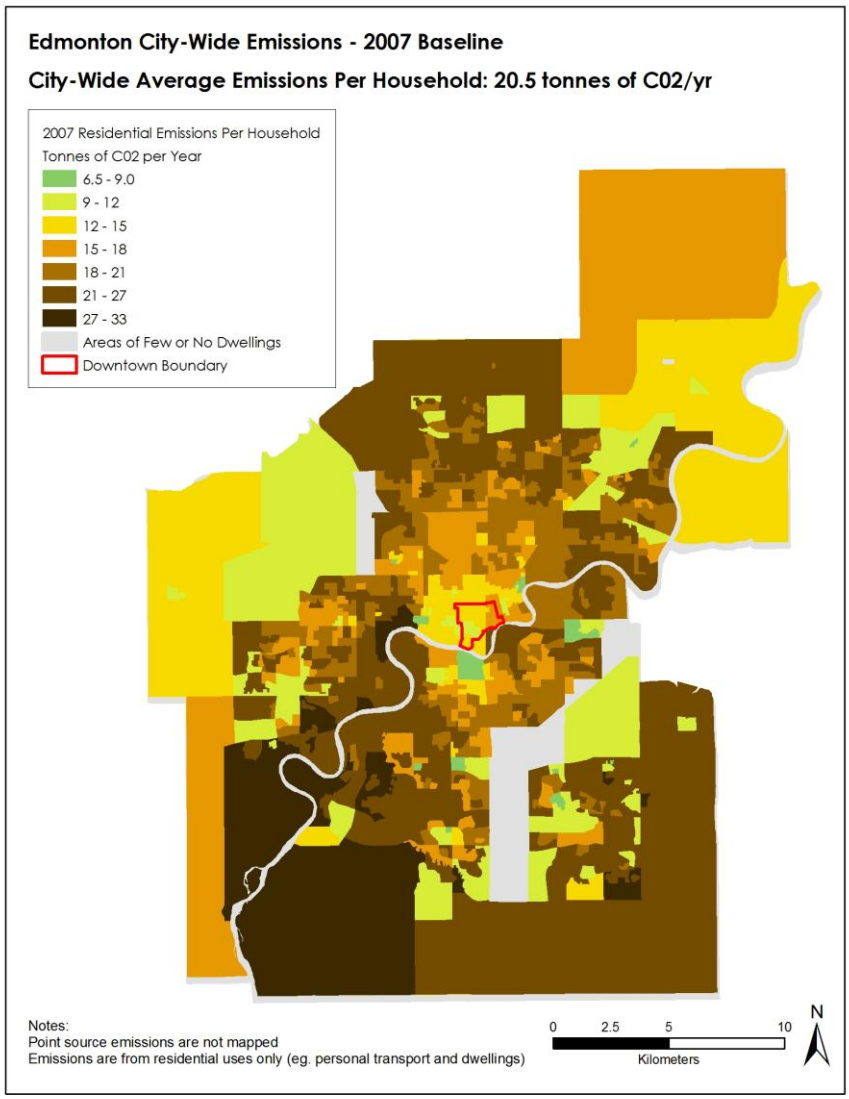
Towards a Sustainable Downtown: Reducing GHG Emissions

There is great opportunity through urban change to address climate change. By applying more sustainable approaches to land use, transportation patterns, and urban built form, the City of Edmonton can have a significant impact on reducing greenhouse gas emissions.

The Edmonton downtown core already has significantly lower household emissions than outlying areas. On a per household basis, the Downtown emits 12.8 yearly tonnes of C02, versus that of the City in general, which is around 20.5 tonnes per year.

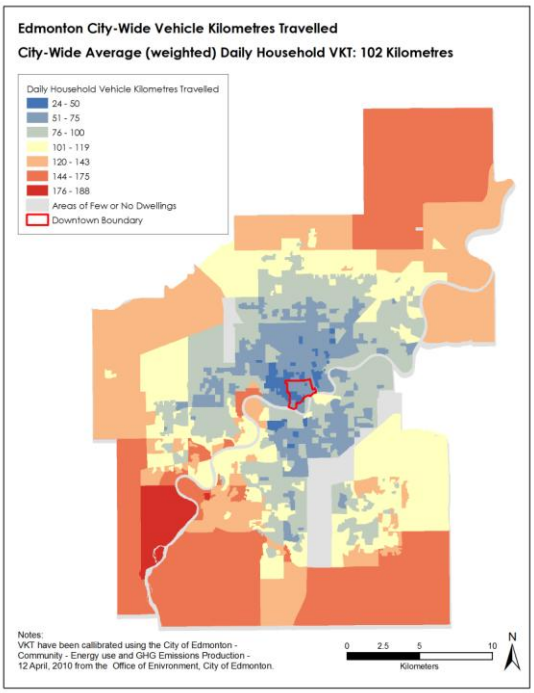
The reasons for this difference is that, compared with their counterparts in outlying areas, households in and near the downtown live closer to work and other key destinations, drive less to meet daily needs, and live in smaller sized units that use less energy.

In order to reinforce and improve downtown Edmonton's GHG performance, the Capital City Downtown Plan recommends policies that aim to reduce per household **vehicle kilometres travelled (VKT)** and improve **building energy efficiency**.



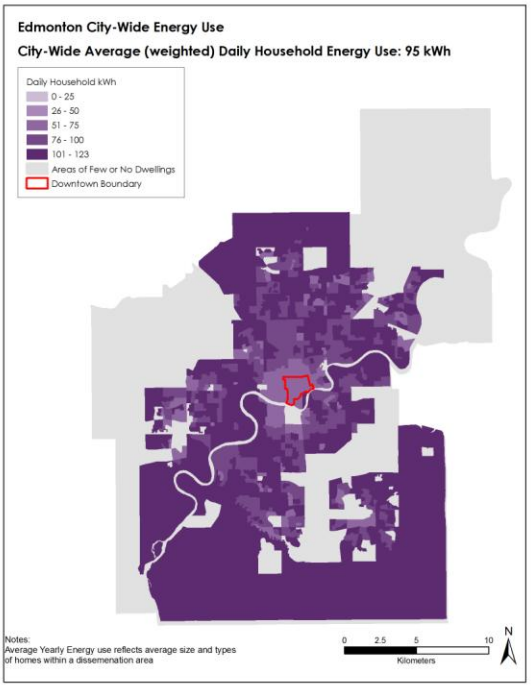
Vehicle Kilometres Travelled (VKT)

Residents living in more central areas travel far fewer kilometres per day than residents living in outlying areas. There are four main reasons for this. First, Edmonton's land use pattern is characterized by low density residential separated from other land uses, requiring many Edmontonians to travel long distances to meet daily needs. Secondly, there are not enough public transit alternatives to travelling by car – LRT and high frequency buses, for example. The data show that VKTs are lower around high capacity transit stops, as found in the northeast and south-central areas of the city. Thirdly, VKT is also lower in areas near large employment areas such as the CBD, University of Alberta, and the large industrial parks in the Northwest and Southeast parts of the city. Finally, higher residential densities, such as along White and Jasper avenues, have correspondingly lower VKT.



Building Energy Efficiency

Household energy use tightly corresponds with building type. Areas that are predominantly detached single family in nature have considerably higher energy consumption levels than areas that are more multi-family in character. This is the case for two primary reasons. First, single family detached dwellings are generally larger than attached and multifamily dwellings, and as a result require more energy for heating and cooling. Secondly, attached units, especially in multi-unit buildings, can share and retain thermal energy, reducing some of the energy requirements for heating.



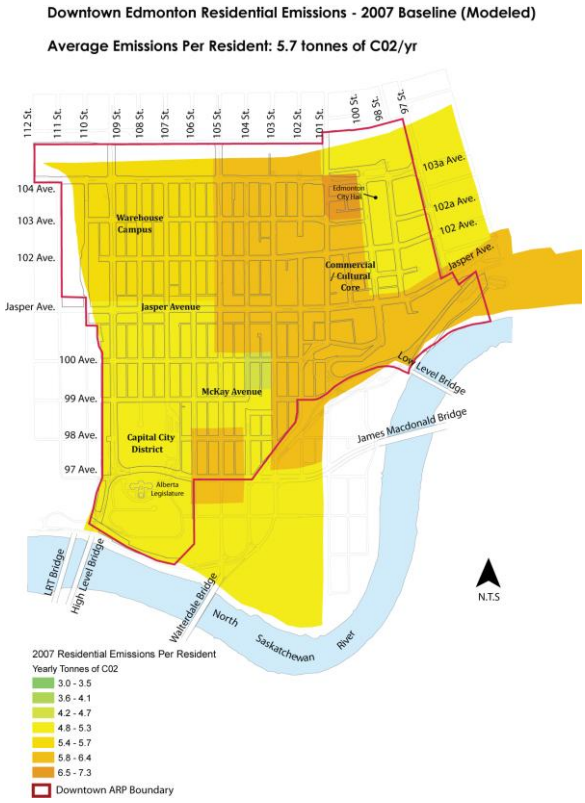
GHG Emission Reduction Scenarios

Implementing the Capital City Downtown plan will result in a reduction of 5.3 tonnes C02/year per household on average. However, that reduction will not be achieved by simply adding new residences and commercial buildings. A reduction from an average of 12.8 to 7.5 tonnes of C02/yr/hh could be achieved through the implementation of the Capital City Downtown Plan.

Scenario 1: Baseline

In 2007, the Downtown's average emissions are lower than the city-wide average, but it is still above the averages of most other leading cities.

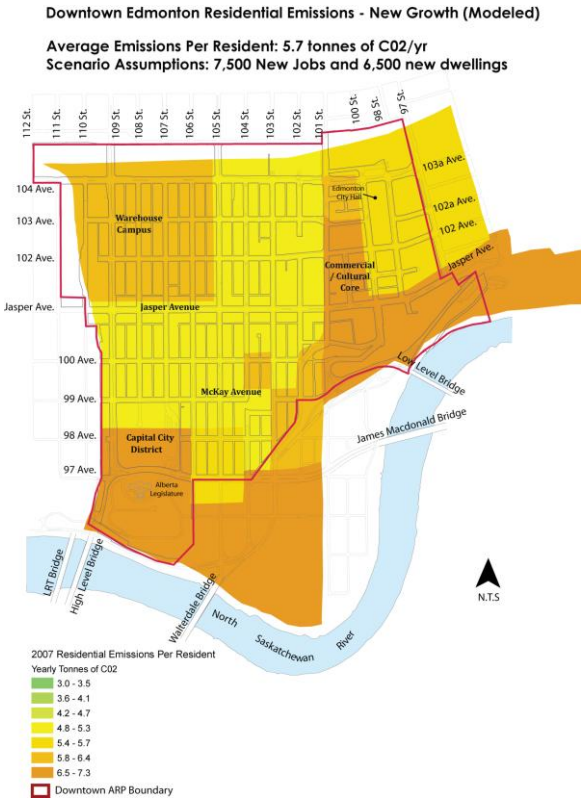
Baseline emissions of 12.8 tonnes of C02 per household.



Scenario 2: Forecasted Modest Growth

In 35 years, the Downtown is forecasted to experience modest growth, with around 6,000 new dwellings and 7,500 jobs.

Emissions reduced to 12.3 tonnes of C02 per household.



Scenario 3: New Residents, New Jobs, and Transportation System Improvements

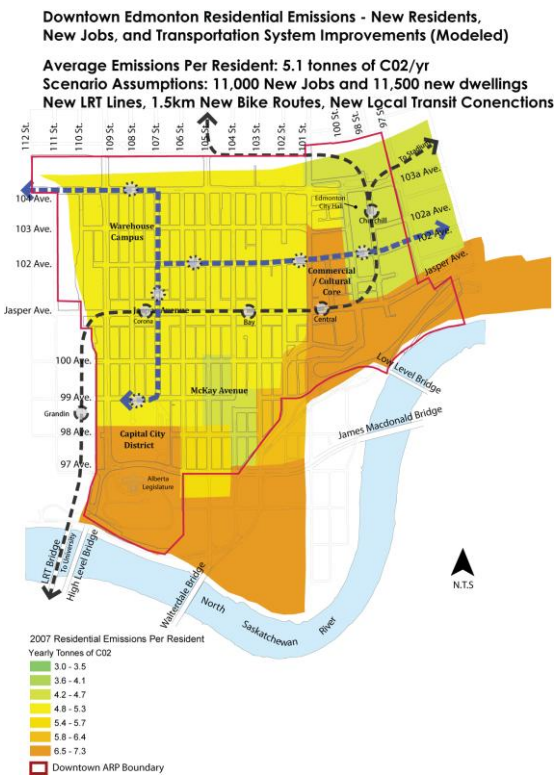
In order to make further GHG emission reductions, two broad strategies from the Capital City Downtown Plan were considered. First, there is a significant increase in population and jobs. Second, the downtown transportation system includes a new at-grade LRT, increased transit service, new high quality cycling routes.

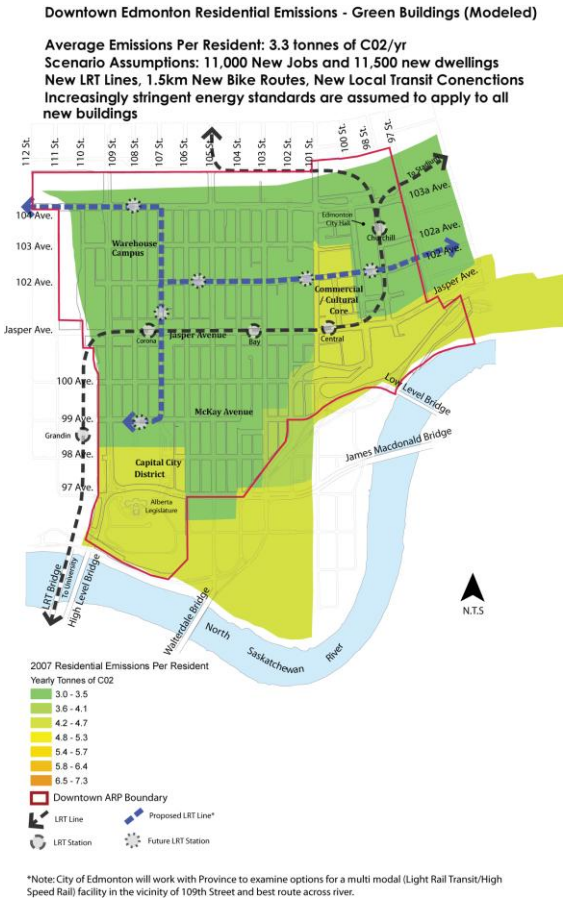
Emissions reduced to 11.0 tonnes of C02/yr per household.

Scenario 4: Green Buildings

Finally, by adopting considerably more stringent energy standards for all new buildings, a reduction of almost 3.5 tonnes of C02/year per household were achieved. This policy, as modeled, assumed that all new buildings over time would achieve 55% reductions in energy consumption beyond 2007 levels.

Emissions reduced to 7.5 tonnes C02/year per household.





*Note: City of Edmonton will work with Province to examine options for a multi modal (Light Rail Transit/High Speed Rail) facility in the vicinity of 109th Street and best route across river.