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Urban Area Expansion Application – Peer Review for Whitechurch Energy and Climate Change Assessment

At the request of the City of Hamilton (the "City"), Dillon Consulting Limited (Dillon) has undertaken a peer review of the Energy and Climate Change Assessment (ECCA) Report prepared by BuildAbility Corp. for the Whitechurch Landowners Group Inc., dated December 2024. Dillon's review is based on the requirements outlined in Appendix "A1" to Report PED24109, as well as the applicable energy and climate change policies set out under the Provincial Planning Statement (2024), the Urban Hamilton Official Plan, the City's Climate Change Impact Adaptation Plan (2022), and the Community Energy and Emissions Plan. Our review included assessing the assumptions, methodologies, and alignment with established climate resilience and mitigation objectives.

Energy and Climate Change Assessment

Introduction:

The purpose of this peer review is to critically evaluate the Phase 1 Energy and Climate Change Assessment (ECCA) Report for its methodological rigor, clarity, completeness, and alignment with relevant policies. Specifically, this review assesses whether the report effectively meets the objectives outlined in the Provincial Policy Statement (PPS), the Urban Hamilton Official Plan (UHOP), the Community Energy and Emissions Plan (CEEP), and the Climate Change Impact Adaptation Plan (CCIAP).

The scope of this review encompasses:

1. Evaluation of the methodologies and assumptions used in the ECCA Report.
2. Assessment of alignment with key municipal and provincial policy requirements.
3. Identification of gaps or areas requiring further clarification.
4. Analysis of both qualitative frameworks and quantitative data presented.

5. Recommendations for strengthening future phases, particularly regarding quantitative modeling, scenario analysis, and detailed roadmaps for achieving GHG reduction targets.

Phase 1 and Phase 2 Energy and Climate Change Assessment Requirements

Phase 1 of the Energy and Climate Change Assessment (ECCA) is required at the time of Official Plan Amendment submission and serves as a high-level, conceptual framework to demonstrate early alignment with the City's climate change goals. At this stage, detailed site information is typically unavailable, so Phase 1 focuses on identifying broad strategies for energy efficiency, emissions reduction, and climate resilience. It includes preliminary assumptions about land use, housing types, and servicing approaches, referencing municipal policies such as the Community Energy and Emissions Plan (CEEP) and Climate Change Impact Adaptation Plan (CCIAP).

Phase 2 of the ECCA, to be completed at the Secondary Plan stage, requires a more detailed and technically robust submission. It must include site-specific energy modeling, quantitative greenhouse gas (GHG) emissions forecasts, renewable energy integration assessments, and clearly defined implementation pathways. Phase 2 is also expected to establish measurable targets, firm commitments to building performance standards, and timelines for phasing, ensuring that the development proposal moves from strategic intent to credible, actionable outcomes.

Assessment of Submission Materials:

The submitted ECCA report addresses the requirements stipulated by the Province and City of Hamilton. It integrates principles and objectives from the Provincial Planning Statement (PPS 2024), Urban Hamilton Official Plan (UHOP), the Climate Change Impact Adaptation Plan (2022), and the Community Energy and Emissions Plan (CEEP).

Evaluation of Methodology and Assumptions:

The ECCA outlines general climate modeling frameworks, energy efficiency strategies, and emissions reduction pathways; however, it falls short of demonstrating full methodological rigor. The report does not present detailed quantitative modeling or committed implementation pathways, limiting the robustness of its scenario analyses and long-term projections. While assumptions such as building energy use intensities

and renewable energy potential are broadly aligned with industry standards and municipal benchmarks, the document primarily discusses potential future measures without committing to specific actions. The report conforms to the general expectations for a Phase One Energy and Climate Change Assessment; however, to be considered credible moving forward, it will need to incorporate the detailed modeling, quantifiable targets, and firm commitments expected in Phase Two.

Assessment Against Policy Requirements:

Provincial Planning Statement (PPS 2024):

- **Policy 2.9:** The proposal has the potential to be developed as a compact, transit-supportive development through proposed active transportation networks and high-density residential design, contributing to reduced greenhouse gas emissions.
- **Policy 2.9.1:** Climate resilience measures, including green roofs, permeable surfaces, and low-impact stormwater management techniques, reflect compliance with the PPS emphasis on climate adaptation.
- **Policy 3.8:** The report aligns with provincial directives by promoting renewable energy readiness, energy conservation, and infrastructure resilience, mentioning photovoltaic (solar-ready) roofs and district energy potential.

Urban Hamilton Official Plan (UHOP):

- **Sections 1.2, 1.6, 2.1, 1.2.9, and 1.2.8:** The report complies by positioning the development within the broader context of urban growth, infrastructure planning, and sustainable community design, notably through land use recommendations.
- **Policy 3.2.9 and B.3.7:** Met through advanced building standards, passive solar designs, and integration of sustainable transportation and energy systems.
- **Chapter E**: Alignment is clear in prioritizing transit-oriented development, interconnected active transportation infrastructure, and community energy strategies.

Climate Change Impact Adaptation Plan (2022):

The assessment aligns with Hamilton's adaptation goals, addressing all four resilience themes:

- **Built Environment:** Met through climate-adaptive building strategies, incorporating resilient materials and thermal comfort considerations.

- **People and Health:** Includes strategies to manage urban heat island effects and improve community resilience through tree canopy enhancements.
- **Natural Environment & Agriculture:** Demonstrates conservation of natural areas and tree canopy expansion for carbon sequestration.
- **Energy & Economy:** The report incorporates renewable energy feasibility, aligning with the municipal vision of sustainable economic development.

Community Energy and Emissions Plan (CEEP 2022):

This alignment is addressed across applicable "Low-Carbon Transformations". Examples include:

- **Innovating Industry:** Appropriately not addressed due to non-industrial context.
- **Transforming Buildings:** Strategy for deep energy retrofits, electrification, and renewable energy systems in residential developments.
- **Changing How We Move:** Plans for EV charging infrastructure, public transit networks, and complete streets promoting active transportation.
- **Revolutionizing Renewables:** Identifies the feasibility of district energy, geothermal systems, and solar-ready building guidelines.
- **Growing Green:** Achieved through preservation and enhancement of natural areas and urban forestry initiatives.
- New dwellings to be 60% more energy efficient in 2031,
- Commercial buildings to be 60% lower is energy use by 2050

Identification of Gaps or Areas for Clarification:

While the Phase 1 ECCA outlines the relevant policy frameworks and submission requirements, additional information will be needed in future phases, including:

- Detailed strategies for implementing and phasing energy infrastructure.
- Expanded evaluation of specific energy efficiency technologies at the building level.
- Further analysis of utility integration details for renewable energy and district energy system.

Qualitative and Quantitative Analysis:

Qualitative Aspects:

The ECCA Report establishes a high-level qualitative framework that guides the community toward sustainability and reduced environmental impact. It is specifically aligned with the City of Hamilton's Community Energy and Emissions Plan (CEEP), Climate Change Impact Adaptation Plan (CCIAP), Urban Hamilton Official Plan (UHOP), and the Provincial Planning Statement (PPS). Key qualitative elements include:

- Encouragement of energy-efficient urban development, active transportation, low-carbon building practices, and climate-resilient infrastructure.
- Incorporation of sustainability principles into land use planning and infrastructure design.
- Exploration of renewable energy options such as solar power, district energy systems, and heat pump technologies.
- Development of design strategies that enhance resilience and adaptability to climate-related impacts.

Quantitative Aspects:

The ECCA Report does not include detailed quantitative modeling or comprehensive numerical data analysis to support its GHG reduction targets. While it outlines broad emission reduction objectives, it lacks specific calculations or scenario-based modeling within the initial Phase 1 report.

Goals and Objectives:

The vision centers on creating a compact, mixed-use, and transit-supportive community with a low environmental footprint. Key objectives include reducing energy use and carbon emissions, implementing low-carbon energy solutions, promoting sustainable mobility, protecting the natural environment, and enhancing climate resilience.

Roadmap and Milestones:

The report outlines plans for more detailed development in Phase 2 but currently does not include a clearly defined Energy Transition Roadmap with specific timelines or milestones.

Modeling for Specific GHG Reductions:

Explicit GHG reduction models or calculations have not been provided, and detailed projections based on quantifiable strategies are currently lacking at this stage.

Requirements for Improvement:

To enhance the ECCA Report, the following recommendations are proposed:

1. Clarify the ECCA's Methodology and Its Integration with City and Provincial Policy Frameworks

- Provide a precise explanation of how the proposed development directly supports Hamilton's existing climate commitments, particularly the **Community Energy and Emissions Plan (CEEP)** and the **Climate Change Impact Adaptation Plan (CCIAP)**.
- Demonstrate that the ECCA's methodological approach meets—or preferably exceeds—the standards established in the City's planning frameworks and climate action strategies.

2. Deliver Rigorous Quantitative Evidence

- Present robust, quantifiable analyses demonstrating the impact of each proposed measure on reducing greenhouse gas emissions, explicitly linking these outcomes to Hamilton's net-zero 2050 goal.
- Establish clear, actionable interim targets and quantifiable performance metrics to track progress on emissions reduction and resilience enhancements.

3. Enhance Technical Specificity in Phase 1

- Although Phase 1 is often conceptual, incorporate detailed projections and targets for key energy technologies—solar arrays, district energy systems, geothermal heat pumps, and other renewables—supported by preliminary site-specific feasibility assessments.
- Identify spatial and technical constraints or opportunities influencing the deployment of these technologies at the proposed site.

4. Integrate Comprehensive Climate Resilience and Adaptation Strategies

- Develop detailed, actionable strategies addressing climate risks such as flooding, urban heat, and extreme weather, fully aligned with Hamilton's CCIAP objectives.
- Clearly demonstrate how these resilience measures will be embedded into infrastructure design, construction standards, and community planning frameworks.

5. Elaborate on Low-Carbon Transportation Solutions

- Define specific transportation strategies aimed at reducing emissions, including infrastructure that prioritizes active transportation, transit accessibility, electric vehicle charging infrastructure, and reductions in car dependency.
- Provide evidence-based projections of GHG reductions linked to these transportation initiatives.

6. Strengthen the Phased Implementation Framework

- Explicitly outline how Phase 1 initiatives create the foundation for more detailed, targeted actions in Phase 2, specifying which critical elements—such as community layout, housing types, and density targets—will be refined in subsequent stages.
- Include a clear timeline with defined milestones and accountability measures to ensure progress.

7. Deepen Economic and Financial Analysis

- Incorporate a comprehensive financial evaluation that transparently details projected costs, economic benefits, and return on investment for proposed climate and energy initiatives, directly addressing prior concerns about feasibility.
- Identify and evaluate potential funding avenues, including grants, subsidies, and public-private partnership opportunities to support implementation.

8. Document Inclusive Stakeholder Engagement

- Provide thorough documentation of the stakeholder engagement process, demonstrating meaningful inclusion of diverse groups such as local residents, businesses, Indigenous communities, and subject matter experts.
- Detail how stakeholder feedback has shaped the proposed climate actions and objectives.

9. Enhance Transparency with Complete Documentation

- Fully disclose all modeling assumptions, data sources, and methodological details underpinning the ECCA's conclusions, ensuring transparency and reproducibility.
- Attach comprehensive appendices containing supporting studies, technical reports, and data sets to facilitate detailed review by City staff and external experts.

Conclusion:

The Phase 1 Energy and Climate Change Assessment (ECCA) Report for the Whitechurch proposal provides a conceptual framework that reflects an understanding of the City of Hamilton's overarching climate objectives. It demonstrates alignment in principle with key municipal and provincial policies, including the Community Energy and Emissions Plan (CEEP) and the Climate Change Impact Adaptation Plan (CCIAP). However, the report lacks the analytical depth and actionable detail required to establish a credible foundation for future planning phases.

At this early planning stage, the ECCA was expected to set a clear and measurable trajectory toward the City's net-zero and climate resilience goals. Instead, it presents broad strategies without adequate quantification, firm commitments, or scenario modeling to illustrate how the proposed urban expansion will impact — positively or negatively — Hamilton's long-term sustainability objectives.

Crucially, the report does not provide a baseline or credible roadmap from which Phase 2 work can build. Without a more rigorous methodological framework, detailed assumptions, and clear performance indicators, the submission falls short of meeting the expectations outlined in Appendix "A1" to Report PED24109.

While we acknowledge the ECCA's role as a preliminary "living document," its current form does not offer sufficient transparency, technical substance, or strategic clarity to guide the City's evaluation of climate and energy impacts associated with the proposed boundary expansion. As such, it does not meet the procedural or substantive standards required for Phase 1 and would significantly limit the City's ability to assess climate-related implications during Secondary Planning.

To move forward effectively, the next phase must address the identified deficiencies through comprehensive modeling, robust policy integration, and clearly defined implementation pathways to support Hamilton's climate commitments and ensure the credibility of the planning process.

Sincerely,

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