



April 2010

## City of New Rochelle

# New Rochelle's Greenhouse Gas Inventory

### Methodology

The year 2005 was chosen as the baseline year for New Rochelle's Greenhouse Gas Baseline Inventory. New Rochelle's baseline greenhouse gas inventory shows greenhouse gas emissions from the residential, commercial, school, transportation, and municipal sectors. The inventory accounts for energy consumed within the City of New Rochelle and does not include energy used to produce goods consumed in New Rochelle or wastes generated by New Rochelle. A separate inventory for municipal emissions is also presented so that the City government can better take action to reduce its own emissions and lead by example.

Greenhouse gas emissions were calculated by collecting information on energy use, including electricity, natural gas, fuel oil, gasoline, diesel fuel, and vehicle miles traveled within the city of New Rochelle. Information on energy use was then entered into the Clean Air and Climate Protection (CACP) Software developed by ICLEI-Local Governments for Sustainability. The software converts energy use into greenhouse gas emissions using specific factors (or coefficients) according to the type of fuel used. Emissions are aggregated and reported in terms of carbon dioxide equivalents, or CO<sub>2</sub>e. For example, methane traps heat twenty one times more effectively than CO<sub>2</sub>, therefore, a ton of methane emissions is quantified as 21 tons of CO<sub>2</sub>e. The emissions coefficients and methodology employed by the CACP software are consistent with international inventory standards established by the Intergovernmental Panel on Climate Change and the US Voluntary Greenhouse Gas Reporting Guidelines.

### Community Inventory Results

In 2005, the City of New Rochelle emitted approximately 662,601 metric tons of CO<sub>2</sub>e. The largest sources of emissions came from the residential and transportation sectors, each contributing 37% of total greenhouse gas emissions. The commercial sector emitted 23% of emissions, schools emitted 1.5%, and the municipal government emitted 1.5% of emissions. Tables 1 and 2 show the breakdown of emissions by sector and energy source. Figure A compares the CO<sub>2</sub>e emissions for the residential, commercial, municipal, school and transportation sectors. Figures B and C show the percentage of emissions by sector and energy source.

**Table 1: Community Emissions Summary by Sector**

Sector	CO2 metric tons	Energy (MMBtu)
Residential	242,798	3,537,250
Commercial	152,632	2,012,348
School	8,892	119,097
Municipal	10,066	113,991
Transportation	248,213	3,414,260
Total	662,601	9,196,946

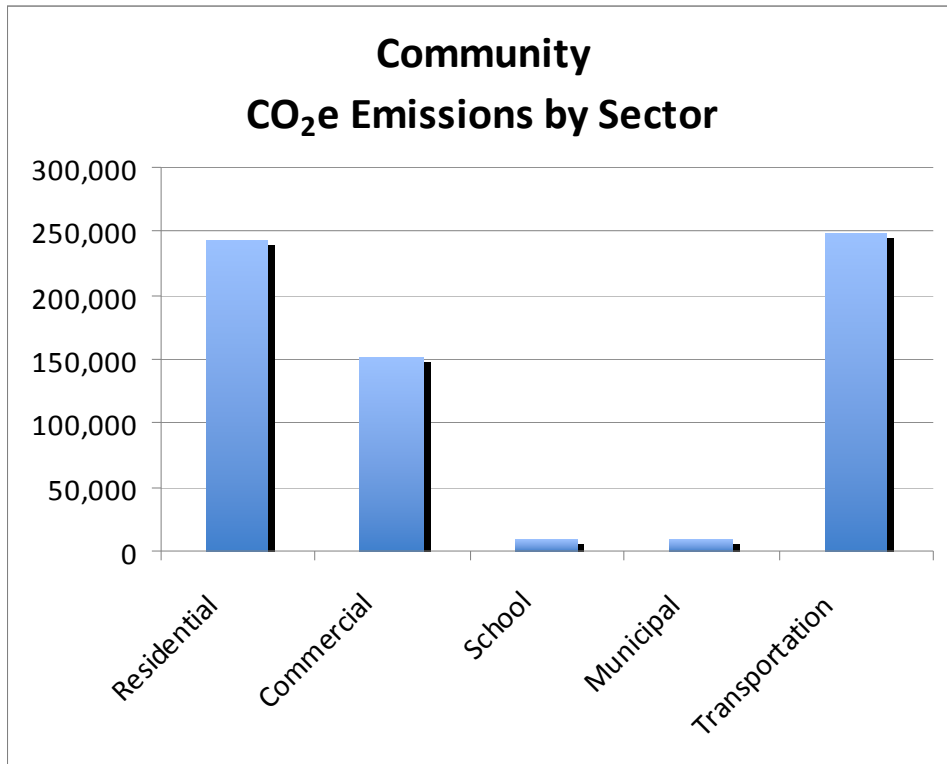
Source: CACP Model output

**Table 2: Community Emissions Summary by Energy Source**

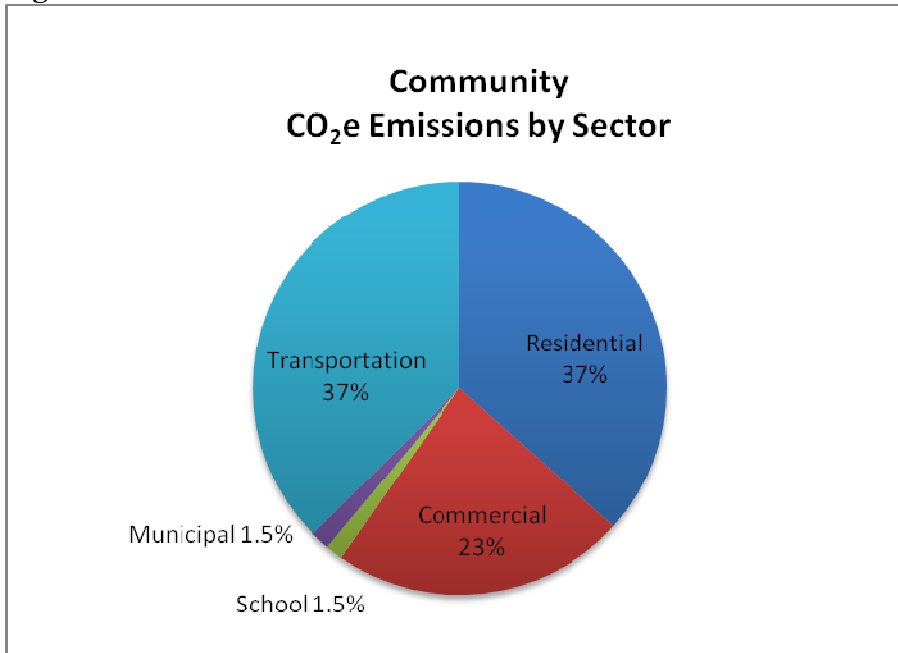
Energy Source	CO2 metric tons	Energy (MMBtu)
Electricity	151,979	1,398,137
Fuel oil	102,764	1,396,913
Gasoline	211,163	2,908,725
Natural gas	156,944	2,950,317
Diesel fuel	39,828	543,934
Total	662,678	9,198,026

Source: CACP Model output

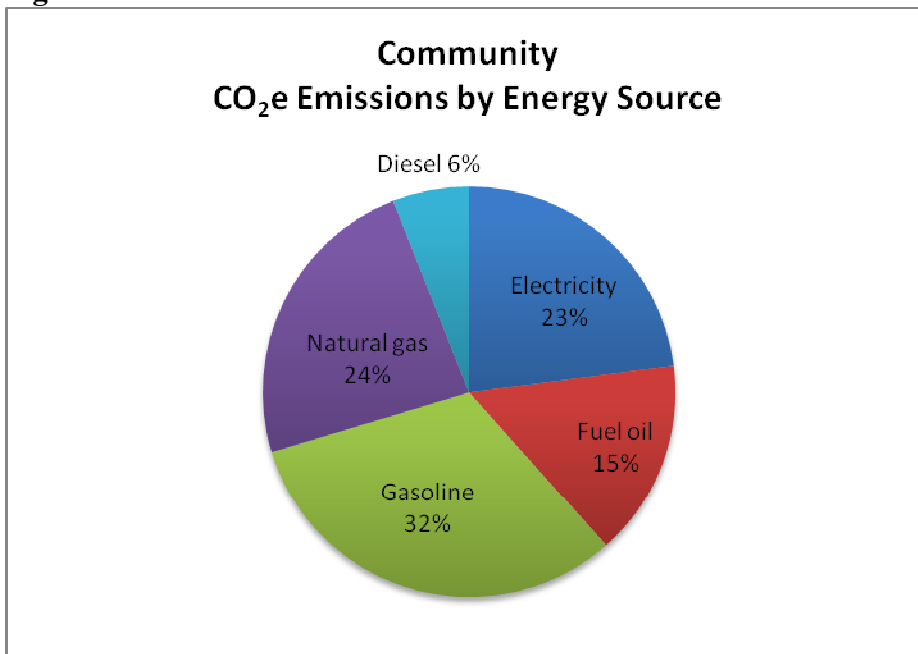
**Figure A**



**Figure B**



**Figure C**



## Municipal Inventory Results

In 2005, the government of New Rochelle emitted 10,027 metric tons of CO<sub>2</sub>e. Buildings and facilities constituted the greatest portion of emissions, making up 50% of total emissions. Vehicles made up the second largest portion at 26%. Streetlights and traffic signals contributed 22% of emissions, and port facilities contributed 2% of emissions. Tables 3 and 4 show the breakdown of emissions by sector and energy source. Figures D and E show the percentage of emissions from each sector or energy source.

**Table 3: Municipal Emissions Summary by Sector**

Source	CO <sub>2</sub> metric tons	Energy (MMBtu)
Buildings and Facilities	5,045	55,664
Streetlights & Traffic signals	2,193	20,171
Port Facilities	163	1,498
Water Delivery Facilities	2	418
Vehicles	2,624	36,239
Total	10,027	113,990

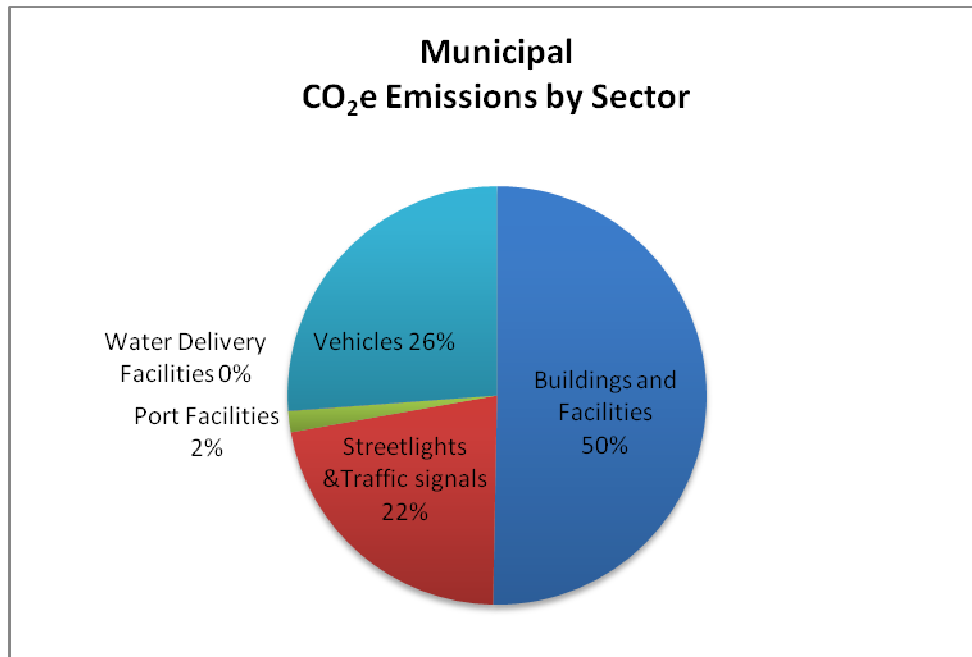
Source: CACP Model output

**Table 4: Municipal Emissions Summary by Energy Source**

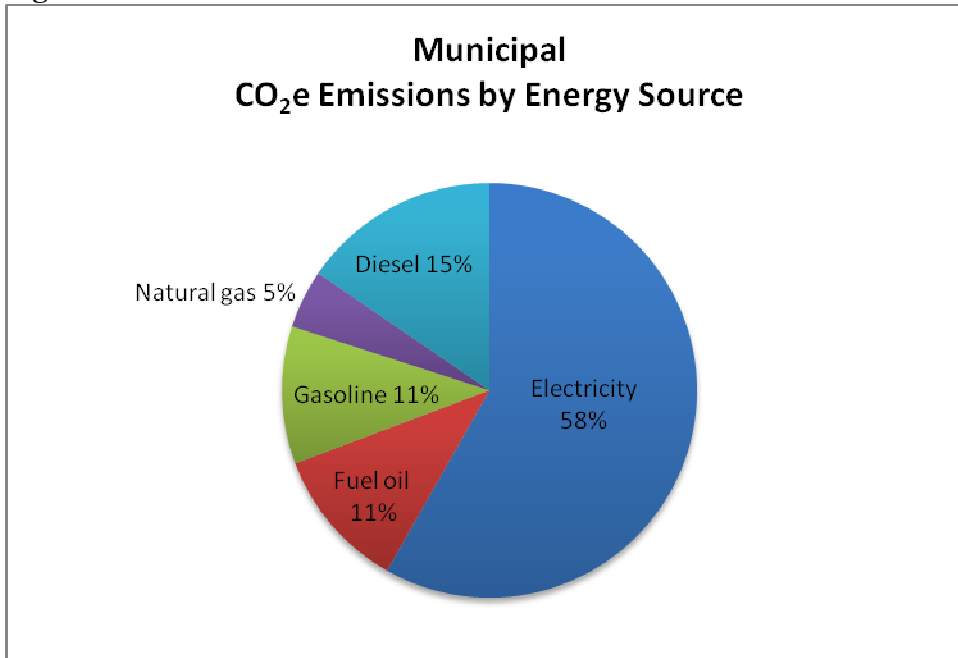
Energy Source	CO <sub>2</sub> metric tons	Energy (MMBtu)
Electricity	5,838	54,100
Fuel oil	1,108	15,061
Gasoline	1,076	15,089
Natural gas	457	8,591
Diesel	1,549	21,150
Total	10,028	113,991

Source: CACP Model output

**Figure D**



**Figure E**



Source Notes

**Residential and commercial** emissions were calculated from electricity and natural gas usage obtained from Con Edison. Residential fuel usage was estimated based upon a template in the ICLEI software using population figures. Commercial fuel oil usage in New Rochelle was not available, so this figure was estimated by calculating the ratio of the population of New Rochelle to the population of New York State and applying that fraction to the total fuel oil usage for New York State as provided by the US Department of Energy.

**School** emissions were calculated using electricity, natural gas, fuel oil, gasoline and diesel fuel usage obtained from the New Rochelle School Districts records for the calendar year 2006-2007.

**Transportation** data was not available for New Rochelle so an emissions estimate was made based on the total vehicular miles traveled (VMT) in Westchester County in 2005 as provided by the New York Metropolitan Transportation Council. Two separate methodologies were employed. The New Rochelle highway VMT was estimated by taking the ratio of highway miles in New Rochelle to the total highway miles in Westchester County and applying that fraction to the total highway VMT in Westchester County. The New Rochelle arterial and local road VMT was calculated by taking the ratio of New Rochelle's population to the total population of Westchester County and applying that fraction to the total arterial and local roads VMT in Westchester County.

**Municipal** emissions were calculated from energy use data obtained from the 2005 Mayor's Energy Initiative Energy Audit and from Con Edison.