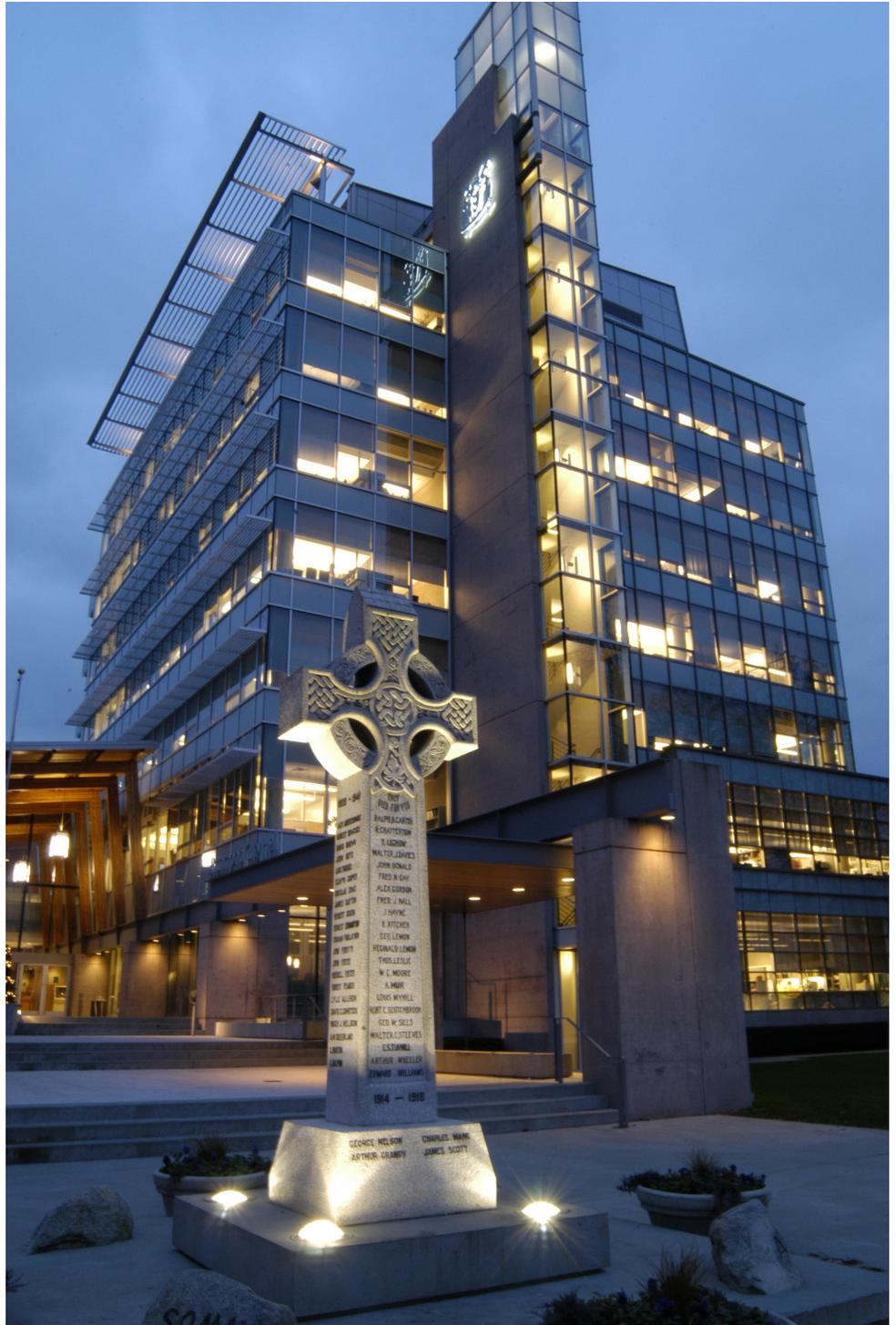
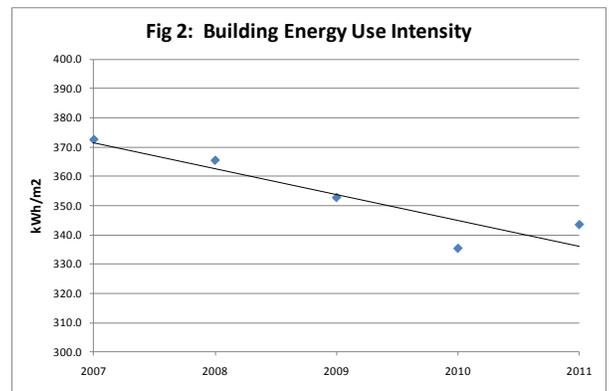
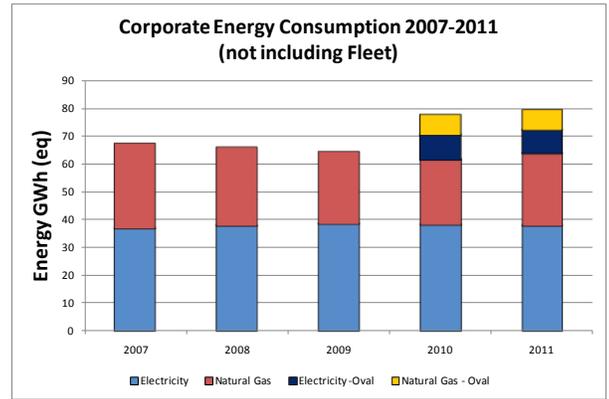


Energy Update Report

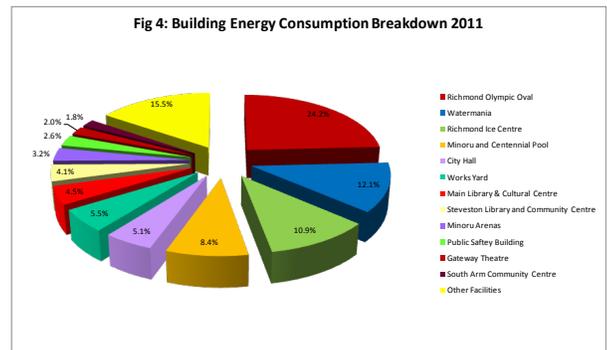
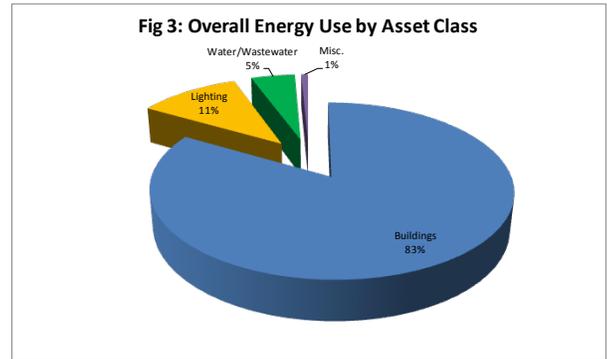
Summary 2011/2012



- Cost of energy in 2011 for the City of Richmond buildings, lighting, water and wastewater services was approximately **\$5.4 million dollars** or **79.3 GWh** (equal to average energy use of 2300 homes in BC annually).
- As compared with 2010, energy consumption for these civic assets increased by approximately 1.7 GWh. This was mainly due to a colder winter in 2011 that increased corporate natural gas usage.
- Although overall energy use for the organization has increased since 2007, due to new civic infrastructure (such as the Richmond Olympic Oval), our building energy use intensity (kWh/m²) has decreased since then, indicating **increasing corporate energy use efficiency**.



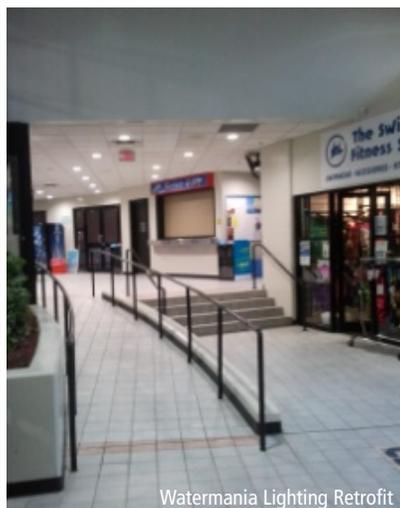
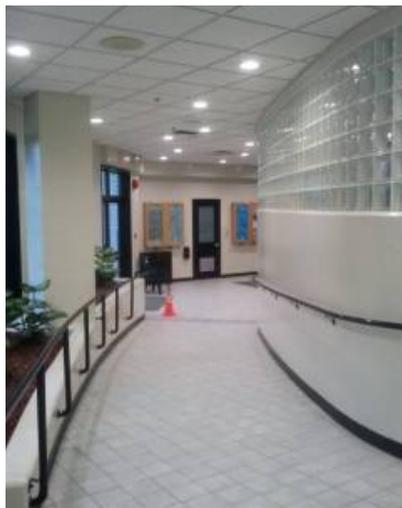
- In 2011, the majority of corporate energy use was by buildings-83%, followed by lighting-11% and water/wastewater services-5%.
- Of the ~120 civic facilities under City stewardship, energy use in 2011 at only **12** facilities accounted for ~**85%** of the overall civic building energy use, with our recreational facilities being the largest consumers.
- Recreational pools and ice arenas were our highest energy consuming facilities - with **Richmond Olympic Oval, Watermania, Richmond Ice Centre, Minoru Pools and Minoru Arenas** accounting for approximately 57% of the energy used by civic buildings in 2011.
- This focus of energy usage on a smaller number of buildings has lead the Energy Management Program to focus its assessment and auditing resources on the higher consuming buildings.
- Five high energy consuming buildings are participating in a BC Hydro continuous optimization (COp) program, which involves a detailed site investigation and will implement measures to increase energy efficiency by between 5-20%.



- Secured over **\$200,000** of external funding to support the Energy Management Program.
- The City of Richmond was again recognized by BC Hydro as being a **Power Smart Leader** - remaining the only municipality in BC to achieve this high level of recognition for the City's energy efficiency and conservation work.
- City is on course to achieving an estimated **1.9 GWh** reduction in electrical and natural gas use and approximately **200 tonnes** of greenhouse gas emissions from a variety of projects to be completed by early 2013. This equals approximately **\$110,000** operational cost avoidance savings.
- This energy reduction represents approximately **2%** of our current corporate annual energy use and the GHG emissions reduction is equal to removing approximately **50 vehicles** from Richmond roads each year.
- Continued delivering corporate energy awareness program (Year 2), with support of BC Hydro, to promote energy conservation measures. Some from the past year's initiatives included a conservation commitment campaign, Aquatics and Fire Hall energy reduction challenges, and A/C awareness "Beat the Heat" Hawaiian shirt day.



Ex. Solar Air Wall – to be installed at South Arm Community Centre



Watermania Lighting Retrofit



Hamilton Community Centre

- One LEED certifiable Gold building renovation was completed for RCMP headquarters use – Community Safety Building.
- Energy saving measures that were part of the renovation included, new high efficient heat pumps and windows, new insulation and windows, solar thermal panels for domestic hot water heating, and new lighting controls.
- The Alexandra District Energy Utility was officially opened in September 2012, with Phase 1 and 2 connections all in place and operating. The system provides geothermal renewable energy to heat and cool the residential units in the new West Cambie neighbourhood.
- Installation of sanitary sewer heat recovery system is underway to provide supplemental heating at Gateway Theatre, which will displace natural gas usage at the facility by ~900GJ and reduce carbon emissions by ~47 tonnes = to 12 vehicles off the road in Richmond each year.
- Pilot testing of light emitting diode (LED) lighting at the Burkeville tennis courts, with the goal looking at installing LED lights at other sports locations.
- Engineering tested 11 different types of LED street light fixtures. One of the 11 fixtures will be used for a new installation at Westminster Hwy. The LED lighting will be used instead of the conventional higher energy using high pressure sodium fixtures.



Community Safety Building



Alexandra District Energy Utility



Alexandra District Energy Utility



Gateway Theatre



LED Street Lighting

