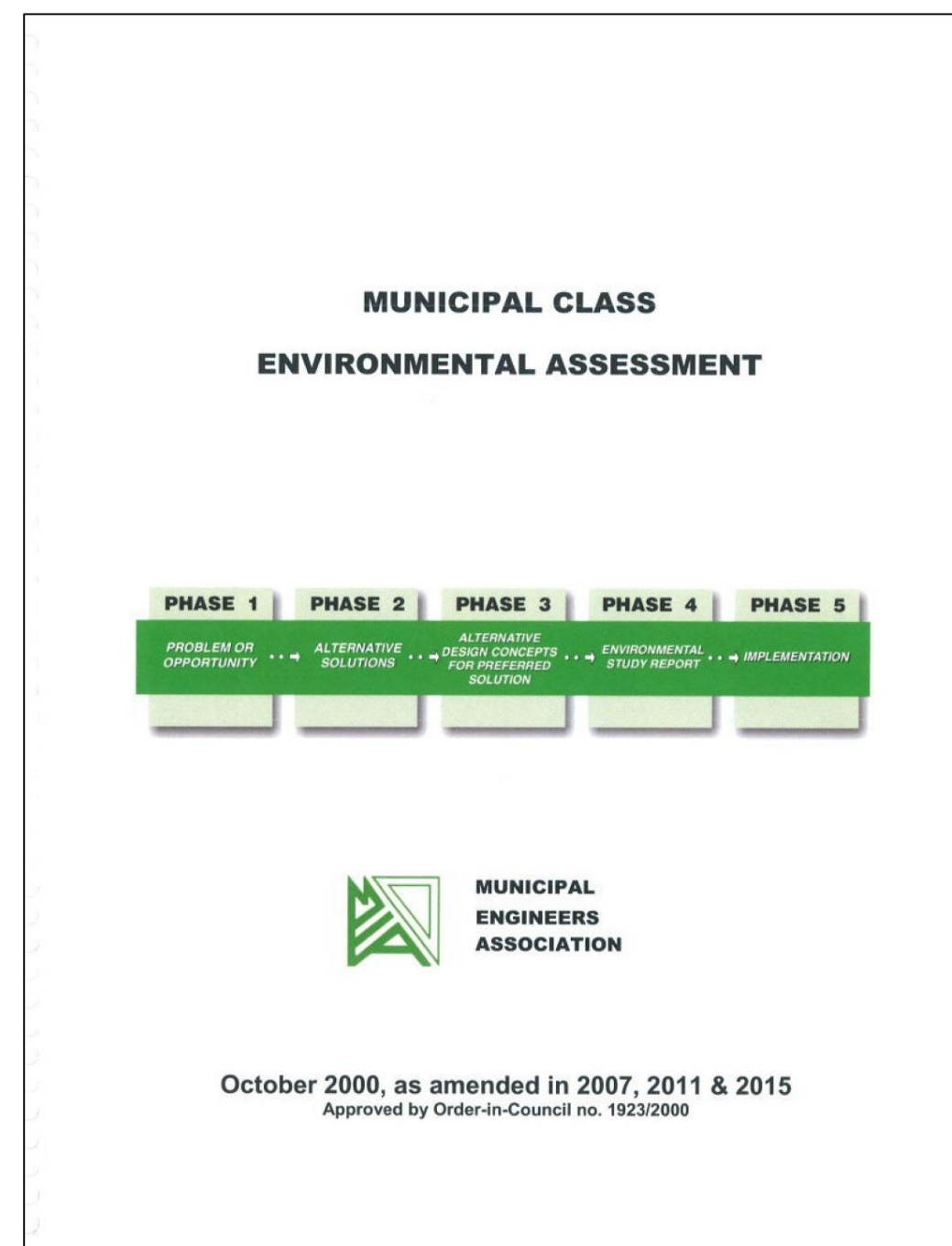
- Present an overview of the results from PIC #1 (June 2018);
- Summarize the work undertaken since June;
- Present the evaluation of reservoir locations;
- Present the preferred alternatives; and,
- Meet the project team and get your feedback.

Please take a comment form and a pen. As you review the information presented today, we encourage you to ask questions and provide feedback.



What is a Municipal Class Environmental Assessment?

- A Municipal Class Environmental Assessment (EA) is a process approved under Ontario’s **Environmental Assessment Act**.
- It enables municipal infrastructure projects to be planned with a proven process for protecting the environment.
- This project is following the Municipal Class EA process for **Schedule ‘B’** projects.
- Schedule ‘B’ projects must follow **Phases 1 and 2** of the Class EA process.
- At the end of the EA process, a Project File report will be prepared for public review and comment.



What is the Purpose of this Class EA?

To select a preferred storage location through a comprehensive, environmentally sound planning process that is open to public participation.

Municipal Class Environmental Assessment Process



Problems and Opportunities

- The City of London’s water system provides safe drinking water to residents, businesses and industries within the City limits.
- Springbank Reservoir #2 requires continued maintenance and repair and is reaching the end of its service life. The City would like to consider retiring the facility when it reaches the end of its life expectancy anticipated in 2022. As a result, comparable reservoir capacity (45ML) will need to be replaced or better located within the City’s water system.
- The Arva Reservoir and Pumping Station can provide water via the Lake Huron Water Supply System to the entire City during a power outage. However, the water supply rate and pressure is reduced compared to normal operating conditions and emergency needs. The City needs to have adequate standby power to operate the Arva distribution pumps to the City and be able to utilize the volume of water in storage at the Arva Reservoir.
- Additional water storage is necessary to meet future growth demands to 2054 and beyond.
- The City must also consider the potential of a disruption or reduction in water supply during emergency situations in planning for the storage needs of the City’s water system, as well as Ministry of Environment and Climate Change fire balancing and daily peak demand needs.

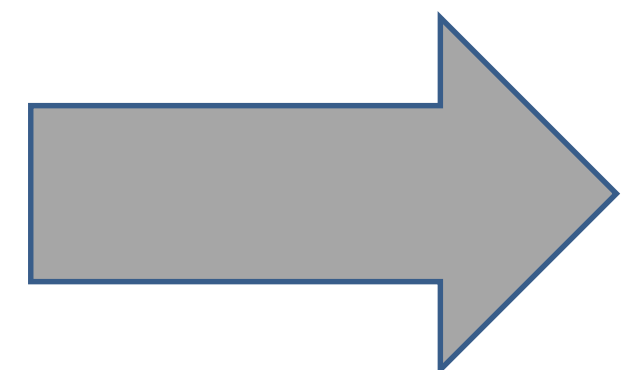
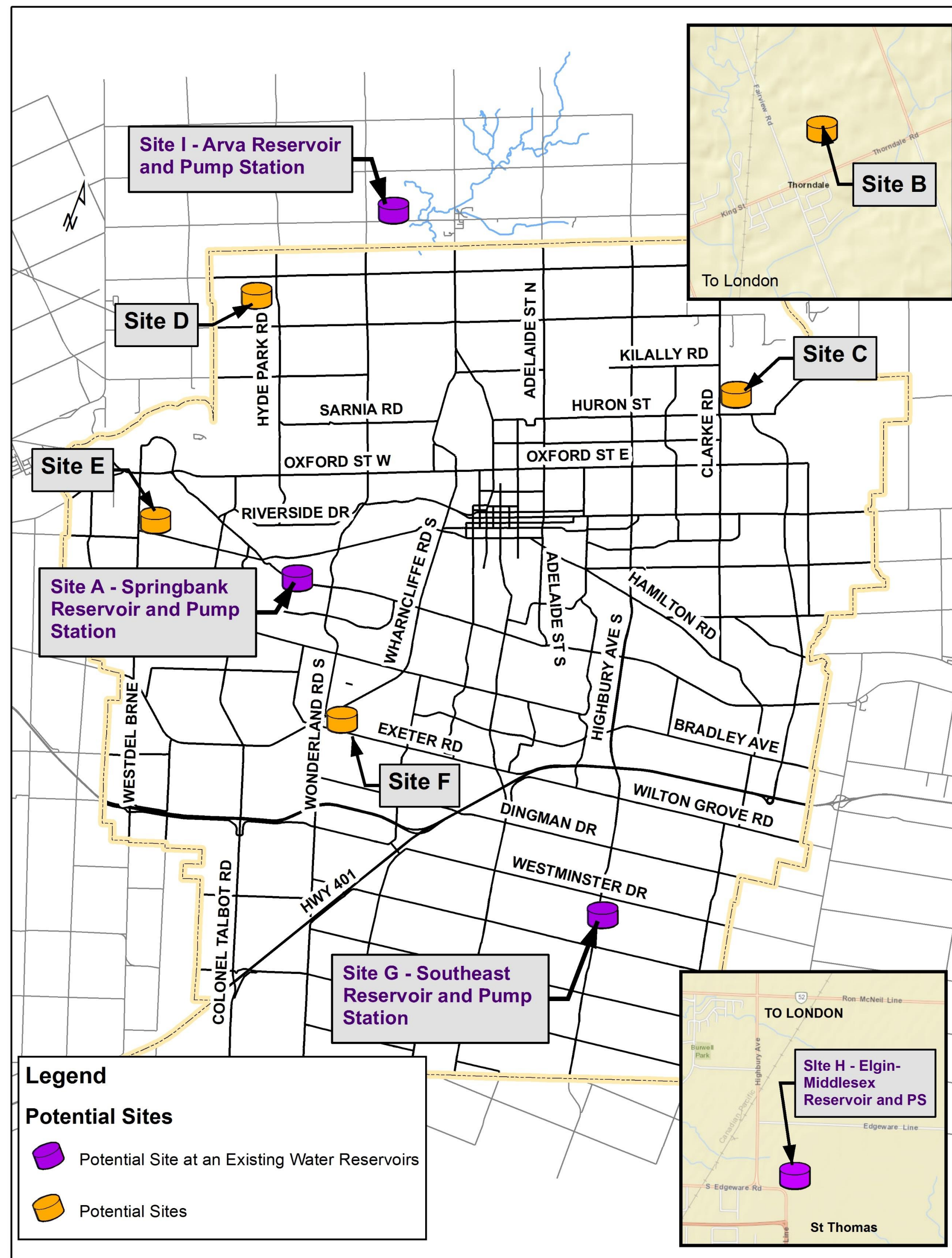
Problem and Opportunity Statement

The City of London provides water storage and distribution from the Arva, Elgin-Middlesex, Southeast and Springbank reservoirs. From these sources, water is provided for drinking water, daily household use, business and industrial needs and fire protection. Water can also be provided during water disruptions or if pressures within the City’s water system are reduced. However, the existing water system is not able to provide flows at a supply rate and pressure necessary to meet peak demand, fire and/or emergency needs based on future growth. Additionally, Reservoir #2 at Springbank is subject to ongoing maintenance associated with this aging facility and is nearing the end of its service life.

This Class EA study will examine opportunities to address these issues and determine a preferred solution for future water storage that will contribute to the overall City water system to meet daily operation and emergency needs, to meet future growth.

The Long List of Candidate Reservoir Locations (9) were evaluated and reduced to a Short List of Candidate Reservoir Locations (4).

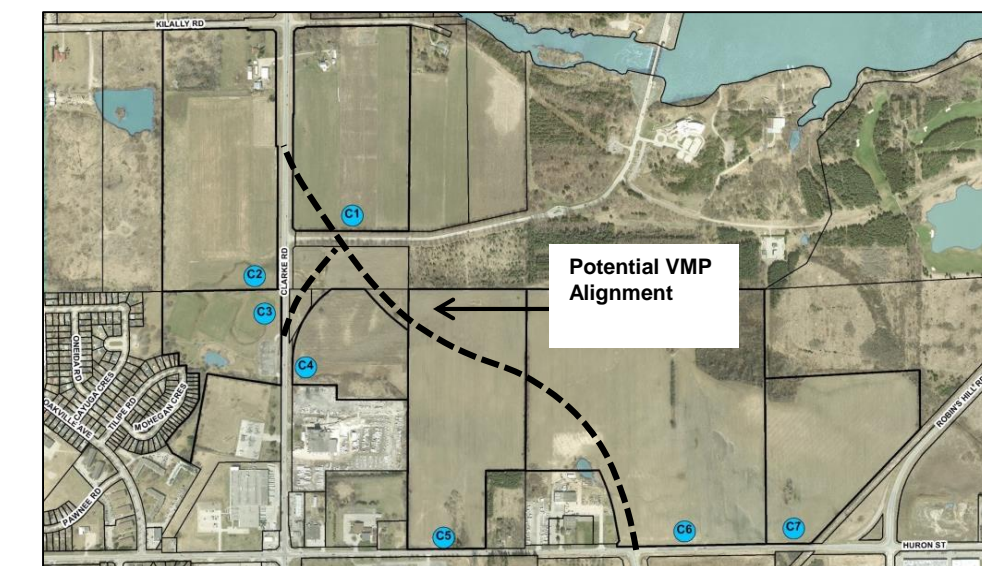
Within 2 of these locations (Site A and Site C), multiple sites were identified.



Site A: Option 1 – Reservoir on top of and adjacent to the Reservoir #2 footprint



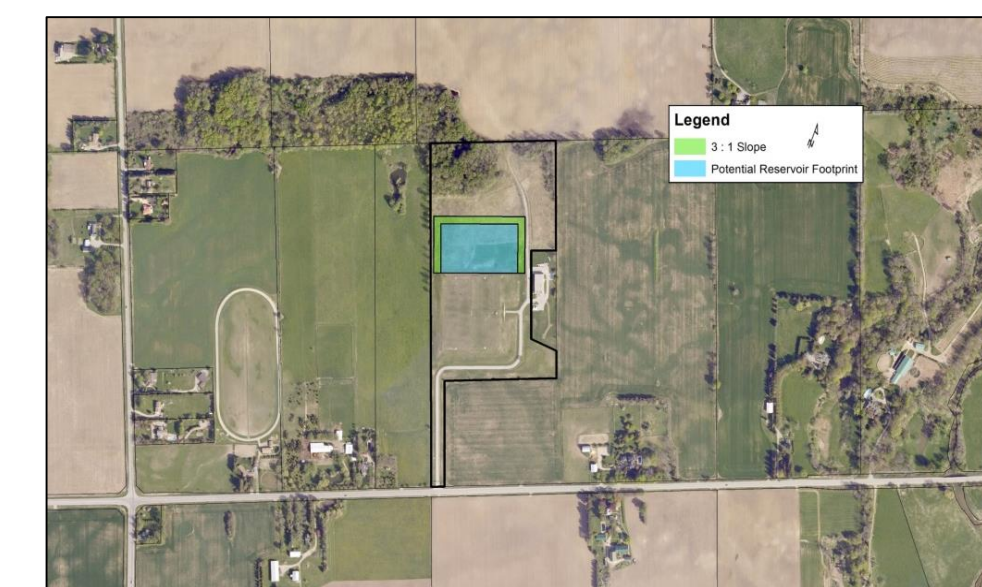
Site A: Option 2 - Reservoir adjacent to the Reservoir #2 footprint



Site C: City Northeast (7 potential sites)



Site G: Southeast Reservoir (1 potential site)



Site I: Arva Reservoir (1 potential site)

Natural Heritage

- A preliminary background review was conducted to identify existing natural heritage features at the four candidate sites. Species at Risk (SAR), Species of Conservation Concern (SOCC) and relevant Official Plan Schedules outlining natural heritage land use designations were utilized to inform the review. (See boards 8-9 for results and rankings)
- Previous reports undertaken by AECOM within the study area were also used and include:
 - *North Huron Subject Land Status Report (AECOM, 2015)*
 - *Southeast Reservoir Subject Lands Status Report (Earth Tech Canada Inc., 2004)*
 - *Southeast Reservoir & Pumping Station Environmental Impact Study (Earth Tech Canada Inc, 2005)*



Archeology

- A preliminary background review was conducted to document the archaeological and land use history as well as the existing conditions at the four candidate sites. Data sources included recent historical maps, previous archaeological assessments, The Ministry of Tourism Culture and Sport's and Ontario Heritage Trust Databases and the City of London's heritage register mapping. (See board 8 for results and rankings)



Cultural Heritage

- A preliminary background review was conducted to determine whether the four candidate sites have the potential to impact cultural heritage resources. Data sources included the City of London's Inventory of Heritage Properties, Ontario Heritage Trust's online inventory, the Canadian Register of Historic Places and the Directory of Federal Heritage Designations. (See board 8 for results and rankings)



Geotechnical

- A background review was conducted to document the historical geotechnical and hydrogeological data obtained during various field investigations completed. Reports completed in the vicinity of the proposed locations were referenced to establish location suitability. (See boards 9 for results and rankings)



Evaluation of Long Term Storage Requirements

- A preliminary background review was conducted to review and confirm system design criteria, such as minimum pressures under emergency supply conditions as well as storage sizing criteria, in general and for future growth. Available storage, estimates for storage capacity requirements for each design year and potential storage locations and configurations were also identified. An analysis of the results for each alternative storage site was completed. (Boards 10-11 outline the results and rankings)
- Previous reports reviewed by AECOM within the study area were also used and include:
 - *2002 Water Supply Reliability Assessment, Final Report (Dillon, 2002)*
 - *2008 City of London Water Master Plan Update (City of London, 2008)*
 - *2014 City of London Water Master Plan Update (City of London, 2014)*
 - *Elgin Area Primary Water Supply System – 2008 Water Master Plan Update (Delcan, 2010)*
 - *Lake Huron Primary Water Supply System – 2008 Water Master Plan Update (Delcan, 2010)*
 - *City of London InfoWater hydraulic model (AECOM, 2014)*



Evaluation Framework and Criteria

A qualitative evaluation was undertaken for the evaluation of alternatives based on the reports presented on Boards 5 and 6. Table 1 summarizes the criteria and measures including environmental components that address the broad definition of the environment as described in the Environmental Assessment Act, used for evaluation purposes, to assist in determining the best possible solution.



Evaluation of Long Term Storage Requirements

- A detailed assessment of each short listed alternative solution was completed based on the previously described evaluation components and criteria. The evaluation approach used to consider the suitability and feasibility of alternative solutions for the study was a qualitative assessment. In this evaluation approach, trade-offs consider the advantages and disadvantages of each alternative to address the problem and opportunity statement with the least environmental effects and the most technical benefits for relative comparison between alternatives. This formed the rationale for identification of the preferred alternative.
- A comprehensive evaluation in a matrix format was prepared and used to present the evaluation of alternative solutions as shown in Boards 8 - 12.

Table 1 – Evaluation Framework

Category	Criteria	Indicator
Public Health	Long/short Term Impacts	<ul style="list-style-type: none"> • Noise quality • Air quality
Social and Cultural Evaluation	Property Impacts and Acquisition	<ul style="list-style-type: none"> • Need for Land Purchase in part or in whole
	Residential Land Use	<ul style="list-style-type: none"> • Potential long or short-term impacts to surrounding neighbourhoods/land use - due to project and/or construction
	Built and Cultural Heritage Resources	<ul style="list-style-type: none"> • Potential impacts to built and cultural heritage resources
Natural Environment	Terrestrial	<ul style="list-style-type: none"> • Potential Effects on flora, fauna and associated habitat. • Potential Effects to Species at Risk (SAR).
	Aquatic	<ul style="list-style-type: none"> • Number and nature of water crossings, including upgrade requirements. • Potential Effects on aquatic species and associated habitat. • Potential Effects to Aquatic SAR.
	Ground and Surface Water	<ul style="list-style-type: none"> • Impacts to water quality
Engineering	Hydraulics	<ul style="list-style-type: none"> • Ability to service northeast London
	Energy Optimization	<ul style="list-style-type: none"> • Optimizes Energy use and transient protection • Need for booster pumping and backup power
	Operations Improvement	<ul style="list-style-type: none"> • Ease of normal system operation, water turnover and quality.
	Infrastructure	<ul style="list-style-type: none"> • Use of existing infrastructure • Distribution routing/ New Water System infrastructure
	Climate	<ul style="list-style-type: none"> • Water supply source and system/ climate resilience
Economic and Financial	Operating Costs	<ul style="list-style-type: none"> • Total project costs (design and construction) • Operating and Maintenance Costs • Land Costs

Impact Criteria	Indicators	Reservoir Location				
		Site A Vicinity of Existing Springbank Reservoir and PS		Site C North East System: Clarke Road and Huron Road Area	Site G Existing Southeast Reservoir and PS	Site I Existing Arva Reservoir and PS
		A1	A2			
Public Health and Safety	Long/Short Term Impacts due to air and noise quality	-Little to no change from existing for long term. Some impacts due to construction given residential proximity	-Some change from existing for long term with impacts due to construction in closer proximity to residents.	-Some change from existing in long term and due to construction subject to which of 7 sites is chosen. -More significant for those options closer to existing residences.	-No change from existing in long term or due to construction in short term due to remote location.	-No change from existing in long term. -Some impacts due to construction in short term given proximity to some nearby residences.
Public Health and Safety Evaluation Summary						
Social and Cultural	Need for Land Purchase in part or in whole	-City owned land for purpose, currently used as open space.	-City owned land for purpose, but currently used as open space.	-Some City owned land with some sites having to be purchased. -Land Intended for industrial or residential development.	-City owned land ready for purpose.	-Outside of City boundary but is owned by the Regional Water System with London being the major user. (Potential to provide land at no low cost if the decision is to have storage here to optimize the City's water supply). -Currently used as open space.
	Potential long or short term impacts to surrounding neighbourhoods/land use – due to project and/or construction.	-Impact to existing due to: loss of open space that can be replaced in part; reservoir closer to residences and higher slopes; Infrastructure work across Commissioners Road impacts roadway and the work onsite is closer to existing residences.	-Impact to existing due to: loss of open space; reservoir much closer to residences; and even higher slopes; Infrastructure work across Commissioners Road impacts roadway and the work onsite is much closer to existing residences.	-Impact to existing residents/businesses and land use (now and/or future), which could be mitigated to some extent based on which of 7 locations chosen. -Impacts to City's industrial land strategy by reducing available land. - New site requires extensive work on Clarke road for inlet/outlet, watermain, construction and permanent access.	-No impacts to surrounding land uses. -No impacts to existing residences/businesses. -Minimal construction impact given all works are setup for the site and it is well away from existing residents.	-Minor impacts to existing area and/or land use with nearest residence being greater than 300m away from a potential expansion, which is a more than adequate buffer. -Minimal impact due to construction to nearby residences. Available site with no road works other than increased construction traffic.

Low Impact is considered preferred compared to moderate or high impact.

Legend						
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Impact Criteria	Indicators	Reservoir Location				
		Site A Vicinity of Existing Springbank Reservoir and PS		Site C North East System: Clarke Road and Huron Road Area	Site G Existing Southeast Reservoir and PS	Site I Existing Arva Reservoir and PS
		A1	A2			
Potential impact to archaeological / heritage resources. (2)		-Moderate impact – Stage 1 archaeological work completed, requires Stage 2 study. -CHER or HIA may be required to fully evaluate cultural heritage impacts.	-Moderate impact – Stage 1 archaeological work completed, requires Stage 2 study. -CHER or HIA may be required to fully evaluate cultural heritage impacts.	-Slight impact – Stage 1 archaeological work completed for the most part except for 2 sites. -Depending on the site chosen, CHER or HIA may be required to fully evaluate cultural heritage impacts.	-No impact. Stage 1 / 2 archaeological work completed. -CHER or HIA may be required to fully evaluate cultural heritage impacts.	-Low to Moderate impact, archaeological potential with Stage 1/2 required. -No Cultural Heritage impacts.
Social and Cultural Evaluation Summary						
Natural Environment (3)	Terrestrial – ecological impacts resulting from removal or damage to vegetation and trees (Species at Risk).	- Woodland is a total of 9.77 hectares of which ~0.70 ha will be potential affected by proposed works. - Approximately 35 trees may be affected to extend the reservoir to the east into existing open space area.	- Woodland is a total of 9.77 hectares of which ~1.25 ha will be potential affected by proposed works. - Approximately 80 trees may be affected to extend the reservoir to the east into existing open space area. - More green space and natural areas impacted.	- Candidate sites primarily agricultural, however, unevaluated wetlands and woodlands are present. Any proposed facility should be kept away from wetlands/woodlots of significant value. If not, additional assessment and mitigation work is required. - Park impacts for 1 potential site.	- Natural Feature is approximately 15 hectares in size, with approximately 1.56 ha falling within the study area. Low amount of impact based on Natural Heritage review and that proposed works can be implemented without impacts to the wooded area already allowed for by previous assessments and work.	- Natural Feature is approximately 14 ha with 1.29 ha falling within the study area. Least amount of impact based on Natural Heritage review and that proposed work can be implemented without impacts to woodland areas; however, the boundary of the existing woodland would need to be confirmed through field investigations.
	Impacts to Wildlife (Species at Risk)	- Potential impacts to 18 SAR Of these, 15 (10 Endangered (END), 5 Threatened (THR)) are protected under the <i>Endangered Species Act</i> (2007). The other 3 species are listed as Species of Conservation Concern (SCC) and do not have any permitting implications.	- Potential impacts to 18 SAR Of these, 15 (10 END, 5 THR) are protected under the <i>Endangered Species Act</i> (2007). The other 3 species are listed as SCC and do not have any permitting implications.	- Potential impacts to 20 SAR Of these, 11 (5 END, 6 THR) are protected under the <i>Endangered Species Act</i> (2007); The other 9 species are considered SCC and do not have any permitting implications.	- Potential impacts to 13 SAR Of these, 8 (5 END, 3 THR) are protected under the <i>Endangered Species Act</i> (2007). The other 5 species are considered SCC and do not have any permitting implications. - Potential impacts are limited to 3 SAR cultural meadow species (3 THR) based on the proposed reservoir footprint. - Some impacts for 9 SAR were pre-assessed and mitigated during the Subject Land Status Report (Earth Tec, 2004).	- Potential impacts to 11 SAR Of these, 10 (5 END, 5 THR) are protected under the <i>Endangered Species Act</i> (2007). The other 1 species is considered SCC and does not have any permitting implications. - Potential impacts are limited to 5 SAR cultural meadow species (4 THR and 1 SCC) based on the proposed reservoir footprint.

Low Impact is considered preferred compared to moderate or high impact.

Legend	Low Impact	Low to Moderate Impact	Moderate Impact	Moderate to High Impact	High Impact	Most Preferred

Impact Criteria	Indicators	Reservoir Location				
		Site A Vicinity of Existing Springbank Reservoir and PS		Site C North East System: Clarke Road and Huron Road Area	Site G Existing Southeast Reservoir and PS	Site I Existing Arva Reservoir and PS
		A1	A2			
Aquatic – ecological impacts resulting from construction in or near water with potential to harm aquatic species (watermain crossings, Species at Risk).		- No watercourses were observed within 100 m of the proposed reservoir. There are no anticipated impacts to SAR; however, potential impacts cannot be determined without further study.	- No watercourses were observed within 100 m of the proposed reservoir. There are no anticipated impacts to SAR; however, potential impacts cannot be determined without further study.	- 1 SAR species (THR) was flagged by NHIC during the background review; however, suitable aquatic habitat was not identified during aquatic surveys in within the Site C study area (AECOM, 2015). The Thames River is located approximately 100 metres north of the study area and contains SAR. - Impacts cannot be determined without further study. A moderate impact will be assumed until proposed reservoir footprints are established.	- A small portion of Perl Drain was identified in the southwest corner of the study area and therefore also falls within the KCCA's Regulation Limit. Aquatic SAR were not identified in the 2004 report (Earth Tec, 2004). There are no anticipated impacts to SAR. - Impacts cannot be determined without further study, however they are less likely given the proposed location of the reservoir.	- 1 SAR species was identified during the NHIC background review; however DFO mapping did not flag any aquatic SAR species. There are no anticipated impacts to SAR species. - Impacts cannot be determined without further study; however, they are less likely given the proposed location of the reservoir.
Impacts to ground/surface water quality (1)		- Minimal ground or surface water impacts but should be confirmed given soil type / groundwater conditions in the area.	- Minimal ground or surface water impacts but should be confirmed given soil type / groundwater conditions in the area.	-Higher ground and/or surface water impacts subject to the preferred site location of the 7 options.	-No groundwater/surface water quality impacts. Already addressed as part of initial facility construction and allowance for expansion.	-Minimal ground or surface water impacts anticipated. Subject to onsite confirmation at later project stages. -Water ponds onsite/adjacent to site due to poor drainage currently being addressed by adjacent landowners.
Natural Environment Summary						
Technical Considerations (4) Ability to service northeast London (Hydraulics)		-Does not improve operation and pressure under peak/emergency response in NE London, but maintains water supply above minimum MOEC pressures.	-Does not improve operation and pressure under peak/emergency response in NE London, but maintains water supply above minimum MOEC pressures.	-Best addresses systemic operation and peak/emergency response and hydraulic issues in NE London.	-Does not improve operation and peak/emergency response in NE London.	-Addresses system operation and peak/emergency response hydraulics issues in NE London for the most part.

Low Impact is considered preferred compared to moderate or high impact.

Legend	Low Impact	Low to Moderate Impact	Moderate Impact	Moderate to High Impact	High Impact	Most Preferred

Impact Criteria	Indicators	Reservoir Location				
		Site A Vicinity of Existing Springbank Reservoir and PS		Site C North East System: Clarke Road and Huron Road Area	Site G Existing Southeast Reservoir and PS	Site I Existing Arva Reservoir and PS
		A1	A2			
Optimizes Energy use and transient protection	-No improvement or detriment to transient protection under peak/emergency conditions. Much reduced energy costs due to gravity feed and somewhat improved operations with the Arva PS.	-No improvement or detriment to transient protection under peak/emergency conditions. Much reduced energy costs due to gravity feed and somewhat improved operations with the Arva PS.	-Decreased transient protection with increased energy needs (highest of all the alternatives)	-No improvement or detriment to transient protection or increase in energy costs but pumping intensive.	-No improvements or detriment to transient protection but pumping intensive. Energy costs can be optimized at PS with storage in place.	
	Operational Improvement (ease of normal system operation, water turnover and quality)	-No significant improvement or detriment to existing operations. Longer water residence time necessitating operational changes at the Arva PS. Gravity based operation.	-No significant improvement or detriment to existing operations. Longer water residence time necessitating operational changes at the Arva PS. Gravity based operation.	-Water system operation more complex with a 4 th major reservoir and PS. Maintains water quality but increases water turnover necessitating Arva PS operational changes.	-No significant improvement or detriment to existing operations. New storage not fully utilized and reliant on Elgin water supply expansion. Additional pumping capacity required.	-No significant improvement or detriment to existing City water operations, with improved potential for Regional Water Supply for filling. Maximizes new reservoir volume use with pumping capacity optimized.
	Use of existing infrastructure	-Replaces existing 50ML being retired. An additional 50ML can be constructed on available land and connected to the existing reservoir with some height and slope issues.	-Replaces existing 50ML being retired. An additional 50ML can be constructed on available land and connected to the existing reservoir with greater height, proximity and slope issues.	-New greenfield, land to be purchased and revised land use for City owned. -Does not maximize use of existing infrastructure.	-Existing infrastructure already in place as facility is designed for 113 ML expansion. Additional pumping capacity required.	-Connecting to existing reservoir on existing land for purpose.
	Need for booster pumping and backup power.	-No PS or backup power required (gravity system).	-No PS or backup power required (gravity system).	-Yes, a new PS and backup power is required.	-No new PS or backup power is required but additional pumping capacity is needed.	-No new PS or pumping capacity is required, but emergency backup power is needed to access full reservoir capacity.
	Distribution routing / New Water System infrastructure	-Interconnection to existing PS and Reservoirs only.	-Interconnection to existing PS and Reservoirs only.	-New infrastructure and connections required to the Clarke Road watermain.	-No new infrastructure required.	-Interconnection to existing PS and Reservoir only.

Low Impact is considered preferred compared to moderate or high impact.

Legend	Low Impact	Low to Moderate Impact	Moderate Impact	Moderate to High Impact	High Impact	Most Preferred

Impact Criteria	Indicators	Reservoir Location				
		Site A Vicinity of Existing Springbank Reservoir and PS		Site C North East System: Clarke Road and Huron Road Area	Site G Existing Southeast Reservoir and PS	Site I Existing Arva Reservoir and PS
		A1	A2			
Water Supply Source and System/Climate Resilience		Lake Huron supply, gravity based servicing to all of London under all conditions. Lowest climate impacts.	Lake Huron supply, gravity based servicing to all of London under all conditions. Lowest climate impacts.	Lake Huron supply for NE London only. New infrastructure and pumping required with backup power for emergency operations. Increased climate impacts.	Lake Erie supply for SE London, with infrastructure and backup power in place for pumped operations. Current storage necessitates additional supply from Lake Erie. Greatest impact to climate.	Lake Huron supply with pump based operations to the entire City. Backup power required for improved emergency operations to that currently available, with some climate impacts.
Technical Considerations Evaluation Summary						
Economic and Financial	Capital and Land Costs	- Lowest capital cost with no land cost.	- 3 rd Lowest capital cost but with no land cost.	-2 nd Highest capital and land costs of all alternatives.	-Lowest capital cost of all alternatives with no land costs. -However necessitates Elgin Water system expansion at highest cost.	-2 nd lowest capital cost with no land cost and some potential capital cost that could be mitigated with Regional Water Supply.
	Operating Costs	-Lowest operating cost.	-Lowest operating cost.	-Highest operating cost.	-3 rd lowest operating cost.	-2 nd lowest operating.
Economic and Financial Evaluation Summary						
Overall Summary / Recommendation						

- Notes:
- (1) Geotechnical and Hydrogeotechnical Summary (October 2018)
 - (2) Water Storage Options EA – Draft Preliminary Background Review – Archaeology /Cultural Heritage (October 2018)
 - (3) Water Storage Options EA – Draft Preliminary Background Review – Natural Heritage Background Review (October 2018)
 - (4) Evaluation of Long Term Storage Requirements (October 2017)

Low Impact is considered preferred compared to moderate or high impact.

Legend						
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**Springbank Reservoir:
Site A1**

- 100ML of additional storage capacity be implemented at the existing Springbank Reservoir Site (Option A1) by 2024 to replace the existing 45 ML of storage to be retired, and meet storage deficit/growth projections to that point in time as per table 4.1 from the Evaluation of Long Term Storage Requirements Study.

**Evaluation of Long Term Storage Requirements
Table 4.1 – Required Storage Capacity – 48 hour Emergency**

Year		Demands (ML/d) (1)		Emergency - MDD / ADD (2 days)					
		ADDw	MDD	Required Storage (ML)	Elgin Supply Volume (ML)	Total Supply (ML)	Net Required Storage (ML)	Available Storage (ML)	Storage Surplus (defecit) (ML)
	Existing	133.2	267.3	482.7	80.0	80.0	403	312	-91
0	2014	134.4	269.8	486.9	115.0	115.0	372	312	-60
5	2019	140.1	281.5	507.1	115.0	115.0	392	312	-80
10	2024	145.9	293.3	527.4	115.0	115.0	412	283	-130
15	2029	151.6	304.9	547.4	170.0	170.0	377	283	-95
20	2034	157.4	316.9	568.0	170.0	170.0	398	283	-115
25	2039	163.3	328.9	588.7	170.0	170.0	419	283	-136
30	2044	169.4	341.4	610.2	170.0	170.0	440	283	-157
35	2049	175.8	354.4	632.5	170.0	170.0	462	283	-180
40	2054	182.4	367.8	655.7	170.0	170.0	486	283	-203

Future Storage

- A further 100ML of additional storage capacity to be implemented at the existing Arva Reservoir Site (Option I) by 2044 to meet storage deficit/growth projections to that point in time as per Table 4.1 from the Evaluation of Long Term Storage Requirements Study dated October 2017.
- Additional Storage capacity to be implemented at the existing Southeast Reservoir Site (Option G) once the Elgin Water Supply System treatment and supply capacity is expanded to meet future growth needs in addition to or as part of the further 100ML of additional storage capacity recommended at the Arva Reservoir Site (Option I).

Natural Environment

- Work with the UTRCA/MNRF/DFO/City of London to address potential impacts to natural features.
- Ensure all regulatory requirements to protect the environment are followed.
- Ensure construction occurs outside of the nesting bird window.
- Ensure opportunities to provide a net benefit to ecosystem function be explored.
- Consideration of the London Invasive Plant Management Strategy (Clean Equipment Protocol).

Social Environment

- Access to existing park amenities, businesses, institutions and commercial areas are maintained (where possible) during and after construction.
- Meet with affected property owners during detailed design to explain how and when construction is expected to take place.
- Comply with City of London noise by-law (day time works)
- Provide advanced notification to affected property owners prior to construction, including estimated timing/durations and project contact information for asking questions and requesting information.

Archeological

- A Stage 2 archaeological assessment must be conducted for all lands determined to retain archaeological potential that will be used for construction or that will be subject to ground disturbance.

Economic

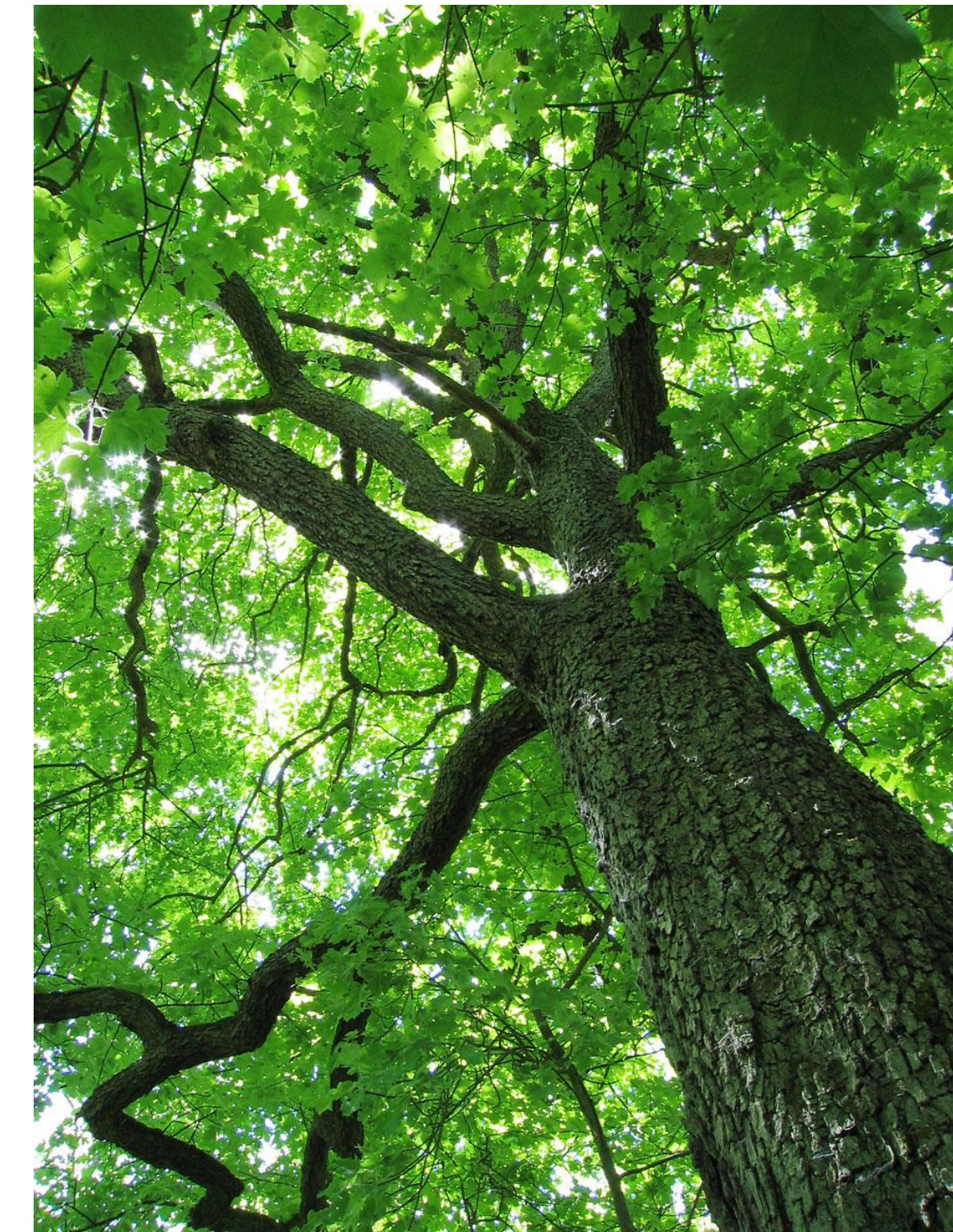
- Ensure UTRCA and City resources are allocated effectively.

Restoration

- All disturbed areas will be restored to equal or greater than existing condition.

Monitoring

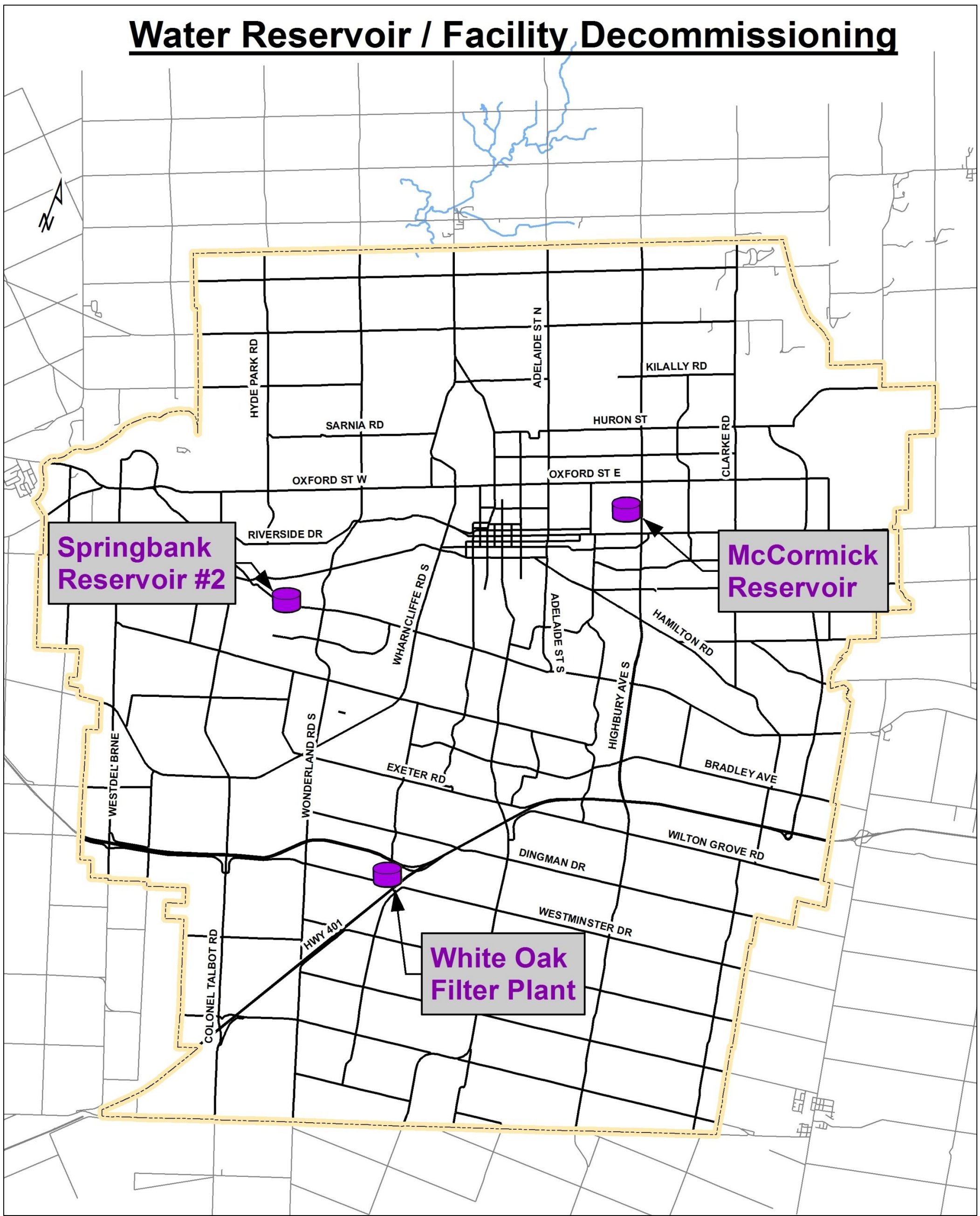
- Monitor post construction performance to ensure effectiveness.
- Take corrective actions as required.



Water reservoir or facility **decommissioning** occurs when a facility is taken out of service or when an ‘offline’ facility is being physically removed.

As part of this study, the City is considering decommissioning three water facilities to better optimize the overall water system for the City. Each of these facilities have been or will be considered no longer necessary for operational purposes.

Location	Date of Construction	Anticipated End of Service Life	Replacement
Springbank Reservoir #2	1920	2022	Replace capacity at new reservoir (TBD)
McCormick Reservoir	1959	Not in service	No replacement necessary
White Oak Filter Plant	1959	Not in service	No replacement of treatment or reservoir capacities is proposed. Future bulk water facility and chamber for the new Pressure Zone.



The Municipal Engineers Association Municipal Class EA document defines decommissioning as:

‘taking out of operation, abandonment, removal, demolition or disposal of a road, sewage, stormwater management or water facility for which approval under the Environmental Assessment Act would have been necessary for its establishment and includes, sale, lease, or other transfer of the facility for purposes of taking out of operation, abandonment, removal, demolition or disposal’.

Each of the above facilities were constructed prior to the initiation of the *Environmental Assessment Act*, however, the implementation of each of these projects would have required approval under the Act. As such, it is determined that the decommissioning of each of these facilities is considered an Schedule A+ Class EA undertaking.

Schedule A+ projects require that the public be notified of the work prior to construction or decommissioning occurring.

Backup Power or **standby power systems** are needed to ensure pumping can maintain service in the event that primary power supplies fail.

Currently, no backup power supply exists for the Arva PS. In the event of an emergency and/or to service under day to day or peak water need conditions, water supply and minimal pressure would be provided by the Lake Huron Water Supply System to the City of London water system by opening by pass valves at the Arva PS. As part of this study AECOM assessed:

- Dual power supplies from London Hydro and/or Hydro One from separate feeds, complete with the required transmission and/or switchgear infrastructure needed to provide backup power to the Arva PS.
- The provision of a standby generator set in a new or existing structure to provide backup power to the Arva PS.

Both alternatives would allow the Arva PS to meet the City's day to day, peak or emergency needs.

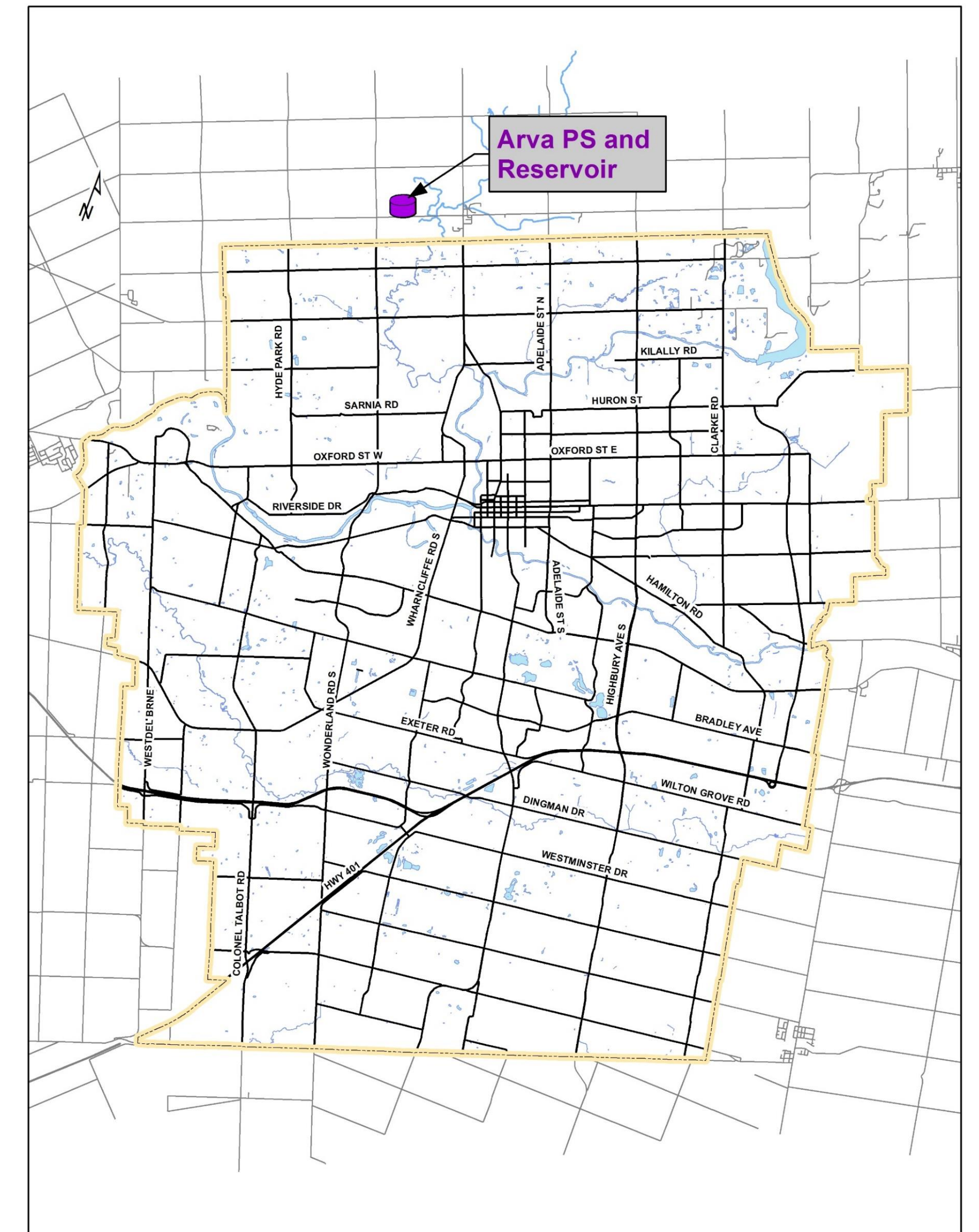
O.Reg. 524/98 Environmental Compliance Approvals defines standby power systems as:

“standby power system” means any apparatus, mechanism, equipment or other thing, and any related fuel tanks and piping, that includes one or more generator units and that is intended to be used only for the provision of electrical power during power outages or involuntary power reductions;

The Arva PS was constructed prior to the initiation of the *Environmental Assessment Act*, however, the implementation of this project would have required approval under the Act. As such, it is determined that the installation of standby power equipment located in a new building or structure is considered an Schedule A Class EA undertaking. Should the standby power equipment be installed in an existing building the undertaking would be considered a Schedule A+ Class EA.

Schedule A+ projects require that the public be notified of the work prior to construction or decommissioning occurring.

Schedule A projects are preapproved activities whereby the proponent may proceed without following the procedures set out in this Class EA.



Next Steps

- Comments received from the general public, stakeholders, the City and Approval Agencies will be considered.
- The preferred servicing strategy will be confirmed.
- A report will be prepared and made available for public review for 30 days.
- If no issues are raised within the 30 days review period, the City can proceed to detailed design, approvals and construction.

Thank You for Attending

- We appreciate the time you have taken to learn more about the Project.
- We value your input to this study and encourage you to stay connected.
- Please visit the City’s website:
<http://www.london.ca/residents/Environment/EAs/Pages/LongTermWaterStorageOptions.aspx>
- Join our mailing list: leave us an email or mailing address so we can keep you up-to-date as the project progresses.
- Contact us with additional comments or questions at any time.



COMMENT SHEET Public Information Centre #2
November 23, 2018

We want to hear from you! Thank you for attending the Public Information Centre (PIC) for the Long Term Water Storage Class Environmental Assessment (EA). We value your feedback. By filling out this comment sheet your feedback about the project will be documented and considered.

Please Print Your Name and Contact Information Below:

First Name: _____ Last Name: _____
 Address: _____ City: _____
 Postal Code: _____ Email: _____

1. Would you like to receive information in the future? Yes No
 Regular mail I do not wish to receive further information
 E-mail I am already on the mailing list

2. Do you have any comments regarding the information presented today?

Please submit your written comments before leaving the meeting or mail / email them by December 12, 2018

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Additional Project information is available on the Project website:
www.london.ca/residents/Environment/EAs/Pages/LongTermWaterStorageOptions.aspx

We use this information for record purposes only. Your personal information will remain confidential in accordance with the Freedom of Information and Protection of Privacy Act.

Long Term Water Storage Class EA

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Please remember to drop off your completed comment form before you leave or send it to us before **December 12 2018.**