MEPA GHG POLICY AND PROTOCOL CASE STUDY

Education First's (EF) North American Headquarters in Cambridge.

This project includes the construction of a 295,000-square foot (sf) ten-story mixed-use building on a 1.4-acre parcel of land located at Education and North Point Boulevard Extension in Cambridge. The building includes additional office space for Education First's (EF) North American headquarters, above-grade structured parking, public space on the ground and second floors facing the Charles River, and landscape and streetscape improvements. As part of MEPA review for this project, EF performed a Greenhouse Gas (GHG) Analysis that modeled potential stationary and mobile source GHG emissions associated with a project designed to meet the current applicable State Building Code (the Base Case) and a project designed to achieve energy reduction (and therefore GHG emissions reductions) greater than the State Building Code requirements through the adoption of energy efficiency and GHG mitigation measures (the Preferred Alternative). As a Green Community designated in accordance with the Green Communities Act of 2008, the City of Cambridge has adopted the Commonwealth of Massachusetts' Stretch Energy Code (Stretch Code). Therefore, for purposes of MEPA review for this project, the Preferred Alternative also had to demonstrate that the project could meet the 20 percent reduction in annual project-related energy use compared to the Base Case in compliance with the Stretch Code. MEPA review for this project concluded in April 2012.

As part of the MEPA process and in response to the MEPA GHG policy review requirements, EF identified a series of energy efficiency and design measures to reduce the project's overall GHG emissions compared to conventional construction that follows the minimum requirements set by the State Building Code. These building design measures include:

- Installation of roof insulation (R-19) and wall insulation (R-30) that exceed current building code;
- Installation of energy efficient windows (U = 0.25, SC = 0.30);
- Design of a building with a window to wall ratio that exceed current building code requirements;
- Use of daylight and occupancy sensors for reduce interior lighting demand;
- Installation of an underfloor variable air volume (VAV) system with a dedicated outdoor air system and energy-efficient fan power;
- Installation of a chilled water cooling system with a 6.1 Coefficient of Performance (COP) chiller;
- Use of chilled water system with variable speed drives (VSD);
- Installation of an energy efficient hot water boiler (91% efficient);
- Following of commissioning requirements provided in the current Massachusetts Building Code, including Appendix G;
- Elimination and/or reduction of the use of ozone-depleting and global warming-contributing based refrigerants in HVAC systems;
- Installation and use of an Energy Management System (EMS);
- Use of water conservation and wastewater reduction measures;
- Construction of solar ready roofs;
- Purchase of 2-years worth of Renewable Energy Credits (RECs).
- Installation of two preferred parking spaces for hybrid vehicles; and
- Installation of a dual electric vehicle curb-side universal charging station.

EF also identified the components of a Transportation Demand Management (TDM) program designed to reduce single occupancy vehicle trips and promote alternative modes of transportation, thereby reducing mobile source GHG emissions associated with the project. This TDM program is already in place for EF's existing building on an adjacent property and will be expanded to cover employees and visitors to the new building.

The specific elements of the TDM program include:

- Provision of preferential parking for carpool and high-occupancy vehicle commuters;
- Priority assignment of carpoolers for garage parking passes;
- Operation of free shuttle bus service between Community College Station, Lechmere Station, Kendall Square, and the project site;
- Join the CRTMA. CRMTA will provide rideshare services, emergency ride home programs, and also shuttle service through the EZ Ride Shuttle;
- Market rate parking charges for those using the on-site parking garage;
- Continue to make MBTA passes available to employees through a pre-tax payroll deduction;
- Continue to make MBTA passes available to students on-site;
- Provide information about the MBTA transportation schedules and routes on EF's website;
- Provide information about transportation options available to faculty and staff at employee orientations, in the employee handbook, and on EF's website;
- Provide on-site showers and lockers accessible to all members of the EF community;
- Explore the possibility of permitting an existing loading zone space in front of the existing EF building to be used as a car-sharing space;
- Designation of an on-site transportation coordinator;
- Participation in the Commuter Choice transportation benefit program;
- Provision of secure bicycle storage for 42 bicycles (22 indoor spaces for employees; 20 public outdoor public spaces);
- Purchase of 20 bicycles to house on site for use by employees at no charge; and
- Promotion of the Somerville Community Path, North Point Park, North Bank Bridge, Paul Dudley While bike path, other multi-use paths available in the site vicinity.

Based upon the modeling performed in accordance with the MEPA GHG Policy and Protocol, EF estimated that the project's overall stationary source CO_2 emissions will be at 1,189 tons per year (tpy) in the Base Case, with the Preferred Alternative achieving a reduction of 276 tpy of CO_2, for a project total of 913 tpy of CO_2 subsequent to the implementation of the energy efficient design measures outlined above. Mobile source emissions attributable to the project were estimated at 192.4 tpy, a reduction of 4.6 tpy from the Base Case of 197 tpy.

Total estimated GHG emissions for the proposed Preferred Alternative, indirect and direct emissions attributable to stationary sources and indirect emissions attributable to mobile sources, were estimated at 1,105.4 tpy, a 280.6 tpy reduction from the Base Case total of 1,386 tpy (a 20.2 percent overall project reduction). The adoption of the Preferred Alternative by EF will result in the construction and operation of a building that achieves considerable GHG reductions compared to a building constructed to the minimum building code standards.