URBAN SOLUTIONS
PLANNING & LAND DEVELOPMENT

ENERGY AND ENVIRONMENTAL ASSESSMENT REPORT

Prepared By:	UrbanSolutions Planning & Land Development Consultants Inc.
Prepared For:	Official Plan Amendment Application
Site Location:	White Church Urban Expansion Area – Glanbrook, Hamilton
Owner:	Whitechurch Landowners Group Inc.
Date:	**December 7th, 2023**

1.0 Introduction and Site Context

UrbanSolutions Planning & Land Development Consultants Inc. (UrbanSolutions) has been retained as the authorized planning consultant acting on behalf of Whitechurch Landowners Group Inc., an ownership group representing a large portion of the White Church Urban Expansion Area (the "subject site") bounded by Upper James Street to the West, Miles Road to the East, Airport Road East to the North and White Church Road East to the South, in the City of Hamilton as shown on **Figure 1** below.

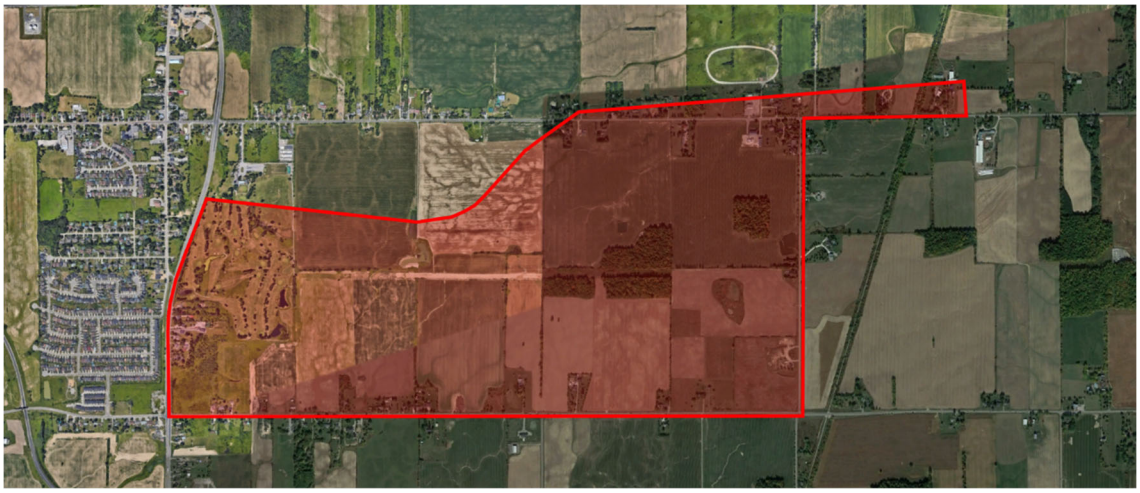

Figure 1: Aerial Perspective of Subject Lands

On January 27th, 2023, a request for Formal Consultation was submitted to the City for review, intended to confirm required deliverables for an Official Plan Amendment to implement a new Secondary Plan within the White Church Urban Expansion Area. The Formal Consultation meeting was held on March 22nd, 2023, with the Formal Consultation Document being issued on April 23rd, 2023. As per the Formal Consultation Document, an Energy and Environmental Assessment Report is required. This assessment will examine existing sustainability and efficiency policies and their applicability to the proposal.

The original parcel of land submitted for Formal Consultation consisted of approximately 395 gross hectares of land, inclusive of the lands abutting the northwest corner of the subject site below Airport Road, a portion of lands south of White Church Road, and excluded the "panhandle" portion of the subject site to the northeast. As such, the gross area of the site has been reduced to 326.27 hectares, and excluding identified natural heritage features, stormwater management pond and utility requirements, and the proposed road network, the net developable area of the site sits at 263.39 hectares.

2.0 Planning Policy

2.1 – Provincial Policy Statement, 2020

The Provincial Policy Statement (PPS) 2020 provides policy direction on matters of provincial interest related to land use planning and development. The PPS provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. As such, development must be consistent with the policies of the PPS pertaining to the protection of the natural environment and the implementation of sustainable development patterns. The following policies provide a framework for energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for impacts of climate change:

Policy	Policy Provision
1.8.1 a)	Promote compact form and a structure of nodes and corridors;
1.8.1 b)	Promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas;
1.8.1 c)	Focus major employment, commercial and other travel-intensive land uses on sites which are well served by transit where this exists or is to be developed, or designing these to facilitate the establishment of transit in the future;
1.8.1 d)	Focus freight-intensive land uses to areas well served by major highways, airports, rail facilities and marine facilities;
1.8.1 e)	Encourage transit-supportive development and intensification to improve the mix of employment and housing uses to shorten commute journeys and decrease transportation congestion;
1.8.1 f)	Promote design and orientation which maximizes energy efficiency and conservation, and considers the mitigating effects of vegetation and green infrastructure; and
1.8.1 g)	Maximize vegetation within settlement areas, where feasible.

2.2 – A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020

The Growth Plan for the Greater Golden Horseshoe (the "Growth Plan") 2020 is the Ontario government's initiative to plan for growth and develop in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. The Growth Plan establishes a vision for the Greater Golden Horseshoe (GGH) which characterizes the GGH as having a healthy natural environment with clean air, land, and water with natural areas that will provide a significant contribution to the region's resilience and ability to adapt to climate change. As such, development must conform to the policies of the Growth Plan pertaining to the continued provision of healthy natural systems and the implementation of sustainable development patterns.

The following policies outline sustainability considerations for new development and for municipalities to implement through their Official Plans that work to support water reuse, greenhouse gas reduction, energy efficiency, and overall climate change mitigation.

Policy	Policy Provision
4.2.9 - A CULTURE OF CONSERVATION	
4.2.9.1 a) i)	water demand management for the efficient use of water;
4.2.9.1 a) ii)	water recycling to maximize the reuse and recycling of water;
4.2.9.1 b) i)	identification of opportunities for conservation, energy efficiency and demand management, as well as district energy generation, renewable energy systems and alternative energy systems and distribution through community, municipal, and regional energy planning processes, and in the development of conservation and demand management plans;
4.2.9.1 b) ii)	land use patterns and urban design standards that support energy efficiency and demand reductions, and opportunities for alternative energy systems, including district energy systems; and
4.2.9.1 b) iii)	other conservation, energy efficiency and demand management techniques to use energy wisely as well as reduce consumption;
4.2.9.1 c)	air quality improvement and protection, including through reduction in emissions from municipal, commercial, industrial, and residential sources;
4.2.9.1 d) i)	enhanced waste reduction, composting, and recycling initiatives, and the identification of new opportunities for energy from waste, source reduction, reuse, and diversion, where appropriate;
4.2.9.1 d) ii)	a comprehensive plan with integrated approaches to waste management, including reduction, reuse, recycling, composting, diversion, and disposal of residual waste;
4.2.9.1 d) iii)	promotion of building conservation and adaptive reuse, as well as the reuse and recycling of construction materials; and
4.2.9.1 d) iv)	consideration of waste management initiatives within the context of long-term regional planning, and in collaboration with neighbouring municipalities.
4.2.9.2	Municipalities should develop excess soil reuse strategies as part of planning for growth and development.

4.2.10.1 a)	supporting the achievement of complete communities as well as the minimum intensification and density targets in this Plan;
4.2.10.1 b)	reducing dependence on the automobile and supporting existing and planned transit and active transportation;
4.2.10.1 c)	assessing infrastructure risks and vulnerabilities and identifying actions and investments to address these challenges;
4.2.10.1 d)	undertaking stormwater management planning in a manner that assesses the impacts of extreme weather events and incorporates appropriate green infrastructure and low impact development;
4.2.10.1 e)	recognizing the importance of watershed planning for the protection of the quality and quantity of water and the identification and protection of hydrologic features and areas;
4.2.10.1 f)	protecting the Natural Heritage System for the Growth Plan and water resource systems;
4.2.10.1 g)	promoting local food, food security, and soil health, and protecting the agricultural land base;
4.2.10.1 h)	providing direction that supports a culture of conservation in accordance with the policies in subsection 4.2.9; and
4.2.10.1 i)	providing direction that supports a culture of conservation in accordance with the policies in subsection 4.2.9; and
4.2.10 - CLIMATE CHANGE	
4.2.10.2 a)	develop strategies to reduce greenhouse gas emissions and improve resilience through the identification of vulnerabilities to climate change, land use planning, planning for infrastructure, including transit and energy, green infrastructure, and low impact development, and the conservation objectives in policy 4.2.9.1;
4.2.10.2 b)	develop greenhouse gas inventories for transportation, buildings, waste management and municipal operations; and
4.2.10.2 c)	establish municipal interim and long-term greenhouse gas emission reduction targets that support provincial targets and reflect consideration of the goal of low-carbon communities and monitor and report on progress made towards the achievement of these targets.

2.3 – Urban Hamilton Official Plan, 2022

The Urban Hamilton Official Plan (UHOP) provides direction and guidance on the management of our communities, land use change and physical development, implementing the City's vision of a vibrant, healthy, sustainable city. Many of the UHOP's policies are intended to support energy efficient land use patterns and prepare for the impacts of a changing climate. The following energy efficiency and climate change mitigation policies reflect an applicable framework for the establishment of sustainability standards and development of green building techniques for the future build-out of the Secondary Plan area.

Policy	Policy Provision
B.3.2 - HOUSING POLICIES	
B.3.2.1.7	Promote subdivision design and building orientation to maximize energy efficiency and conservation, improve air quality, reduce greenhouse gas emissions, promote green infrastructure and preserve and/or enhance natural features. (OPA 167)
B.3.2.4.7	The construction of new buildings and the retrofitting of the existing building stock shall be encouraged to utilize locally sourced materials and to incorporate water conservation and energy efficiency techniques, the expansion of district energy generation, and renewable energy systems, through the policies of the Plan and other strategies. (OPA 167)
B.3.6.2 - AIR QUALITY AND CLIMATE CHANGE	
B.3.6.2 a)	promoting compact, mixed use urban communities;
B.3.6.2 b)	integrating the transportation network to include all modes of transportation;
B.3.6.2 c)	promoting active transportation, including walking and cycling, and the use of public transit; (OPA 167)
B.3.6.2 d)	achieving a natural heritage ecosystem through the protection and enhancement of natural heritage features and functions;
B.3.6.2 e)	implementing urban design features to reduce fugitive dust;
B.3.6.2 f)	enhancing vegetative cover; and
B.3.6.2 g)	reducing the heat island effect through the use of reflective roofs, green roofs, natural landscaping, and increasing the tree canopy.
B.3.7 - ENERGY AND ENVIRONMENTAL DESIGN	
B.3.7.2 a)	approval of planning applications, including applications for zoning by-law amendments, site plan approval, and plans of subdivision or condominium, as appropriate;

B.3.7.2 b)	the use of environmental building rating systems such as certification under the Leadership in Energy and Environmental Design (LEED) program, R-2000 Home, Passive House, Canadian Green Building Council's Zero Carbon Standard, or an equivalent rating system or building techniques for upgrading/retrofitting of existing development and new development; (OPA 167)
B.3.7.2 c)	designs which use renewable energy systems or alternative energy systems;
B.3.7.2 d)	designs which use cogeneration energy systems;
B.3.7.2 e)	designs which minimize building heat loss and capture or retain solar heat energy in winter, and minimize solar heat penetration in summer. Consideration shall be given to such measures as green roofs or reflective roofs, discouraging excessive surface parking, allowing direct access to sunlight, and effective landscaping;
B.3.7.2 f)	building or structure orientations that maximize solar or wind energy;
B.3.7.2 g)	designs that encourage sustainable forms of transportation, including active transportation, transit, as well as alternative fuel and energy conserving vehicles; (OPA 167)
B.3.7.2 h)	designs that facilitate cooperation/joint energy efficiency between developments to optimize the efficient use of resources, including district energy systems; (OPA 167)
B.3.7.2 i)	energy conservation initiatives, including energy demand management;
B.3.7.2 j)	water and storm water conservation/management practices and low impact development techniques, such as green roofs, water recycling systems, urban storm water swales, etc.; (OPA 167)
B.3.7.2 k)	promoting building conservation and adaptive reuse; (OPA 167)
B.3.7.2 l)	encouraging the use of locally sourced and reclaimed building materials to reduce the amount of embodied carbon as appropriate; (OPA 167)
B.3.7.2 m)	pilot projects and community energy plans as appropriate; and,
B.3.7.2 n)	other environmental development standards that encourage energy efficiency and environmental design as contained in the City's approved engineering policies and standards and master planning studies, and are supported by the City's financial incentive programs.

3.0 Ecological and Sustainability Design Guidelines

The future development of sustainability guidelines for the subject site will have regard for economic, environmental, and social sustainability. All of the aforementioned sustainability policies within the PPS, the Growth Plan, and the UHOP can generally be categorized into one or more of these groups, which represent the three pillars of sustainability. Economic sustainability strives for the efficient utilization of resources and land to ensure an equitable distribution of goods and services to community members. Environmental sustainability focuses on preserving our ecosystems, emphasizing the importance of environmental stewardship, and having regard for climate change mitigation measures. Complementing economic and environmental sustainability is social sustainability, which involves the creation of communities that foster a strong sense of place, community well-being, and connectivity to the greater public realm. The three pillars of sustainability can provide a framework to assess various components of a proposal and what their specific benefits may be. The following sections provide a brief assessment of the proposed secondary plan's potential benefits in each of these dimensions, having regard for the interactions between environmental, economic, and social interactions.

3.1 – Economic Sustainability

The proposed secondary plan has potential to foster economic sustainability through various media, such as water and energy conservation, job creation, and the expansion of city services to new urban areas. While exact details on sustainability measures to be implemented into the proposed secondary plan are not yet available, the widespread implementation of water reuse systems may help to reduce stress on municipal sanitation systems and has the potential to reduce energy consumption that would typically go towards the treatment of wastewater. Water reuse can also support financial sustainability on a home-by-home basis, as households will be able to benefit from a reduced usage of municipal water which will further lower consumption costs. If Low-Impact Development (LID) techniques result in reduced reliance on municipal water systems, long-term financial benefits may also be present in infrastructure upgrade costs which can be reduced as the combined municipal system endures less strain. This would be present where widespread water reuse is implemented, but also where the proposed stormwater facilities on site are adequate to mostly or wholly separate on-site stormwater from municipal storm drains. If most or all of the stormwater on site is treated and infiltrated on-site, this would introduce a significant financial benefit for the municipality.

Considering the development of the Secondary Plan as a whole, the construction process itself may benefit economic sustainability through job creation as the proposed secondary plan will facilitate a multi-year, multi-phase buildout requiring a large and diverse workforce to have it completed. The work required would necessitate professionals from various construction and consulting sectors from across the city. Further, the 16.38 hectares of commercial area provided within the proposal will ensure that future residents within the Secondary Plan area have a wide range of employment opportunities and service establishments near their residences, furthering the UHOP's air quality and climate change policies in support of a more compact urban form. With the provision of a mix of uses close to the proposed residential areas, a portion of traffic directed along arterials into the city may be redirected and reduce strain on existing road systems. This also has the potential to reduce the level of infrastructure upgrades required to these arterials, that would otherwise have to support a larger share of vehicular traffic stemming from the development.

3.2 – Environmental Sustainability

Environmental sustainability plays a critical role in the design and implementation of land use planning and urban development. This approach has regard for the conservation of natural heritage features, mitigation of impacts from development on the natural environment, and proactive measures to improve biodiversity and achieve a net ecological gain. As previously mentioned, the proposed secondary plan may implement techniques to incorporate wastewater reuse to support water and energy conservation. However, the treatment of stormwater runoff on-site is also key to protect the health of the environment. Approximately 18.56 hectares of land within the subject site is to be dedicated to stormwater management ponds. These ponds may incorporate LID techniques that strive to mimic natural hydrological processes through infiltration, evaporation, and natural filtration through a treatment train approach and would strive to implement the UHOP's policies on air quality and climate change, and energy and environmental design. Through the implementation of LID techniques, these ponds can manage quality and erosion control across the site. LID Best Management Practices (BMPs) for quality control can also be implemented within the subject site's infrastructure in various forms, including permeable pavements where suitable, green roofs, tree planting along right-of-ways, cisterns and rain barrels, and rooftop disconnection techniques to redirect stormwater from rooftops away from storm sewer systems to promote natural infiltration where appropriate.

The subject site currently identifies 16.45 hectares of land on site as natural open space in two geographically separated pockets on the eastern portion of the lands. These natural areas, in conjunction with street tree plantings, parkland, landscaping, and stormwater management ponds all help to reduce the Urban Heat Island effect. The Urban Heat Island effect is prominent in areas predominantly built with concrete, metals, glass, and other modern construction materials which cause a large amount of hear retention. Street trees and taller plantings not only dissipate heat through evaporation and transpiration but can also provide shade and reduce the amount of heat that asphalt and surrounding abiotic surfaces can retain and radiate back into the local area. If less heat is retained by infrastructure within the community, this may reduce energy and water consumption that would otherwise be required for cooling and ventilation of buildings. A reduced need for cooling would therefore lead to a financial benefit for households and business in the area, and also reduce additional strain on municipal water and electricity services at peak times. Through the large proportion of green space proposed for the site and implementing LID BMPs consistently throughout the balance of the development, the Secondary Plan area would align itself with the Province's and the City's environmental sustainability policies.

3.3 – Social Sustainability

Social sustainability focuses on aspects of land use planning that prioritizes the well-being, equity, and inclusivity of community residents. Social sustainability can be fostered in land use planning through the equitable distribution of a diversity of land uses, barrier-free accessibility for people of all ages and walks of life, the provision of social interaction and engagement opportunities, and providing strong connections between places on and off the subject site. Transportation planning and social connectivity work in partnership to facilitate strong social sustainability. By ensuring communities have access to multi-modal transportation networks that facilitate travel by foot, bike, bus, and car, a more diverse population can benefit from existing and planned locations providing opportunities for social interaction and community engagement. The proposed secondary plan seeks to provide a multi-modal transportation

network, with a strong west-east connection reserved for pedestrians and cyclists along a recreational trail corridor providing access from the planned residential areas of the subject site to various natural and planned open spaces, planned elementary school sites, and the planned commercial area fronting the Upper James Street corridor to the west.

Lastly, the buildout of the proposal will lead to a more equitable distribution of city services and land uses. As noted within the School Accommodation Issues Assessment dated December 7th, 2023, there is only one elementary school within a kilometre of the subject site with all others falling over 6.0 kilometres away. The proposed secondary plan seeks to include three school sites across its development, with two sites being included within the first phase of development, and the third being developed near the end of the total buildout. These new schools will help accommodate existing student populations who may otherwise need to travel long distances to get to school, while also providing capacity for future demand from the future residents of the Secondary Plan area. Further, placing a commercial hub at the corner of Upper James Street and White Church Road will bring the existing and planned community much more opportunity for shopping and other services that may otherwise be located far away and only accessible by car or a long bus ride. Therefore, the proposed secondary plan would support a more equitable distribution of services across the city's urban fabric and promote good social sustainability practices.

4.0 Conclusion

While specific details and the application of construction methods, LID BMPs, and transit opportunities will be refined through future studies, the proposed secondary plan concept will aim to integrate various components that serve to address the three dimensions of economic, environmental, and social sustainability. Its proposed distribution of land uses seeks to provide an equitable administration of services and opportunities for the local community. The preservation of existing natural resources on site is in part accomplished by identifying natural heritage features as shown within the UHOP, but also by ensuring that Secondary Plan policies enact protections for currently unidentified features.

Lastly, the concept's distribution of utility area for stormwater retention will provide opportunity to enhance runoff quality through adequate filtration and permit the safe storage of water where infiltration cannot keep up with runoff quantity. Further, the reservation of utility corridors for pedestrian movement will support the movement of community members across the subject site and facilitate safe, off-street walking active transportation opportunity from households to school sites, natural areas, recreation areas, and commercial/retail services. Overall, specific design interventions must be considered on a site-by-site basis to help achieve energy conservation and sustainability goals consistent with the policies contained within Section 1.8.1 of the PPS and that conform to Sections 4.2.9 and 4.2.10 of the Growth Plan.

We trust the enclosed is in order; however, please feel free to contact the undersigned with any questions.

Regards,
UrbanSolutions

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