Policy Analysis and Rationale - Existing City-owned Buildings

Current Practice

- GHG management and reduction targets for the various types of City assets that produce a GHG footprint (e.g. buildings, street light, waste management, etc.) are established through the 2012 City Operations GHG Management Plan – a 8-year plan to reduce City GHG emissions by 50% by 2020.
- In support of the City Operations GHG Management Plan and Energy Transition Plan, Office of Energy Management has established a comprehensive Energy Management Program that includes, but not limited to: development of energy education for staff (e.g. Energy 101); execution of energy audits; planning of building light optimization, HVAC replacement, building envelope optimization, renewable energy and combined heat and power; and measurement and validation processes to track results of energy retrofits. City Operations also has a dedicated team to perform recommissioning, but resources are limited, and only a few buildings can be done each year.
- Further integration and coordination between energy retrofits and capital renewal projects. For instance, energy audits and exploration of energy upgrades have been incorporated into planning of capital renewals (e.g. lifecycle replacement of major building components).
- Jurisdictional scan found that most Canadian municipalities manage energy use and GHG reductions through comprehensive GHG management plans similar to the City of Edmonton. Ontario cities are mandated to create and submit energy conservation and demand management plans for their buildings to the Ontario government. These plans outline: short and long term GHG reduction targets; proposed GHG reduction initiatives or projects for a period of five years, the anticipated energy savings, energy cost savings, and project costs, and confirmation that these plans are supported by the capital / operating budgets.
- The scan also found that BOMA BEST certification is used by public and private sector organizations to enhance building operation and maintenance from both a sustainability and sound asset management perspective. Canadian public organizations that have well-established requirements to have buildings certified under the BOMA BEST include, but not limited: Alberta Infrastructure, University of Alberta, Government of Saskatchewan, Government of Quebec, and Government of Alberta. No major Canadian city has established a BOMA BEST program yet.
- The City is a member of BOMA and our Building and Land Management section endorses the use of BOMA BEST certification and has completed certifications on a few civic buildings with support from City Operations.

Analysis

BOMA BEST is the largest commercial and institutional building sustainability certification program in Canada. It is a voluntary, national, made-in-Canada program designed to assess environmental performance and management of existing buildings. Due to its low cost, over 5,000 buildings representing every province and territory and over 1.2 billion square feet of Canadian real estate have been certified or recertified.

Data shows that:

- The average BOMA BEST certified building uses less energy than the national average by ~8%[1];
- The average water use intensity of a BOMA BEST office building is steadily declining –from 1.13 sq.m./yr in 2008 to 0.68 sq.m./yr in 2014[2];
- Recertification drives continuous environmental improvement. Recertified "BOMA BEST office buildings showed[3] a 25% improvement in energy use intensity over buildings that had only gone through the original certification process, a 30% reduction in annual building water usage per square meter of space, and an average increase of 8% in diverted waste; and
- When energy consumption was examined for Alberta Infrastructure's entire portfolio, it was discovered that BOMA BEST certified buildings (more than 80 certified buildings) outperformed other buildings in the portfolio. From 2009 to 2012, BOMA BEST certified Alberta Infrastructure buildings reduced their energy consumption by 5.8 percent – more than double the reduction observed in the portfolio average of 2.3 percent[4].

Updated Policy

Based on the jurisdictional scans, energy and GHG reductions in existing buildings is predominantly driven by reduction targets set by corporate GHG management plans and set at the building portfolio level through good benchmarking practices as compared to building specific or project specific standards that are suitable for new construction. Therefore the updated policy will reaffirm and reference the existing processes. In addition to energy and GHG reduction, the updated policy also sets expectations for continuous improvements in other areas of sustainability (e.g. waste reduction, water conservation, occupant well being, etc.).

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[1] BOMA Canada. 2016. *2015 BOMA BESt® National Green Building Report*. Available from: http://bomacanada.ca/wp-content/uploads/2016/09/2015-NGBR-Full-Report.pdf

[2] Ibid.

[3] Light House Sustainable Building Centre. 2014. *British Columbia Building Performance Study*. Available from: http://www.sustainablebuildingcentre.com/building-performance/

[4] BOMA Canada. 2015. *2014 BOMA BEST Energy and Environmental Report*. Available from: http://www.bomabest.com/wp-content/uploads/BBEER-2014-Full-Report.pdf

Based on this thinking, the updated policy will:

- Require energy benchmarking to be performed for all buildings;
- Require specific opportunities for improvement to be identified through energy efficiency audits;
- Integrate energy modeling, energy audits and lifecycle cost benefit analysis methodologies into routine lifecycle replacement and capital rehabilitation project planning processes;
- Strengthen integration and accountability with the Corporate Greenhouse Gas Management Plan through the creation of four-year building energy retrofit plans; and creation of a pathway (with interim targets) to an ultimate zero-carbon emission target year for the building portfolio;
- Establish a more formal approach for operating and maintaining of existing buildings based on the BOMA BEST certification framework; and
- In situations where a non-City owned building is being considered for purchase and intended to be retained by the City or leased to others to carry out community programming or services, such as the acquisition of the MacEwan West campus, require an energy assessment be performed and integrated into the existing pre-acquisition due diligence process, to understand the building's energy and greenhouse gas impact, and the extent of upgrades needed to raise the energy performance to an optimized level.

Budget and Implementation

Yearly BOMA BEST fee can range from $100 to $2,000 per building per year based on building size. Program scale up will involve selecting and prioritizing the buildings that have the highest energy use intensities, most accessed by the public, and the largest buildings. For example, certification of the largest 20 City-owned and City occupied buildings will require a yearly fee of approximately $20,000, and certification of the next 20 largest City buildings would be an additional $6,000 due to decreasing sizes of the buildings. After the first 40 largest buildings are certified. The cost of adding including additional buildings would be very marginal e.g. <$200 per building per year. The BOMA BEST fee for the next few years is not expected to exceed $25,000 per year.

The main impact of the BOMA BEST Certification Program is the requirement for additional internal resources for program coordination. Preliminary information gathered from other public sector agencies that have a mature BOMA BEST Certification Program estimates that one FTE can complete approximately eight certifications per year. However, the newest version of BOMA BEST will enable certifications to be completed at the portfolio level. This will reduce data

collection requirements and development of building specific procedures and plans (e.g., rather than creation of a building energy management plan for each building being certified, one plan can be created and used for certification of all buildings). Administration intends to leverage corporate ENVISO staffing resources for the initial scale up of the program. If necessary, an operating budgetary adjustment request will be put forth for 2018.