Greenhouse Gas (GHG) Emissions Inventory

City of Edmonds Analysis of City Operations and Activities

Report Years 1999 and 2006

Background

After City of Edmonds Gary Haakenson signed the U.S. Mayor's Climate Protection Agreement, a committee was formed with the Mayor, select city staff, and inviting interested citizens residing in the city, to meet, with the intent to discuss and implement measures that would lead to decreases in greenhouse gas (GHG) emissions. This committee came to be informally regarded as the "Citizens Group" or GHG Group.

One of the first tasks was to prepare an inventory of the energy and fuel use plus other activities that caused emissions within the total city operations. A membership with The International Council for Local Environmental Issues (ICLEI), which is an association that assists cities with sustainability, provided Edmonds with the software to calculate our emissions footprint.

An inventory was vital for the following reasons:

- To identify the greatest sources of GHG emissions from city operations and within the geographic area of Edmonds itself.
- To understand emission trends.
- To quantify the benefits of specific activities that result in GHG emissions.
- To provide a basis for developing an action plan.
- To track progress at reducing emissions.
- To set goals and targets for future reductions.

The ICLEI software provides the means to analyze both the city operations footprint, labeled Government Analysis, and the city-at-large, labeled the Community Analysis. Both these processes also have a separate operation for producing and examining the possible measures needed to pursue emissions reduction. These are labeled Government Measures and Community Measures respectively. The onset of this effort and reported herein, is the Government Analysis inventory.

Across Washington State, there are 25 jurisdictions partnered with ICLEI as apart of their efforts to identify and decrease GHG emissions.

*Edmonds
*Lynnwood
*Everett
Snohomish County
King County
*Shoreline
*Seattle
*Lake Forest Park
*Kirkland
*Bellevue
*Mercer Island
Whatcom County
*Bellingham
*Ferndale
Oak Harbor
Langley
Jefferson County
Port Townsend
*Tukwila
*Tacoma
Pierce County
*Olympia
*Tumwater
*Vancouver
*Spokane

*U.S. Mayors Climate Protection Agreement Signatory

Data Collection, Methods and Assumptions

The subcommittee of the Citizens' Group, made up of solely city staff, decided to collect data from the last full year available (2006) and establish a base year, as earlier as possible, which had the best potential for data available. Reaching back to around 1990 was out of the question due to data being difficult to obtain or simply not available. The year 1999 was picked as being far enough back to provide a comparison with 2006 and most likely at the limit of current record keeping. Many other local governments undertaking inventories ultimately selected base years 2000 or 2001.

Despite accumulating very precise data from the main utilities and the accurate record keeping of fleet fuel consumption, there were various areas that data had to be sought, extrapolated, or given a best estimation. The notes within the Detailed Reports (Section 4 for 2006; Section 7 for 1999) will outlines sources of data and any other methods used to provide the input. The year 1999 did prove to be challenging in gathering much of the data and time was spent manually checking through various files in archived boxes.

The overall results contained herein are the best attempts at calculating a basic carbon footprint that represents city operations and activities. Despite the sophistication of the software and the formulas it contains, results are still to be regarded as best estimates, since there are variables across all the particular sectors used for the analysis.

Government Analysis Sectors

Each of the following sectors in the Government Analysis receives input of energy use, fuel consumption, vehicle miles traveled, etc., which is tallied and converted by pre-set formulas to produce GHG emissions, particularly equivalent metric tonnes of carbon dioxide. For Edmonds and other local jurisdictions, the PUD of Snohomish County provided a more accurate set of container-efficients to use for electrical source data, rather than the default region-wide setting already within the ICLEI software. This recalculation dramatically altered the total emissions.

There is also an opportunity to add **costs** into the analysis to track by sector or year, etc. When true costs were available they were entered into the system. Very often there were no costs or nothing available and so many cost areas were left blank Therefore in any of the summaries within this report, all costs entered are compiled and totaled, but should not be reliable.

The Government Analysis is divided into the following sectors and data collection, methods, and assumptions are summarized for each sector.

- **Buildings**

This sector outlines data on energy use at all city-owned buildings. See Section 3; page 1 of the Report by Subsector for the list of buildings. One of the subsectors outlines a group of separate electric meters (rather than a named building) used for power sources for various Parks Department operations. Data was provided by the electric utility PUD of Snohomish County (in kilowatt hours) and the natural gas utility PSE (in therms). Please note that the city's Waste Water Treatment Plant is not a part of this group because it is listed separately within the Water/Sewer Sector. The Treatment Plant is included with other main City buildings within the City Building GHG Comparison in Section 2; page 3. Cost data for this sector is only for natural gas costs for both years 1999 and 2006.

- **Water/Sewer**

This sector outlines data on energy use at all water and sewer conveyance operations, including the Waste Water Treatment Plant. See Section 3; page 2 and 3 of the Report by Subsector for the list of lift stations and more. Data was provided by the PUD and PSE. Cost data for this sector is only for natural gas costs for both years 1999 and 2006.

- **Streetlights**

This sector outlines the various street lighting devices throughout the city, from overhead streetlights to traffic signals. Data was provided by the PUD. Cost data is accurate for 2006 and extrapolated for 1999.

- **Vehicle Fleet**

This sector outlines the actual fuel use by the fleet of city-owned and leased vehicles, plus gasoline cans used for fueling small equipment. Both gasoline and diesel fuel is tracked and further broken out by city department. See Section 3; page1 and 2 for list of departments. Data gathered by the city Fleet Maintenance Manager and by researching city archive files. Cost data is accurate for 2006 and extrapolated for 1999.

- **Employee Commute**

The sector outlines the emissions produced by employees commuting to and from their workplace at the city. The data was extrapolated from Commuter Trip Reduction (CTR) surveys conducted with city employees. Some assumptions were made to convert the survey data into a useable format for entry into the analysis. Calculations were made to reach the appropriate vehicle miles traveled in the time period selected. The CTR surveys were made available by the city's Traffic Engineer, Community Transit and the Washington State Department of Transportation.

- **Waste**

The sector outlines the volume of solid waste that is produced from city buildings and operations and calculates the weight (in tons) that are disposed into the landfill, since landfill decomposition produces methane. Data was provided by Allied Waste, Sound Disposal and by researching city archive files.

- **Other**

This sector outlines any other sources of measurable GHG emissions. For this analysis all the primary sources are well-defined within the previously described sectors, so there was no data to furnish here. One consideration was a sector outlining materials and product purchasing. Products bought to support city operations and activities emit GHG emissions throughout the entire life-cycle, particularly during production and shipping, as well as use and disposal. It was determined that much of the data to gather for this area would not be available.