

Greenhouse Gas Inventory Report (2000 and 2007) City of Clearwater Government Operations

June 2008

**Prepared for:
The City of Clearwater**



**Prepared by:
Sandra Kling**



**GREENHOUSE GAS INVENTORY REPORT
(2000 and 2007)
CITY OF CLEARWATER
MUNICIPAL OPERATIONS**

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LIST OF ACRONYMS AND ABBREVIATIONS

CCP	Cities for Climate Protection
CPA	Climate Protection Agreement (U.S. Conference of Mayors)
FY	Fiscal Year
GDP	Gross Domestic Product
GSP	Gross State Product
GHG	Greenhouse Gas
ICLEI	International Council for Local Environmental Initiatives/ Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change
KWH	Kilowatt Hours
MMBTU	One Million British Thermal Units (thousand thousand Btu)
ppm	Parts per million
SF	Square feet
TCO ₂ e	Tonnes of Carbon Dioxide Equivalents
Tonnes	Metric Tons
VMT	Vehicle Miles Traveled
WPC	Water Pollution Control

Greenhouse Gases:

CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
HFCs	Hydrofluorocarbons
N ₂ O	Nitrous Oxide
PFCs	Perfluorocarbons
SF ₆	Sulphur Hexafluoride

Criteria Air Pollutants:

CO	Carbon Monoxide
NO _x	Nitrogen Oxides
PM ₁₀	Coarse Particulate Matter
SO _x	Sulfur Oxides
VOCs	Volatile Organic Compounds

1.0 EXECUTIVE SUMMARY

The City of Clearwater (Clearwater) is one of 24 municipalities located in Pinellas County. Clearwater's population was 108,787 in 2000 and grew to approximately 110,469 people in 2007. The City was incorporated in 1915 and is governed by a Mayor/City Manager form of government and is composed of 24 city departments. The city provides basic services that include natural gas, water, reclaimed water, sewage, and solid waste pickup. Progress Energy provides electricity and the Pinellas County provides additional services that include schools and public transit.

In July 2007, the Mayor of Clearwater signed onto the United States Conference of Mayor's Climate Protection Agreement (CPA). By signing the CPA, Clearwater agreed to strive towards achieving three major goals: urge federal and state government to enact policy to meet or beat Kyoto Protocol reduction targets (7% below 1990 levels); urge congress to pass bipartisan greenhouse gas reduction legislation; and strive to meet or exceed Kyoto Protocol targets by taking action in government operations and within the community, with specific action that includes conducting a greenhouse gas inventory and enacting an action plan to mitigate the impacts of climate change.

In January 2008, the City of Clearwater joined ICLEI Local Government's for Sustainability, Cities for Climate Protection program. ICLEI assists local governments in addressing climate change by providing a variety of tools that includes software and technical assistance. ICLEI recommends following methodology that includes the following five milestones: conduct a baseline emissions inventory of government operations and the community at large for a selected year; adopt an emissions reduction target for a selected forecast year; develop a local action plan; implement policies and measures; and monitor and verify results.

The first milestone includes conducting baseline greenhouse gas inventories for both government operations and the community at large. Clearwater has nearly reached the first milestone with the completion of this inventory of government operations. The community inventory will be completed in the summer 2008. This inventory followed the greenhouse gas protocol outlined by ICLEI's Clean Air and Climate Protection software program.

Overall, total greenhouse gas emissions from government operations have increased from 48,520 to 52,613 metric tons (tonnes) of carbon dioxide equivalents (CO₂e) from 2000 to 2007 (an approximately 8% increase). Greenhouse gases have increased in all sectors except for the water/sewage and employee commutes, whose emissions decreased between 2000 and 2007. Greenhouse gas emissions produced from electricity consumption represented approximately 78% of emission sources, followed by gasoline and fuel sources. The highest greenhouse emissions were located in the Public Utilities Department, followed by Engineering, and Parks and Recreations.

The next step in the process is to adopt a reduction target, preferably through a council resolution. A reduction target that would meet both the Mayor's CPA and Intergovernmental Panel on Climate Change (IPCC) projections that would mitigate the impacts of climate change was

calculated to be between 15% and 20% below 2000 levels by the year 2020. Upon passing the resolution, specific reduction measures should be evaluated in each sector and a local action plan should be formalized that identifies short- and long-term measures, as well as identifies funding mechanisms and key staff to implement and monitor the mitigation plan. In addition, improving data collection for subsequent annual inventories and continuing to foster the partnership with USF are highly recommended.

2.0 BACKGROUND

2.1 Clearwater Population and Government Structure

The City of Clearwater (Clearwater) is one of 24 municipalities located in Pinellas County. According to the United States Census, Clearwater’s population was 108,787 in 2000 (U.S. Census, undated website). According to estimates published by the University of Florida, Bureau of Economic and Business Research, the population grew to approximately 110,469 people in 2007.

The City was incorporated in 1915 and is governed by a Mayor/City Manager form of government (City of Clearwater, undated website). The city council is comprised of a Mayor and four council members. The City Manager oversees the daily municipal operations, which is composed of 24 city departments as summarized in Table 2.1.

Table 2.1
 Clearwater Government Department Summary

Department	Department	Department	Department
City Attorney	Economic Development and Housing Department	Information Technologies	Planning
City Auditor	Engineering	Library	Police
City Manager	Equity Services	Marine and Aviation	Public Communications
Clearwater Customer Service	Finance	Office of Management and Budget	Public Services
Clearwater Gas System	Fire & Rescue	Official Records and Legislative Services	Public Utilities
Development & Neighborhood Services	Human Resources	Parks and Recreation	Solid Waste/General Services (includes Fleet Management and Building and Maintenance)

For the purpose of this investigation, greenhouse gas emissions were aggregated into the following categories:

- **Administration:** Inclusive category that includes operations conducted at City Hall and the Municipal building, as well as vehicle use by these departments. In addition to activities conducted by the elected officials, the following departments are included in this category: City Attorney, City Manager, Clearwater Customer Service, Development & Neighborhood Services, Economic Development and Housing, Equity Services, Finance, Human Resources, Information Technologies, Office of Management and Budget, Official Records and Services, Planning, and Public Communications.
- **Clearwater Gas System:** Includes operations conducted at three buildings (Admin/Warehouse, Sales Office, and Pasco County Office), as well as the gas distribution system, and vehicle use.

- **Engineering:** Includes operations conducted at three buildings (two parking garages and the sign shop), traffic related operations (e.g., streetlights), and fleet use. Emissions sourced from activities conducted in the municipal building are included in Administration Category as records were not available to break out this category out.
- **Fire & Rescue:** Includes operations conducted at the eight fire stations, annex building, and maintenance facility, city vehicle usage, and marine vessels.
- **General Services:** General services contain operations that include the fleet management and building/maintenance facilities, operation of the radio towers, and vehicle usage. Several storage facilities were aggregated into this category as well.
- **Library:** Includes five library buildings, plus city vehicle usage.
- **Marine and Aviation:** Includes all operations associated with the marina that includes building operation, dock maintenance, and Pier 60 and beach operations, as well as vehicle and marine vessel use.
- **Parks and Recreations:** Includes all operations for the numerous parks and recreation facilities located throughout the city. This category includes all building operations, pool maintenance, and vehicle usage (including all maintenance vehicles and equipment).
- **Police:** Includes operations from three district buildings, neighborhood patrol offices, police patrol, police patrol vehicle and marine vessel usage.
- **Public Services:** Includes all city operations conducted at the public works compound buildings as well as vehicle use. The Public Services Department provides construction inspection services and maintains the storm sewer system, streets/sidewalks, and urban forestry throughout the city.
- **Public Utilities:** Includes all operations associated with water in the city and includes the water, reclaimed water, wastewater collection, and water pollution control divisions. General categories for water include three water treatment plants, pump station, irrigation, water wells, and water tanks. The wastewater category includes three water pollution control (WPC) plants, numerous lifts stations, and reclaimed water operations. In addition, vehicle usage has been aggregated as a whole for public utilities.
- **Solid Waste:** Includes all operations associated with the Recycling Center and Transfer Station facilities as well as vehicle usage. In addition, city-generated solid waste was aggregated for city operations as a whole.

The city receives all of its electrical power through Progress Energy who began serving the city in 2000. Public schools in Clearwater are operated by the Pinellas County School District, public transit is provided by the Pinellas County Transit Authority, and marine patrol is conducted from the Pinellas County Sheriff's office.

2.2 Climate Change Summary

Climate scientists have been observing an increase in the atmospheric concentration of greenhouse gases since the industrial revolution. Greenhouse gases include a variety of components that contribute to the greenhouse effect. According to the Fourth Assessment Report of the Intergovernmental Panel for Climate Change (IPCC), carbon dioxide concentrations have increased from a level of 280 parts per million (ppm) in pre-industrial levels to 379 ppm in 2005

(IPCC, 2007). Additional greenhouse gas concentrations in the atmosphere increase the heat-trapping ability in the atmosphere and thus cause an increase in global temperatures (Brohan et al, 2006 and Keeling and Wharf, 2005).

Higher global temperatures melt the polar ice caps and mountain glaciers. Since 1979, over 20% of the arctic polar ice cap has melted (Pew, 2008). Between 1941 and 2004, the Muir Glacier located in Glacier Bay National Park has receded over seven miles and has thinned over 2,000 feet (National Snow and Ice Data, 2007). Due mostly to melting ice and snow, recorded average global sea levels have risen at a rate of three millimeters per year (Cazenave and Nerem, 2004). If “business as usual” continues, global sea level will “most likely” rise approximately 20 inches by 2050 and 45 inches by 2100 (above 2000 levels) (Rahmstorf, 2007). Additional impacts from climate change include increases in the intensity of tropical storms, droughts, floods, changes in the growing season, and decreases in agricultural productivity (IPCC, 2007).

The good news is that significant adverse effects due to climate change can be minimized if global temperature increase is limited to two degrees Celsius above pre-industrial levels (Millennium Ecosystem Assessment, 2005). By limiting the temperature increase, the global carbon dioxide concentration is estimated to level off at approximately 450 ppm. If no change is made to limit the increase of greenhouse gas emissions, the carbon dioxide concentration is expected to reach between 540 and 970 ppm (Millennium Ecosystem Assessment, 2005). Leading scientists have determined that a reduction in greenhouse gas emissions can be achieved through existing technology, such as transitioning from coal to natural gas, increasing fuel efficiencies, and increasing the use of renewable energy with a strong emphasis on solar and wind technologies (WEA, 2000).

Furthermore, the IPCC has estimated that the cost to society for mitigation is estimated to be between 0.2 and 2% of gross domestic product (GDP) for industrialized countries (IPCC, 2001). This cost is considered minimal in comparison to the cost of doing nothing (Millennium Ecosystem Assessment, 2005). According to a recent Tufts University report, the cost of inaction in Florida will result in a loss of tourism revenue, increased damage from hurricanes, increased costs for electricity, and loss of real estate values, particularly along the coast (Stanton and Ackerman, 2007). Stanton and Ackerman (2007) project a total loss in Florida of \$92 million by 2050 and \$345 million by 2100, corresponding to 2.8% and 5.0% of the forecasted Florida Gross State Product (GSP), respectively, assuming no action is taken to mitigate emissions.

2.3 The Role of Local Government

Climate change is considered a global problem that has local solutions (Kates and Torrie, 1998). Local governments are uniquely equipped to address contributing factors to climate change. In the building sector, local governments can influence energy efficiency through building codes and local ordinances. In the transportation sector, roads can be designed to alter traffic flows that would reduce idling times. Local government also provides many of the basic services to residents and business, such as electricity, natural gas, water, and solid waste pickup, which all contribute to climate change.

While Clearwater does not operate an electric utility, they do provide natural gas, water, sewer, and solid waste services. Encouraging natural gas can be part of the solution by lowering the emissions from coal by providing cleaner burning natural gas. Clearwater's Public Utilities Department provides water and wastewater services. Providing clean water and treating wastewater (e.g., reclaimed water) is a significant contributor to climate change through the large energy requirements needed to move water. The city can promote water conservation and improve delivery systems that lower emissions. Clearwater's Solid Waste Division provides curbside pickup of solid waste and recyclable materials and thus can be part of the solution through waste minimization projects that will not only reduce the amount of waste, but will lower the fuel usage from pickup operations. Lastly, local governments are better able to educate local residents and businesses through public education programs through programs conducted by Parks and Recreation (e.g., Moccasin Lake Nature Center), Public Library (e.g., Living Green resources), and Public Services (e.g., "Get to the Point" Neighborhood Watershed Maintenance Program).

In addition to "leading by example," actions taken by local government to mitigate climate change have numerous co-benefits. First, reducing electricity and fuel use saves taxpayer dollars and improves air quality and public health. Secondly, mitigation measures tend to build a more livable community that reduces traffic congestion and contributes to more efficient land use patterns. Lastly, new green technology and services give local government and businesses an opportunity to gain a competitive advantage in an emerging green economy.

2.4 Mayor's Climate Protection Agreement

As of the end of May 2008, 852 mayors from across the United States have signed onto the United States Conference of Mayor's Climate Protection Agreement (CPA) (U.S. Conference of Mayors, 2008). Seventy-two (72) mayors are from Florida, including the City of Clearwater. By signing the CPA, these cities strive to achieve three major goals:

1. Urge federal and state government to enact policy to meet or beat Kyoto Protocol reduction targets (7% below 1990 levels)
2. Urge congress to pass bipartisan greenhouse gas reduction legislation
3. Strive to meet or exceed Kyoto Protocol targets by taking action in government operations and within community, with specific action that includes the following specific actions:
 - Conduct a greenhouse gas inventory, set reduction targets, and create an action plan
 - Promote land-use policies to reduce sprawl, preserve open space, and create walkable, compact communities
 - Promote transportation options
 - Increase the use of clean, alternative energy and improve efficiencies
 - Prioritize energy efficiency in building code and retrofit government buildings
 - Purchase only Energy Star equipment in government operation
 - Practice and promote sustainable building (LEED)

- Increase fuel efficiencies in city vehicles, reduce use, and educate employees on policies
- Increase pump efficiencies in water and wastewater systems and recover methane for processes
- Increase recycling in both government operations and the community at large
- Promote tree planting and maintain urban forestry
- Educate the public about reducing the impacts of climate change

Quantifying greenhouse gases is a critical first step for setting reduction targets and creating an action plan.

2.5 USF Partnership

In the fall of 2007, a group of thirteen graduate students from the University of South Florida partnered with Clearwater during a course on Urban Sustainability. The overarching goal of the course was to assist Clearwater in both improving sustainability and addressing the climate protection agreement. In summary, the students presented recommendations within Clearwater that included topics on energy, transportation, and innovative green technology. The technical report is available on Clearwater's website: www.myclearwater.com/green (Brinkmann *et. al*, 2007).

Upon completion of the Urban Sustainability course, one graduate student, Sandra Kling, has continued with the city as an intern to conduct a greenhouse gas inventory of government operations and for the entire City of Clearwater. The city-wide inventory will be completed in the summer 2008. In addition, an additional graduate level course is currently planned for the 2008/2009 School Year.

2.6 ICLEI Process

In January 2008, the City of Clearwater joined ICLEI Local Government's for Sustainability, Cities for Climate Protection (CCP) program. ICLEI assists local governments in addressing climate change by providing a variety of tools that includes software and technical assistance. ICLEI recommends following methodology that includes the following five milestones:

- Milestone 1: Conduct a baseline emissions inventory for a selected year.
- Milestone 2: Adopt an emissions reduction target for a selected forecast year.
- Milestone 3: Develop a local action plan.
- Milestone 4: Implement policies and measures.
- Milestone 5: Monitor and verify results.

The first milestone includes conducting baseline greenhouse gas inventories for both government operations and the community at large. Clearwater has nearly reached the first milestone with the

completion of this inventory of government operations. The community inventory will be completed in the summer 2008.

3.0 METHODOLOGY

3.1 Greenhouse Gas Protocol Summary

As previously stated, greenhouse gases have the potential to track heat in the atmosphere. The six greenhouse gases regulated under the Kyoto Protocol include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydroflourocarbons (HFCs), sulfur hexafluoride (SF₆), and chlorofluorocarbons (CFCs). Some greenhouse gases have more heat-trapping potential than others (e.g., methane has a warming potential that is 21 times that of carbon dioxide) (IPCC, 2007). Thus, greenhouse gas potentials are converted to what is referred to as carbon dioxide equivalents (CO₂e) for uniform reporting and to easily compare emissions across sectors and sources. Activity data used to calculate total CO₂e are typically converted using specific emission factors (also called emission coefficients). For example, total kilowatt-hour consumption of electricity is converted into CO₂e using a coefficient that is specific to the regions electricity production source (e.g., coal).

For this analysis, data inputs were reconfigured to calendar years, as this is the standard reporting measurement currently being utilized in official greenhouse gas voluntary and mandatory reporting agencies (e.g., The Climate Registry and the Chicago Climate Exchange). In addition, CO₂e can be reported using a variety of measures that include short tons, metric tons, or pounds. This analysis selected metric tons (tonnes), as it is the standard in international greenhouse gas protocols.

Greenhouse gas protocols have been developed by numerous organizations over time, including the World Resource Institute/World Business Council for Sustainable Development (WRI/WBCSD), Intergovernmental Panel on Climate Change (IPCC), U.S. Environmental Protection Agency's Climate Leaders Program, and ICLEI – Local Government for Sustainability. ICLEI's software tool, Clean Air and Climate Protection (CACP), was selected to complete this inventory, as it is a customized and standard tool used by many cities across the country.

3.2 ICLEI Software Tool

The CACP software quantifies greenhouse gases and criteria air pollutants produced by energy use and solid waste disposal for baseline, interim, and forecasted years. Records for the year 1990 were not readily available; therefore, 2000 was selected as the baseline year. In addition, an interim year (2007) was included to provide additional information.

The software tool converts data using pre-loaded default emissions factors into carbon dioxide equivalents (CO₂e) and five criteria air pollutants: nitrogen oxide (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), volatile organic compounds (VOCs), and coarse particulate matter (PM₁₀). The software considers three greenhouse gases in the analysis, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

The software analyzes data that is broken down into the following sectors: Buildings, Vehicle Fleet, Employee Commute, Streetlights, Water/Sewage, and Municipal Solid Waste. The next section contains a summary of the data sets used in the analysis along with the methodology to reconfigure each data set.

3.3 Assumptions and Sector Data Configuration

3.3.1 *Building, Streetlight, and Water/Sewage Sectors*

Carbon dioxide equivalents (CO₂e) were calculated using ICLEI software for both electricity and natural gas records for the years 2000 and 2007.

For electricity, the Microsoft Access database for all city meters was obtained from the Building Maintenance Division of the General Services Department for fiscal years 99/00, 00/01, 06/07, and 07/08. The data sets were reconfigured to calendar year data sets for 2000 and 2007. Additional fields were added to each record to include department and facility. The data was then sorted according to department and further sub-divided by facility, as appropriate. Subtotals calculated for each facility were entered into ICLEI software. For example, all lift station meters were combined into one aggregated total.

Natural gas summary tables for all municipal meters were obtained through the Clearwater Gas Department for calendar years 2000 and 2007. Additional fields were added to include department and facility. The total therms were aggregated by department and by facility and entered into ICLEI software.

Note that electricity and natural gas consumed in the streetlight and water/sewage sector are not included in the building sector (even though buildings are associated with public utilities). The same procedure was used however to configure the data sets for entry into ICLEI software. Streetlight data was aggregated into the following facility categories: street lights, traffic signals, bridge lights, median lights, and other. For the street light category, meters labeled only “street lights” were aggregated. For the traffic signal category, records labeled with the following were combined for data entry: traffic lights, traffic signals, and traffic flashers. The other category included parking lots lights, signage lighting, and any miscellaneous records related to lighting. For the water/sewage sector, the following facilities were aggregated: water connection, water fountains (roundabout in 2000 and cooper’s bayou in 2007), hydrogen peroxide station, irrigation pumps, lift stations, pump stations, water treatment plants, water tanks, water wells, reclaimed water, and the three water pollution control (WPC) wastewater treatment plants.

Tables A-1 and A-2 in Appendix A contain the reconfigured electricity summary for each department and facility for 2000 and 2007, respectively. Tables A-3 and A-4 in Appendix A contain the reconfigured natural gas summary for each department and facility for 2000 and 2007, respectively. Table A-5 combines both electric and natural gas greenhouse gas emissions for 2000 and 2007 for the building, streetlight, and water/sewage sectors.

3.3.2 *Vehicle Fleet Sector*

An inventory of all city fleet and fuel usage for each vehicle was obtained from the Fleet Management Division of the General Services Department for 2000 and 2007. Additional fields were added to include department, vehicle class, and fuel type. ICLEI software requires inputs be sorted into the following vehicle classes (compact, mid-sized, full-sized, light trucks/SUVs, heavy trucks, passenger vans, and motorcycles). Subtotals calculated for each department were entered into ICLEI software. Since there is no field for equipment, fuel used for equipment was entered into the heavy truck category, as criteria air pollutant emissions resemble combustion in a heavy truck.

An inventory of marine vessels and fuel usage was obtained from the Marine & Aviation Department and Fire Department. The majority of the vehicles contained diesel burning outboard engines. The gasoline burning marine vessels were entered into the heavy truck category as criteria air pollutant emissions resemble combustion in a heavy truck (W. Look, personal communication, March 3, 2008).

Tables A-6 and A-7 in Appendix A contain the reconfigured summary for each department and facility for 2000 and 2007, respectively

3.3.3 *Employee Commute Sector*

In January 2008, a survey was distributed to all employees (over 1,800) to determine commuting habits of city employees. By the end of March 2008, 472 surveys had been received. The responses were used to determine the average commute time for an employee in the city and an average of vehicle classes used in ICLEI software. The total number of full- and part-time employees was obtained from the Human Resources Department for 2000 and 2007.

To determine the total number of commuting days for all employees, the total number of commuting days was calculated based on commuting five days a week for full-time employees and two days a week for part-time employees. To determine the total vehicle miles traveled from employee commuters, the total number of commuting days was multiplied by the average daily commuting distance calculated from the survey sample.

Note that additional input was requested from city staff regarding potential initiatives and to identify key individuals who would be interested in joining a “green” team. A summary of the recommendations from the survey is presented in Section 6.2.2 of this report.

3.3.4 *Municipal Solid Waste Sector*

Solid waste generated from government operations was estimated by the Solid Waste Department. Currently, the waste stream generated from government operations is not being measured upon collection. To obtain an estimate, the total number of city-owned waste bins was calculated for

2000 and 2007. For each collection, the bin was assumed to be collected at capacity. The total tonnage was calculated based on the number of pickups from each facility. Waste stream percentages were obtained from a study conducted for Pinellas County (Kessler, 2005). According to the Kessler study, approximately 85% of waste accepted at the Pinellas County Utilities Waste-to-Energy (WTE) facility is incinerated and the remaining 15% is diverted to the adjacent landfill operation. These percentages were used to calculate the amount of Clearwater waste incinerated and landfilled for both 2000 and 2007.

3.3.5 Forecast Assumptions

Forecasted emissions for 2010, 2015, and 2020 were determined from 2007 data set. ICLEI software assumes that emissions from government operations remain fairly static over time. While government operations grew between 2000 and 2007 (e.g., increased number of buildings and city employees), the assumption is somewhat valid in light of proposed budget cuts. Government operations may even shrink in future years with the closing of public facilities and/or fewer city jobs. However, the assumption of static government operations was used in this evaluation.

3.4 Data Gaps

This investigation does not include analysis of air travel from employee business trips; methane released from historic landfills or wastewater treatment operations; and sequestered carbon in biomass (e.g., urban forestry, building landscapes, grassy land, and wetlands). Methane and travel data was not readily available for review and analysis, and ICLEI software does not account for carbon sequestration.

4.0 RESULTS

4.1 Total Greenhouse Gas Emissions

Overall, total greenhouse gas emissions from government operations have increased from 48,520 to 52,613 metric tons (tonnes) of carbon dioxide equivalents (CO₂e) from 2000 to 2007, representing an increase of approximately 8% from 2000 to 2007.

As stated in section 2.1, the total population of Clearwater has increased from 108,787 to 110,469 people from 2000 to 2007. This represents a total population gain of about 1.5%. When comparing government operation emissions per 1,000 people, emissions have increased from 445 tonnes per 1,000 people in 2000 to 475 tonnes per 1,000 people in 2007, relating to a 7% increase over the seven-year period. This indicates that the total emissions from government operations have increased at a higher rate than the total population of Clearwater.

4.2 Greenhouse Gas Emissions by Sector

Table 4.1 summarizes greenhouse gas emissions by sector in tonnes of CO₂e, percent of total CO₂e, and the total energy in each sector.

Table 4.1
Total Greenhouse Gas Emissions by Sector (2000 and 2007)

Sector	CO ₂ e (tonnes)		Percent of Total CO ₂ e		Energy (MMBtu)	
	2000	2007	2000	2007	2000	2007
Building	11,535	15,296	23.7%	29.1%	72,728	106,287
Vehicle Fleet	7,738	10,014	16.0%	19.0%	99,045	128,724
Employee Commute	114	111	0.2%	0.2%	1,469	1,440
Streetlight	6,457	8,622	13.3%	16.4%	36,134	54,493
Water/Sewage	22,081	17,671	45.5%	33.6%	123,586	112,621
Municipal Solid Waste	595	899	1.2%	1.7%	NA	NA
Totals	48,520	52,613	99.9%	100%	331,962	403,565

CO₂e = carbon dioxide equivalent

MMBtu = million British thermal unit (BTU)

Greenhouse gas emissions have increased in all sectors except for the water/sewage and employee commute sectors, reduced by 20% and 3%, respectively. In both 2000 and 2007, the water/sewage sector emitted the highest levels of greenhouse gases and the employee commute sector emitted the lowest.

The percent contribution of total greenhouse gas emissions from each sector in 2000 and 2007 are shown graphically in Figures 4.1 and 4.2, respectively.

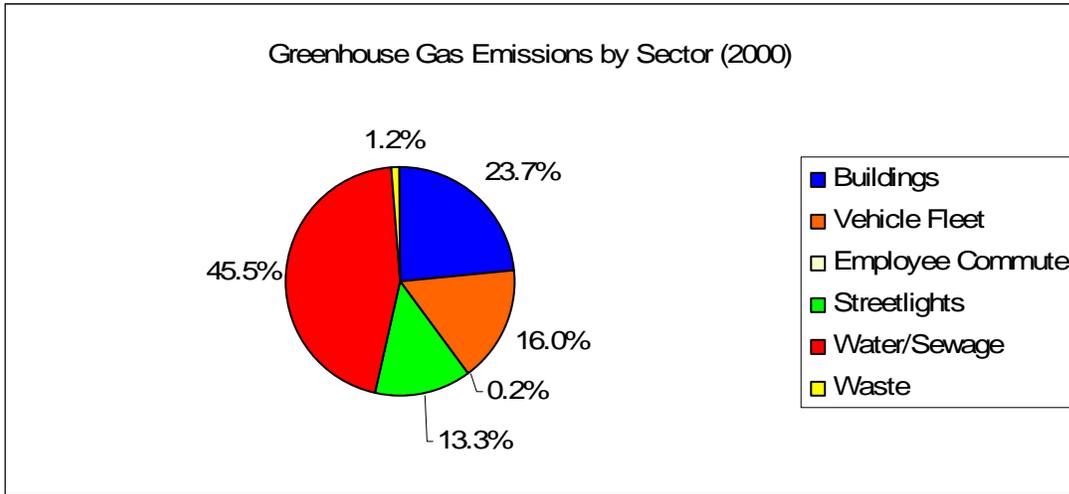


Figure 4.1. GHG Emissions: Sector Percent Share (2000)

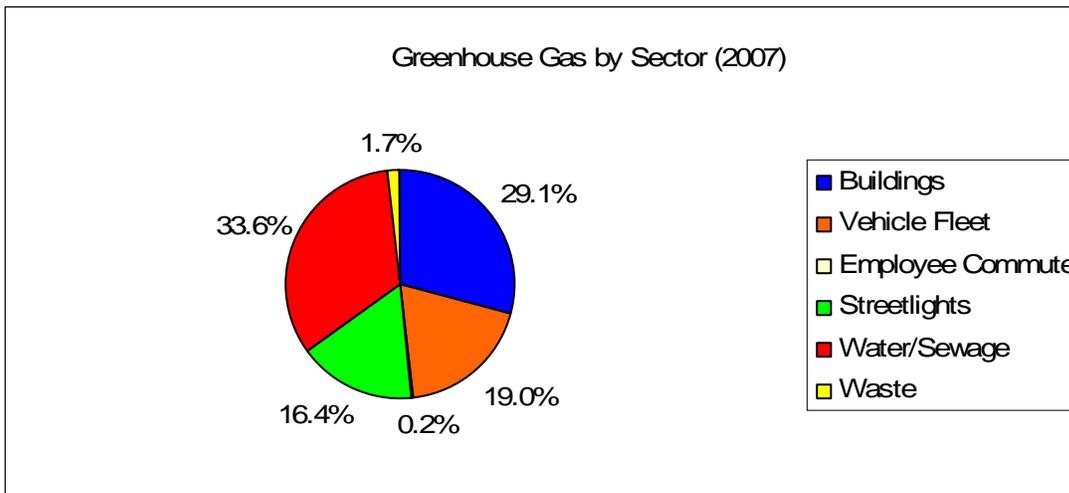


Figure 4.2. GHG Emissions: Sector Percent Share (2007)

4.2.1 Building Sector

The building sector contains both electricity and natural gas data for all city buildings and associated operations (does not include buildings associated with public utilities). The total CO₂e emissions from the building sector increased from 11,535 to 15,296 tonnes CO₂e (TCO₂e) from 2000 to 2007, representing an increase in emissions of about 33%. However, between 2000 and 2007, the total building square footage increased from 1,172,625 to 1,403,300 square feet (SF), respectively. Therefore, the total emissions per 1,000 SF of building space increased slightly from 9.8 to 10.9 tonnes of CO₂e per 1,000 feet of building space.

Figure 4.3 shows the breakdown of building sector emissions by department in descending order from 2007 emissions.

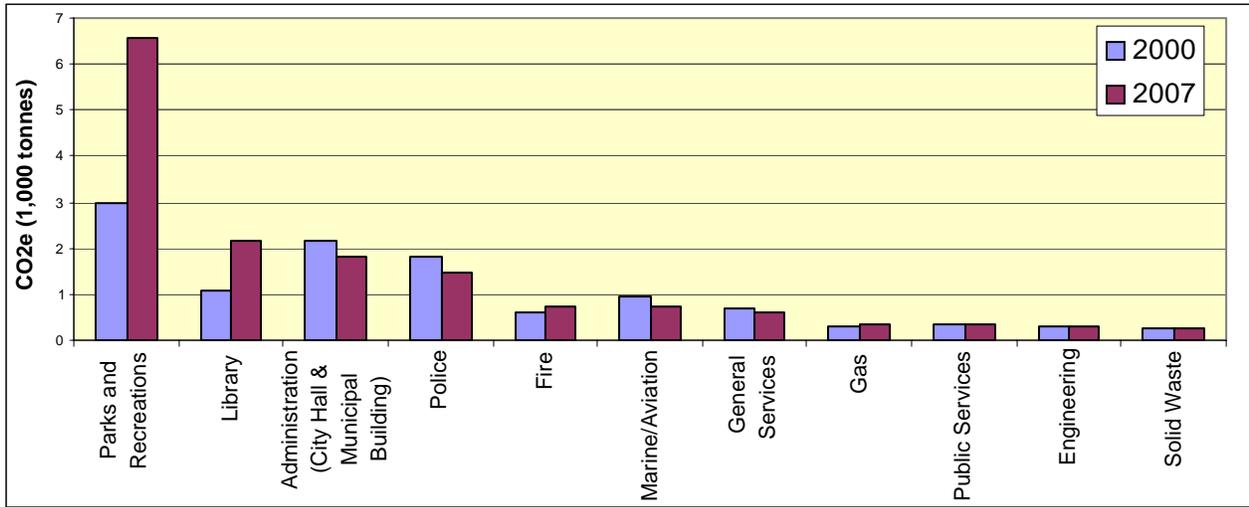


Figure 4.3. GHG Emissions (TCO₂e) for all Buildings by Department (2000 and 2007) (includes electricity and natural gas data)

The remainder of this section presents a more detailed summary of building sector emissions by department. Refer to Table A-5 in the Appendix for a complete breakdown of building sector for each facility.

Administration Buildings (City Hall and Municipal Services Building)

Overall, total CO₂e emissions from the two administrative buildings decreased from 2,143 to 1,820 tonnes from 2000 to 2007, which relates to an overall reduction of approximate 15%. As shown on Figure 4.4, total CO₂e emissions for the city hall and the municipal services buildings decreased 17% and 14% from 2000 to 2007, respectively.

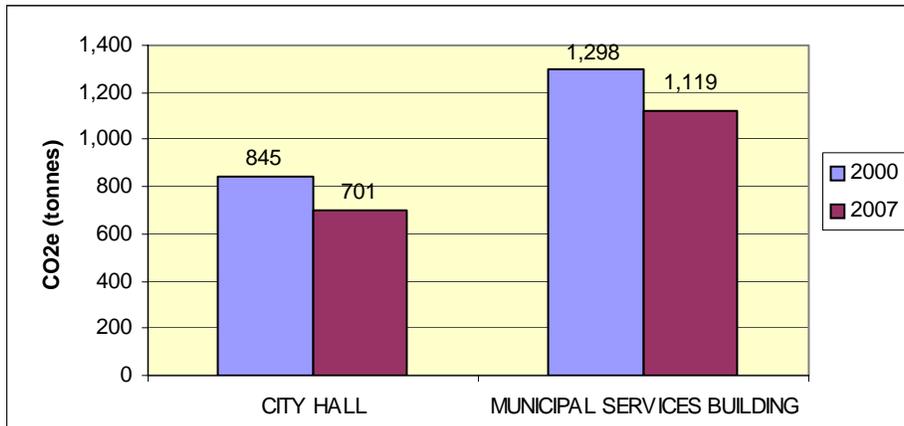


Figure 4.4. GHG Emissions (TCO₂e) for Administration Buildings (2000 and 2007) (includes electricity and natural gas data)

Engineering Department Buildings

Overall, total CO₂e emissions from the three engineering buildings decreased from 324 to 309 tonnes from 2000 to 2007, which relates to an approximate 5% reduction. Figure 4.5 indicates that the two parking garages show a decrease in emissions, while the sign shop increased emissions over the seven-year period.

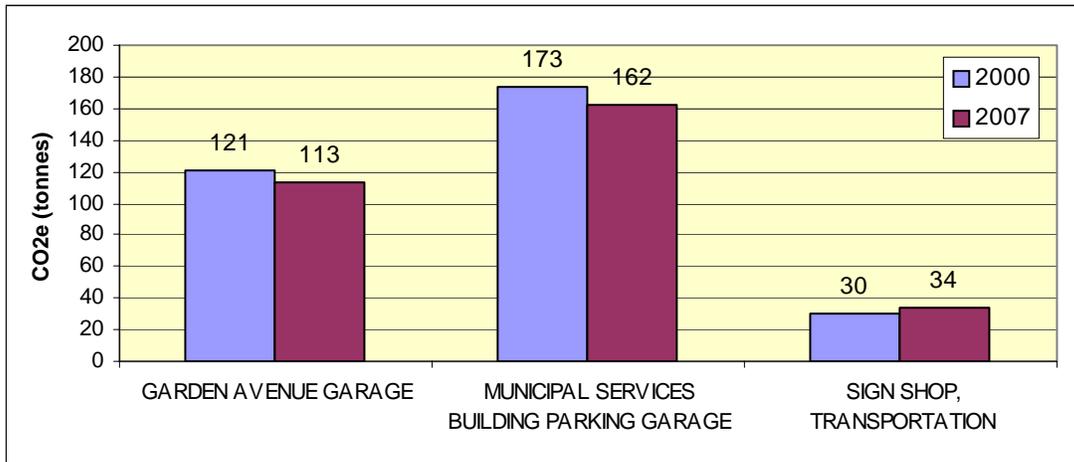


Figure 4.5. GHG emissions (TCO₂e) from Engineering Buildings (2000 and 2007) (includes electricity and natural gas data)

Fire Department Buildings

Overall, total emissions from fire department buildings have increased from 612 to 754 tonnes of CO₂e from 2000 to 2007, representing a total increase of approximately 23%. However, since 2000, three fire department buildings were constructed (Fire Station #44, Fire Station #51, and a maintenance facility). Figure 4.6 indicates that reductions were observed in all buildings except for Fire Station #47, which had a relatively low increase.

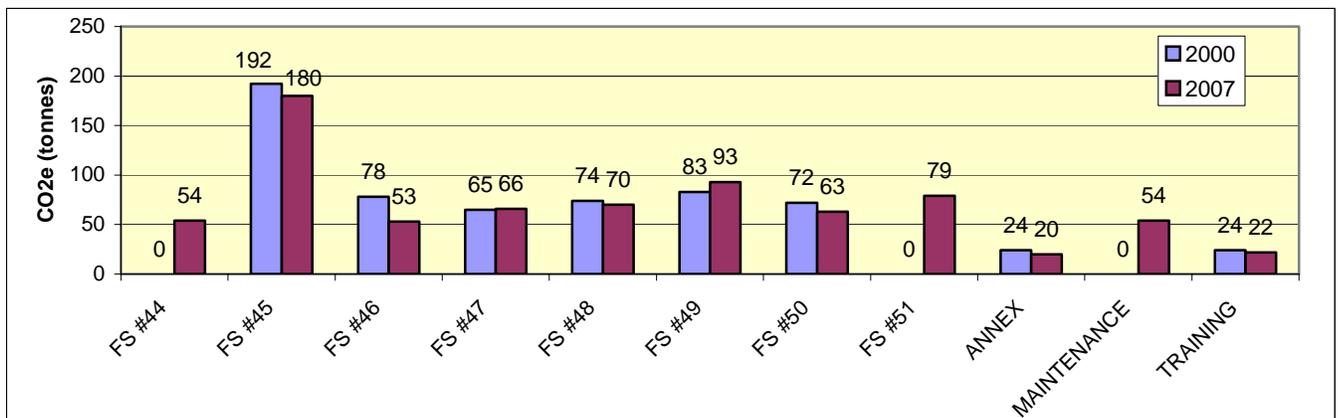


Figure 4.6. GHG emissions (TCO₂e) from Fire Department Buildings (2000 and 2007) (includes electricity and natural gas data)

Gas Department Buildings (and other operations)

Overall, total emissions from Gas buildings have increased from 304 to 337 tonnes of CO₂e from 2000 to 2007, representing a total increase of approximately 11%. Figure 4.7 indicates that highest relative increase was observed in the administrative buildings.

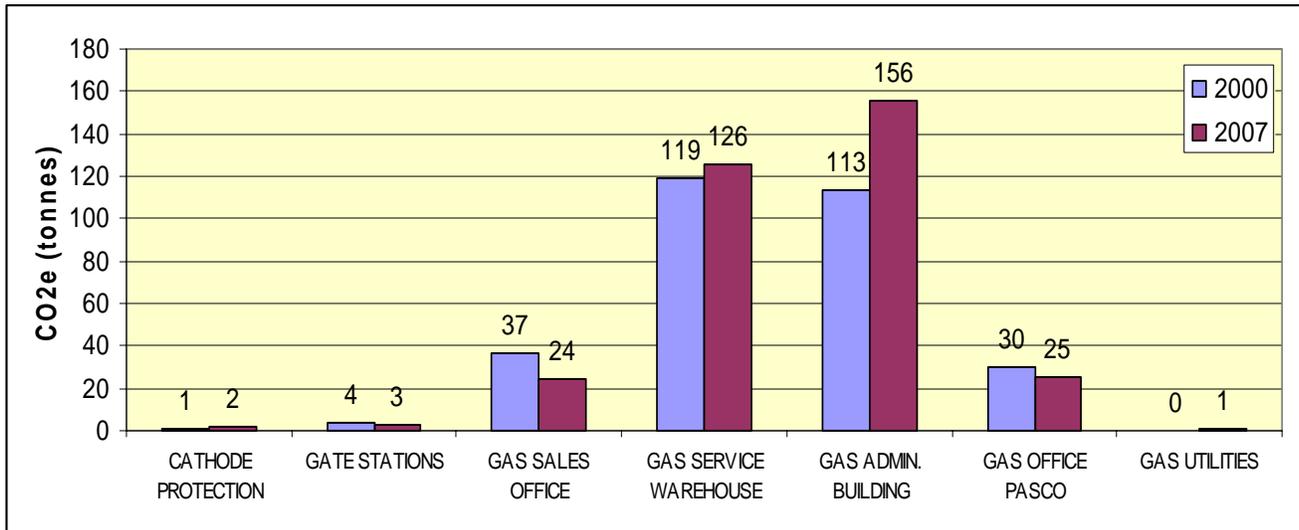


Figure 4.7. GHG emissions (TCO₂e) from Gas Department Buildings (2000 and 2007) (includes electricity and natural gas data)

General Services Department Buildings (and other operations)

Overall, total emissions from General Service buildings have decreased from 676 to 587 tonnes of CO₂e from 2000 to 2007, representing a total decrease of approximately 13%. Figure 4.8 indicates that highest relative decrease was observed in the Fleet Administration building.

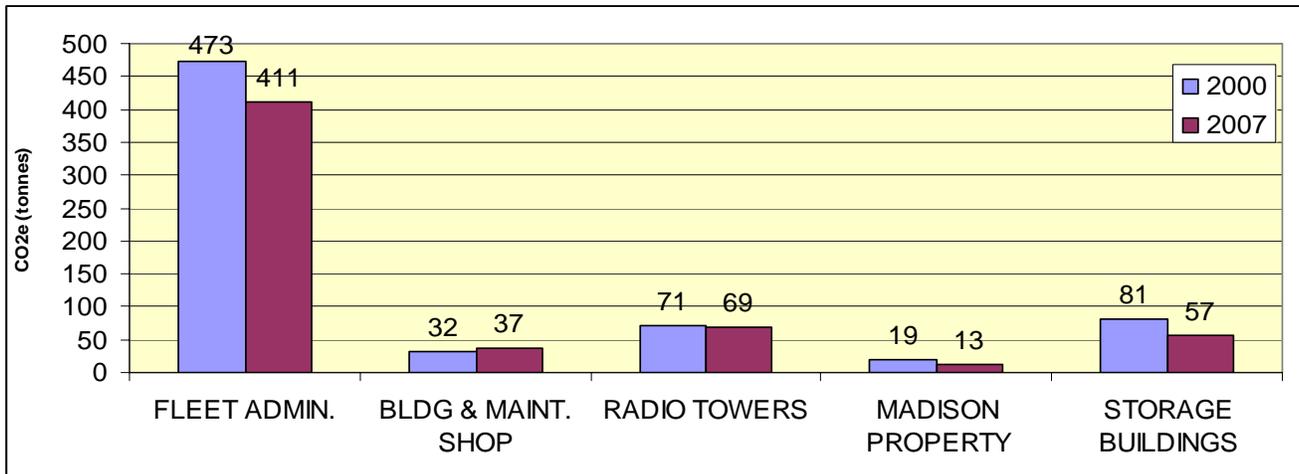


Figure 4.8. GHG Emissions (TCO₂e) from General Services Department Buildings in 2000 and 2007 (includes electricity and natural gas data)

Library Department Buildings

Overall, total emissions from library buildings have increased from 1,095 to 2,145 tonnes of CO₂e from 2000 to 2007, representing a total increase of approximately 96%. Figure 4.9 indicates that highest relative increase was observed in the Main Branch building. The marked increase is due to the replacement of the main library building that occurred between 2000 and 2007.

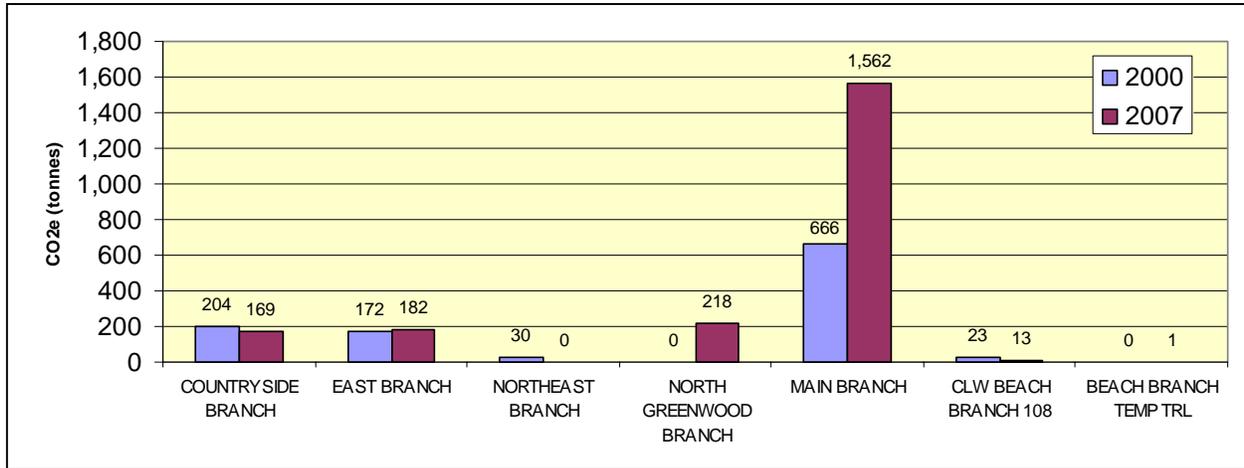


Figure 4.9. GHG Emissions (TCO₂e) from Library Buildings (2000 and 2007) (includes electricity and natural gas data)

Marine/Aviation Department Buildings (and other operations)

Overall, total emissions from marine and aviation operations (includes building and all other operations) have decreased from 938 to 719 tonnes of CO₂e from 2000 to 2007, representing a total decrease of approximately 23%. Figure 4.10 indicates that highest relative decrease was observed in Marina Operations.

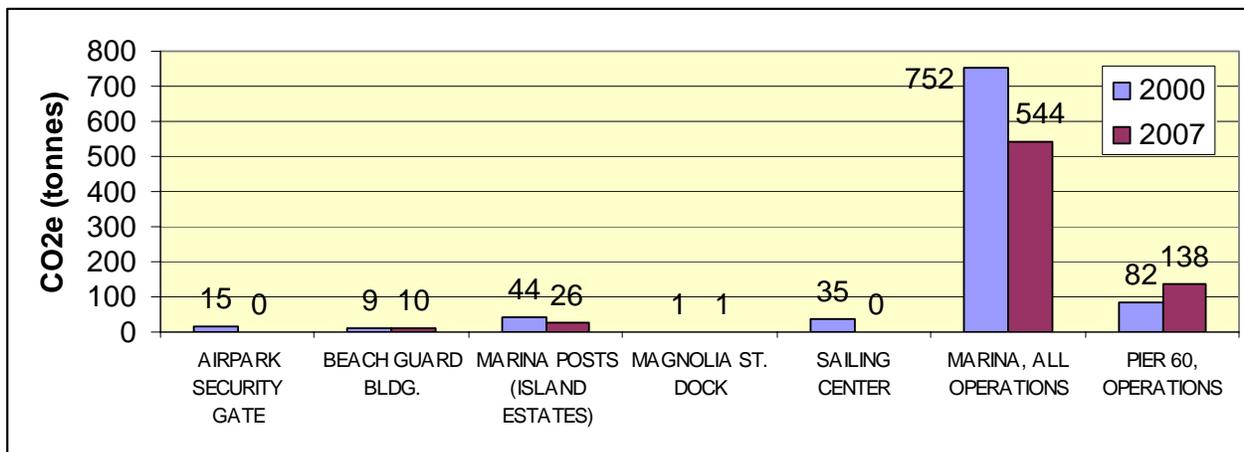


Figure 4.10. GHG Emissions (TCO₂e) from Marine and Aviation Department Operations (2000 and 2007) (includes electricity and natural gas data)

Parks and Recreations Department Buildings

Overall, total emissions from Parks and Recreations buildings have increased from 2,988 to 6,556 tonnes of CO₂e from 2000 to 2007, representing a total increase of approximately 120%. However, since 2000, several new facilities were constructed. Figure 4.11 shows the top 15 emitting facilities (see Table A-5 in the Appendix for a complete list). Notice that the top three emitting facilities (i.e., Long Center, Phillies Complex, and North Greenwood Complex) were constructed between 2000 and 2007.

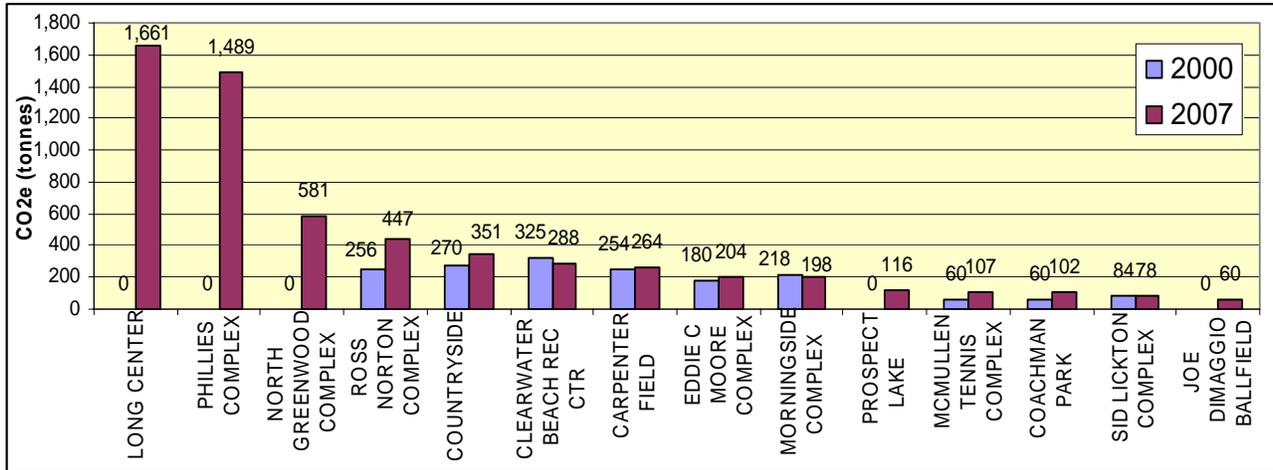


Figure 4.11. GHG Emissions (TCO₂e) from the Top 15 Emitting Parks and Recreations Facilities (2000 and 2007) (includes electricity and natural gas data)

Police Department Buildings

Overall, total emissions from police buildings have decreased from 1,819 to 1,457 tonnes of CO₂e from 2000 to 2007, representing a total decrease of approximately 20%. Figure 4.12 indicates that highest relative decrease was observed in the headquarter building.

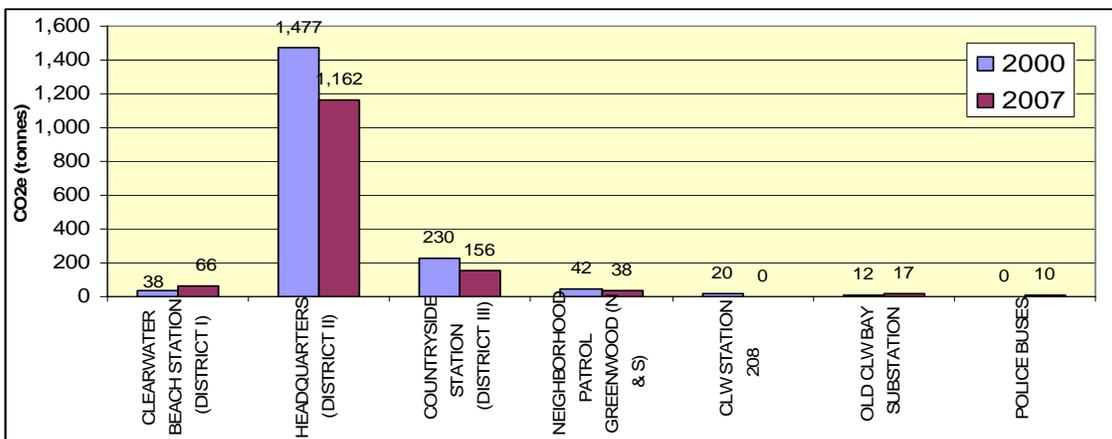


Figure 4.12. GHG Emissions (TCO₂e) from Police Department Buildings (2000 and 2007) (includes electricity and natural gas data)

Public Services Buildings

Overall, total emissions from public service buildings have decreased from 359 to 337 tonnes of CO₂e from 2000 to 2007, representing a total decrease of approximately 6%. Figure 4.13 indicates that reductions were observed in all buildings except for building C, which slightly increased during the seven-year period.

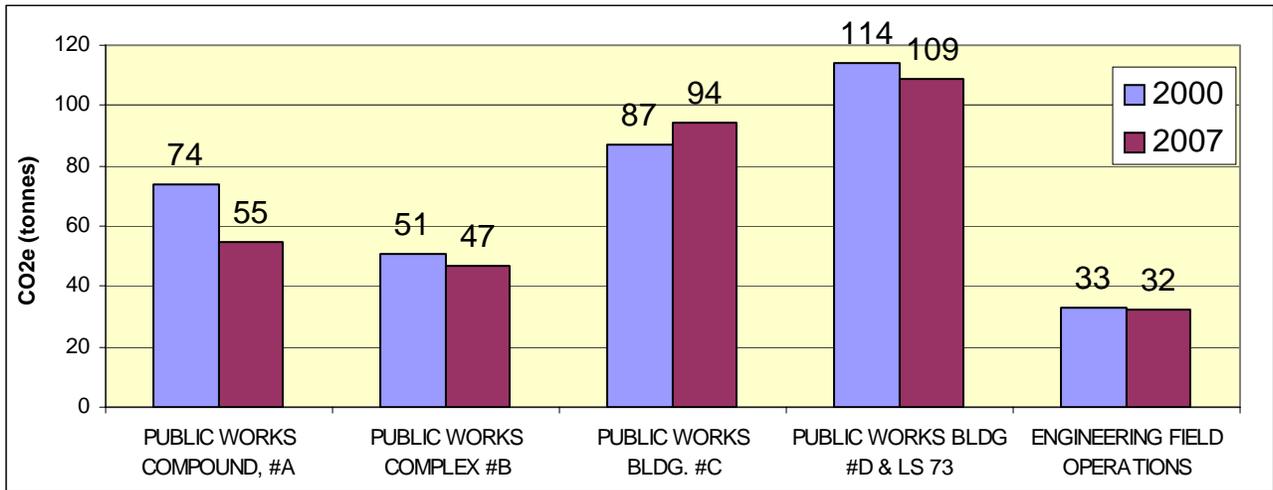


Figure 4.13. GHG Emissions (TCO₂e) from Public Service Buildings (2000 and 2007) (includes electricity and natural gas data)

Solid Waste Buildings

Overall, total emissions from the two solid waste buildings have decreased slightly from 277 to 275 tonnes of CO₂e from 2000 to 2007, representing a total decrease of approximately 0.7%. Figure 4.14 indicates that emissions from the Hercules center increased and the transfer station decreased slightly during the seven-year period.

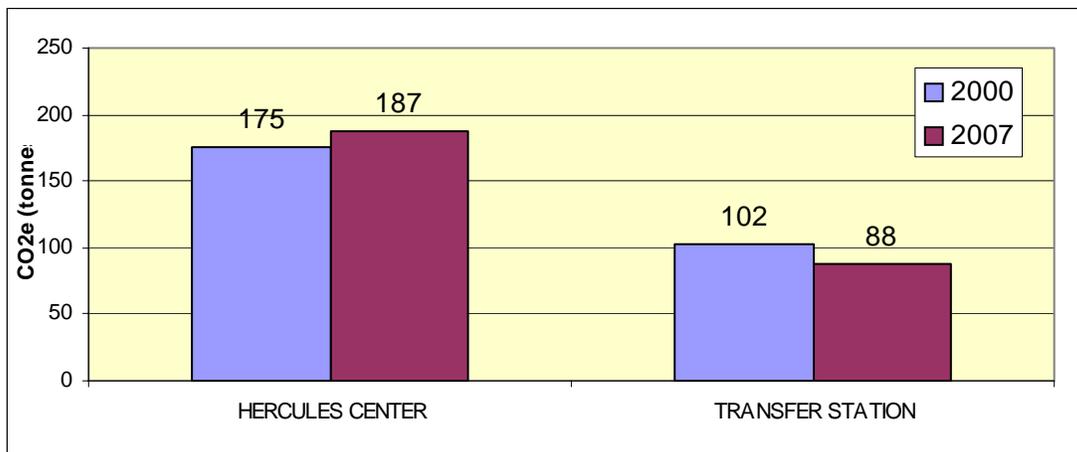


Figure 4.14. GHG Emissions (TCO₂e) from Solid Waste buildings (2000 and 2007) (includes electricity and natural gas data)

4.2.2 Vehicle Fleet Sector

The vehicle fleet consists of automobiles, fuel-burning equipment (e.g., lawn mowers), and marine vessels (e.g., tug boat, outboard motorboats, and jet skis). According to Table 4.2, the total pieces of vehicles, equipment, and marine vessels has increased by approximately 23%. Since 2000, the city has begun to replace vehicles with hybrid-technology vehicles and had acquired 11 total hybrids during the seven-year period.

Table 4.2
Inventory of Vehicle Fleet and Marine Vessels
(2000 and 2007)

Vehicle Type	Total (2000)	Total (2007)	Percent Change
<i>Vehicle Fleet</i>			
Compact Vehicles	7	6	-14.3%
Hybrid Vehicles	0	11	100.0%
Mid-Size Vehicles	76	22	-71.1%
Full-Size Vehicles	199	240	20.6%
Light Trucks and SUVs	295	388	31.5%
Heavy Trucks	200	257	28.5%
Motorcycles	13	10	-23.1%
Passenger Vans	47	62	31.9%
Fuel-burning Equipment	58	102	75.9%
Totals	895	1,098	22.7%
<i>Marine Vessels</i>			
Tug/Barge	1	1	0%
Outboard (Fire and Marine)	1*	6	NA*
Jet Skis (Fire and Marine)	0*	6	NA*
Totals	NA*	13	NA*

*An inventory of marine vessels from the Fire Department was not readily available. These numbers include only vessels in the Marine and Aviation Department.
NA = Not available or not applicable

Overall, total emissions in the vehicle fleet sector have increased from 7,738 to 10,014 tonnes of CO₂e from 2000 to 2007, representing an increase of approximately 29%. Figure 4.15 presents a summary of emissions by department. A general increasing trend is observed in all departments with the highest emitting departments reported in the solid waste and police departments.

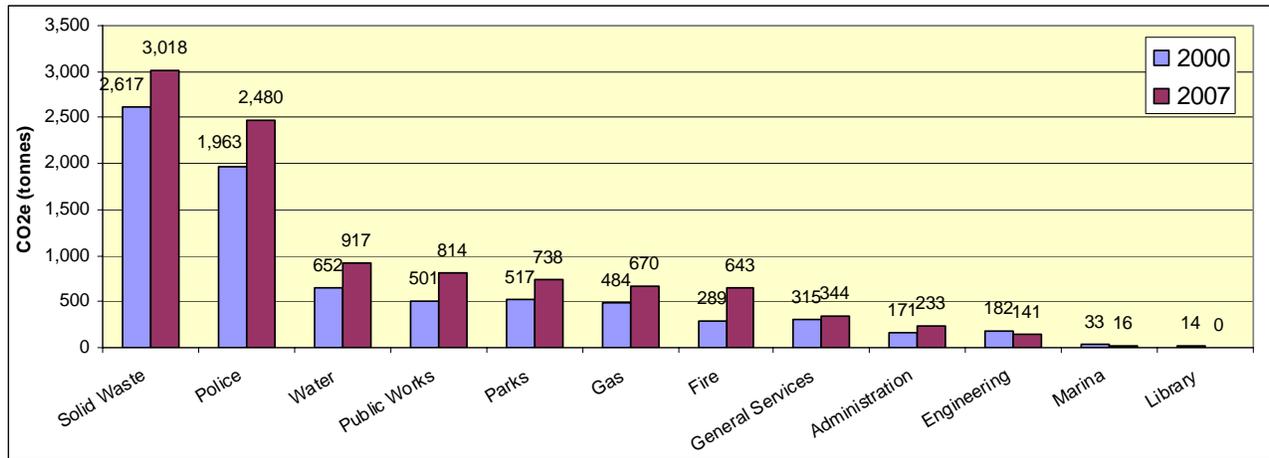


Figure 4.15. GHG Emissions (TCO_{2e}) from Vehicle Fleet by Department (2000 and 2007) (includes gasoline and diesel fuel data)

4.2.3 Employee Commute Sector

In 2000, there were 1,678 full-time employees and 426 part-time employees and in 2007, the number of full-time employees increased to 1,783 and part-time employees decreased to 369. In other words, the city gained 48 employees between 2000 and 2007, or approximately 2.2%. Note that more employees were employed as full-time employees and fewer as part-time employees in 2007 than in 2000.

Based on the sample commuter survey, the average commute time for an employee is approximately 20 miles. Approximately 41% of employees commute ten or less miles each day and approximately 80% commute less than 30 miles each day.

Based on the assumptions presented in Section 3.3.3, the total vehicle miles traveled (VMT) by all employees was estimated to be 184,840 miles in 2000 and 193,060 miles in 2007. Table 4.3 presents the VMTs by vehicle type for 2000 and 2007.

Table 4.3
Vehicle type and Vehicle Miles Traveled (VMT)
From Employee Commuters (2000 and 2007)

Vehicle Type	Percent of Employee*	VMT (2000)	VMT (2007)
Compact Auto/Hybrid	18%	33,271	34,751
Mid Size Auto	19%	35,120	36,681
Full Size Auto	12%	22,181	23,167
Trucks and SUV	48%	88,723	92,669
Van	3%	5,545	5,792
Total		184,840	193,060

Overall, total emissions in the employee commutes sector has decreased from 114 to 111 tonnes of CO₂e from 2000 to 2007, representing a decrease of approximately 3%. A decrease was observed even though there was an increase in the VMTs due to assumed increased fuel efficiency standards that are built into ICLEI software coefficient factors.

Table 4.4 presents the results from the employee commuter survey. Based on a sample of 467 employees, a total of 35% of city employees live in Clearwater and about 14% live in a neighboring city (e.g., Largo, Belleair, Safety Harbor, and Dunedin).

Table 4.4
Employee City of Residence from Survey Data (2007)

City	Percent of Total (Number of Surveyed Employees)	City	Percent of Total (Number of Surveyed Employees)
Clearwater	35.1% (164)	Hudson	0.4% (2)
Largo	12.0% (56)	Land O Lakes	0.4% (2)
Palm Harbor	11.6% (54)	Port Richey	0.4% (2)
Dunedin	8.4% (39)	Riverview	0.4% (2)
New Port Richey	4.9% (23)	Trinity	0.4% (2)
St. Petersburg	4.9% (23)	Hillsborough County	0.2% (1)
Tampa	3.2% (15)	Homosassa	0.2% (1)
Holiday	2.6% (12)	Indian Rocks Beach	0.2% (1)
Safety Harbor	2.6% (12)	Lakewood Ranch	0.2% (1)
Seminole	2.4% (11)	Orange Park	0.2% (1)
Tarpon Springs	1.9% (9)	Ozona	0.2% (1)
Pinellas Park	1.7% (8)	So Pasadena	0.2% (1)
Oldsmar	1.3% (6)	Spring Hill	0.2% (1)
Unincorporated Pinellas County	1.1% (5)	Temple Terrace	0.2% (1)
Odessa	0.9% (4)	Valrico	0.2% (1)
Belleair/Belleair Bluff	0.6% (3)	Weeki Wachee	0.2% (1)
Gulfport	0.4% (2)	Total in Survey	467

4.2.4 Streetlight Sector

The streetlight sector is comprised of a network of street lights, traffic signals, and other associated street lighting and is operated by the Engineering Department. There are currently approximately 150 traffic signals equipped with light emitting diodes (LEDs) that are located throughout the city. The location and wattages for all city streetlights was not available during the time of this assessment.

Overall, total emissions in the streetlight sector have increased from 6,457 to 8,622 tonnes of CO₂e from 2000 to 2007, representing an increase of approximately 34%. As shown on Figure 4.16, street lights represent both the highest emissions and has the highest increase in emissions from 2000 to 2007. Emissions from traffic lights have decreased between 2000 and 2007, most likely due to the LED replacement program.

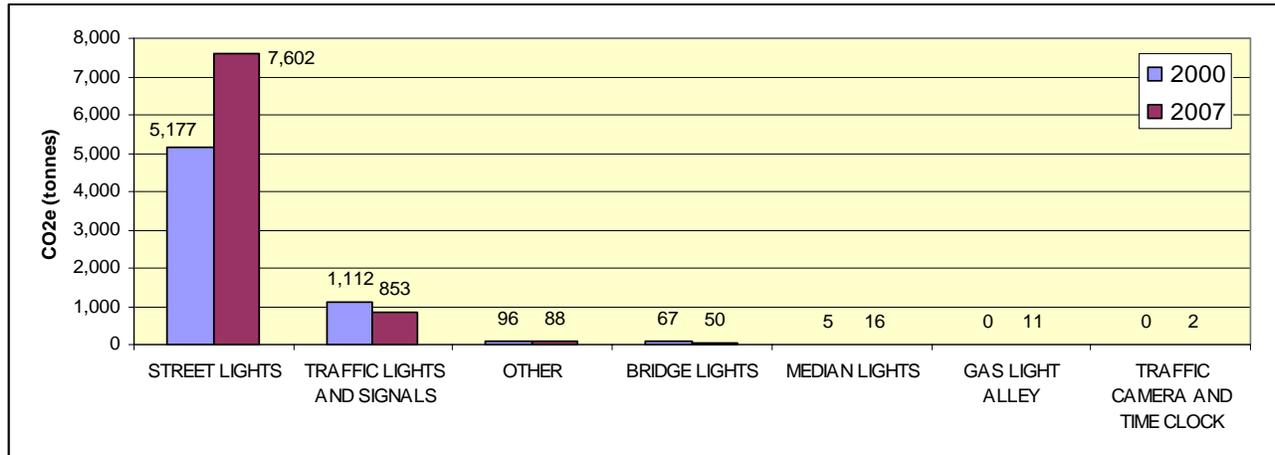


Figure 4.16. GHG Emissions (TCO₂e) from Streetlights (2000 and 2007) (includes gasoline and diesel fuel data)

4.2.5 Water/Sewage Sector

The water/sewage sector is comprised of potable water, reclaimed water, and wastewater treatment operations and is managed entirely by the Public Utilities Department.

Potable and Reclaimed Water General Description

Potable drinking water is pumped from 19 wells and is treated at three water treatment plants. Additional water imported from Pinellas County Water System. Table 4.5 presents the amount of water pumped and imported in 2000 and 2007.

Table 4.5
Potable Water Summary (2000 and 2007)

Water Source	2000	2007
Pumped water (million gallons)	1,112.266	1,301.465
Imported water (million gallons)	4,207.752	3,319.088
Total water supply	5,320.016	4,620.553
Annual water supply per person (in gallons)*	48,900	41,800

*Using population estimates discussed in section 2.1.

Between 2000 and 2007, less water was imported from Pinellas County and more water was pumped from city-owned wells. Overall, an approximate 13% reduction was observed from water supply. Most of the reduction was achieved through water saving devices, watering restrictions, and through the reclaimed water system, which began operation in 1999. In 2000, a total of 733 million gallons of reclaimed water was distributed and in 2007, 1,152.5 million gallons was distributed.

Wastewater General Description

Wastewater is collected throughout the city in underground sewer mains, collectors, and interceptor lines and is transported to three wastewater treatment plants, called Water Pollution Control (WPC) plants. The WPC plants are all advanced wastewater treatment facilities. The Northeast WPC plant has an operating capacity of 13.5 million gallons per day (MGD), Marshall Street WPC has a capacity of 10 MPG, and the East Plant has a capacity of 5 MGD.

Public Utilities Greenhouse Gas Emissions Summary

Overall, total emissions in the water/sewage sector have decreased from 22,081 to 17,671 tonnes of CO₂e from 2000 to 2007, representing a decrease of approximately 20%. Figure 4.17 break down emissions sources from water supply sources, and Figure 4.18 breaks down emissions sources related to waste water operations.

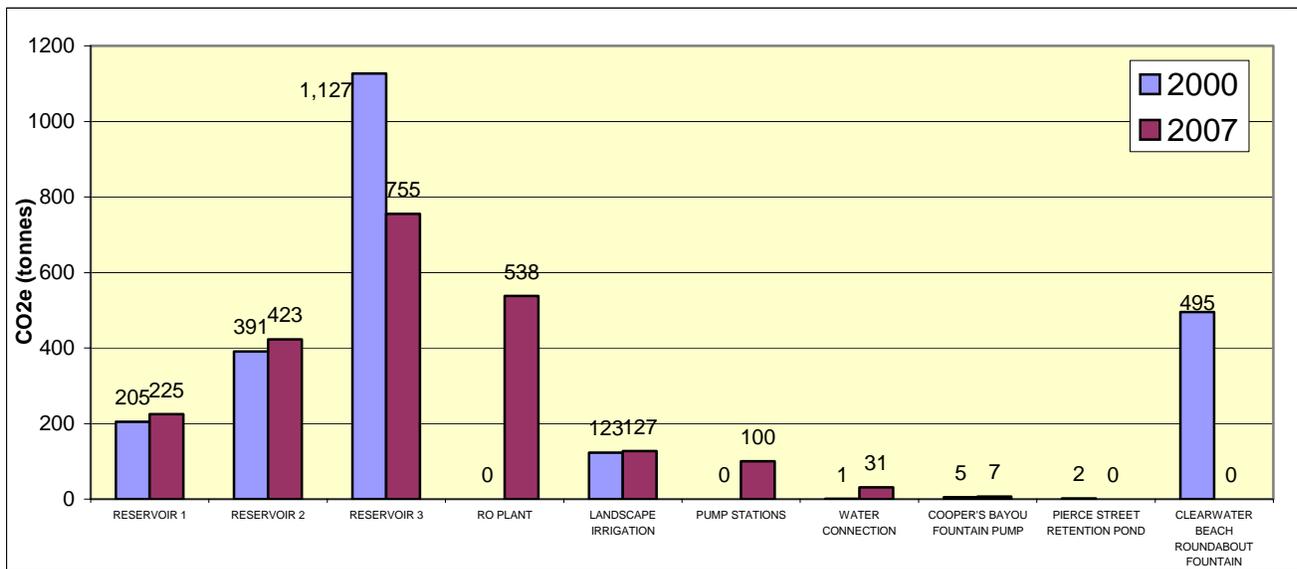


Figure 4.17. GHG Emissions (TCO₂e) from Water Supply Operations (2000 and 2007) (includes electricity and natural gas data)

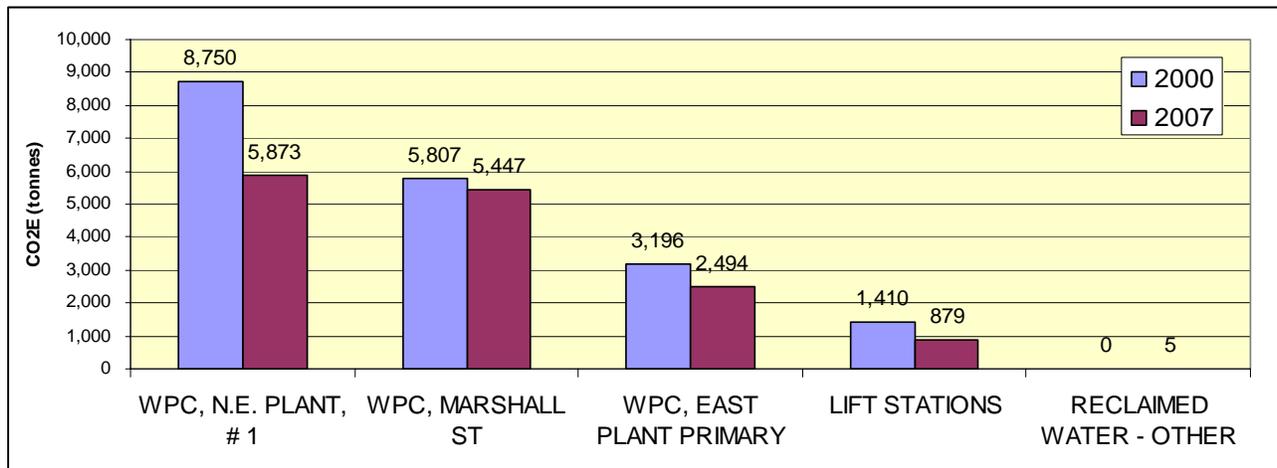


Figure 4.18. GHG Emissions (TCO_{2e}) from Sewage and Reclaimed Water Operations (2000 and 2007) (includes electricity and natural gas data)

Greenhouse gas emissions reductions were observed in all the water pollution control (WPC) with the most notable decrease in the Northeast Plant. The decreases are reportedly due to energy efficient pump replacements and plant upgrades.

4.2.6 Municipal Solid Waste Sector

Based on the assumptions discussed in section 3.3.4, the estimated municipal solid waste was 1,850 tons in 2000 and 2,800 tons in 2007, representing a total increase of approximately 29%. Using the estimated total number of employees presented in Section 4.2.3 (2,094 in 2000 and 2,152 in 2007), each employee on average generated approximately 0.88 tons of waste in 2000 and 1.3 tons of waste in 2007. This represents an increase in municipal solid waste of 48% from 2000 to 2007. (Note that this result was based on approximations and further studies are needed to confirm this finding.)

Overall, total emissions in the municipal solid waste sector have increased from 595 to 899 tonnes of CO_{2e} from 2000 to 2007, representing an increase of approximately 51%. GHG emissions generated from landfilled waste accounted for 244 and 368 tonnes of CO_{2e} in 2000 and 2007, respectively. Emissions from incinerated waste (i.e., waste-to-energy (WTE) plant) accounted for 351 and 531 tonnes of CO_{2e} in 2000 and 2007, respectively. Note that these numbers do not account for carbon sequestered in the landfill nor does it account for emissions reduction from electricity production at the WTE plant. According to ICLEI, these reduction measures should be accounted for as a mitigation measure.

4.3 Greenhouse Gas Emissions by Source

Five sources of greenhouse gas emissions were identified in government operations (i.e., electricity, natural gas, gasoline, diesel, and municipal solid waste). Table 4.6 includes a summary of emissions produced by each source.

Table 4.6
Total Greenhouse Gas Emissions by Source (2000 and 2007)

Sector	CO ₂ e (tonnes)		Percent of Total CO ₂ e		Energy (MMBtu)		
	Year	2000	2007	2000	2007	2000	2007
Electricity		39,486	40,702	81.6%	77.6%	220,994	257,566
Natural Gas		586	888	1.2%	1.7%	10,453	15,835
Gasoline		4,531	6,000	9.4%	11.4%	58,295	77,737
Diesel		3,322	4,125	6.9%	7.9%	42,220	52,426
Municipal Solid Waste		595	899	1.0%	1.4%	NA	NA
Totals		48,532	52,613	100%	100%	331,962	403,565

CO₂e = carbon dioxide equivalent

MMBtu = million British thermal unit (BTU)

By far, greenhouse gas emissions generated from electricity represent the highest emission source and accounts for approximately 80% of emissions in both years. The lowest emission source was from municipal solid waste. Overall, increases were observed in all sectors.

4.4 Greenhouse Gas Emissions by Department

Table A-7 in Appendix A summarizes by department contributions to the greenhouse gas emissions from each sector. Figure 4.19 graphically shows emissions in descending order from 2007 emissions.

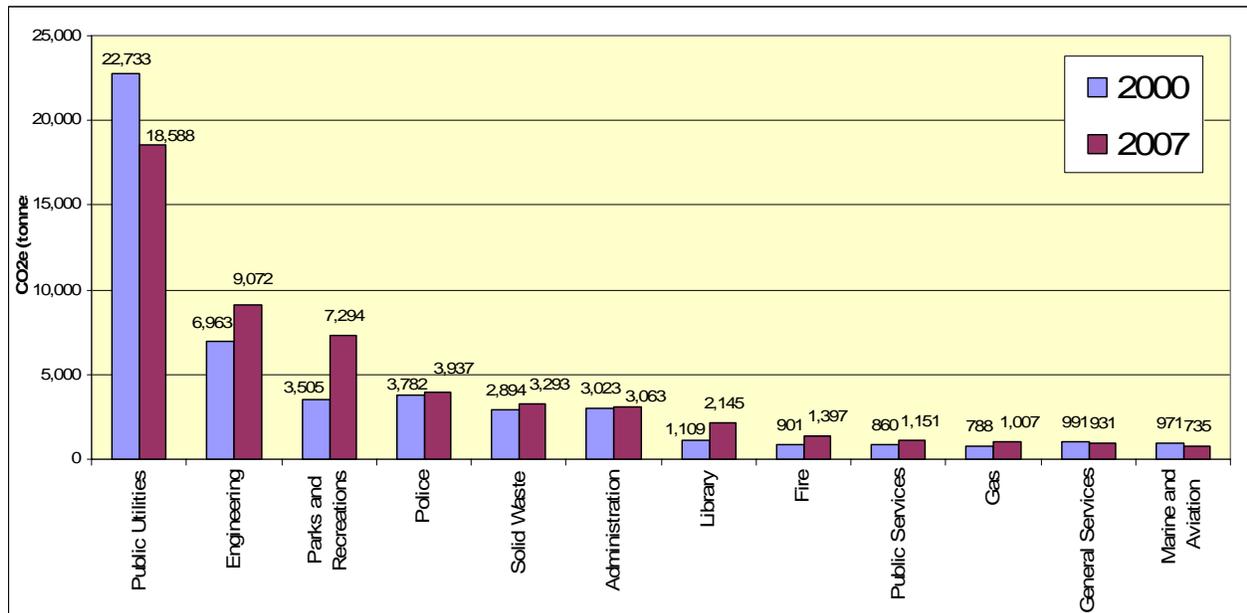


Figure 4.19. GHG Emissions (TCO₂e) by Department (2000 and 2007) (includes contributions from all five sectors: buildings, vehicle fleet, employee commute, water/sewage, and solid waste sectors)

The top three emitting departments are Public Utilities, Engineering, and Parks and Recreations. Between 2000 and 2007, most departments were observed to have increased emissions, with the exception of a few departments, most notably Public Utilities.

4.5 Criteria Air Pollutant Emissions

As described in Section 3.2, ICLEI software also calculates five of criteria air pollutants regulated under the Clean Air Act. Table 4.7 summarizes emissions associated with each sector.

Table 4.7
Criteria Air Pollutant Emissions by Sector (2000 and 2007)

Sector	NO _x (lbs)		SO _x (lbs)		CO (lbs)		VOC (lbs)		PM ₁₀ (lbs)	
	2000	2007	2000	2007	2000	2007	2000	2007	2000	2007
Building	46,316	52,018	102,658	55,163	13,774	20,842	1,613	2,389	12,684	16,404
Vehicle Fleet	88,477	89,597	3,403	4,317	298,741	391,712	32,584	41,056	3,654	2,796
Employee Commutes	699	576	37	38	6,948	6,967	738	706	15	13
Streetlight	26,277	29,462	60,497	32,733	4,855	12,012	894	1,340	7,448	9,707
Water/Sewage	89,874	60,435	206,913	66,927	26,866	24,610	3,058	2,750	25,474	19,851
Municipal Solid Waste	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Totals	251,643	232,088	373,508	159,178	354,184	456,144	38,887	48,241	49,275	48,770

NO_x = nitrogen oxides
 SO_x = sulfur oxides
 CO = carbon monoxide
 VOC = volatile organic compound
 PM₁₀ = coarse particulate matter

5.0 CONCLUSIONS

The process of conducting a greenhouse gas inventory offers benefits beyond quantifying emissions. The process alone aids in mitigation planning and provides a baseline by which to measure specific mitigation efforts. In addition, it identifies measures that have been successful that may not have been identified elsewhere. This section provides overall conclusions learned from the inventory and highlights main points learned from process.

5.1 Total Greenhouse Gas Emissions

- Overall, greenhouse gas emissions from municipal government increased by 8% from 2000 to 2007.
- The Clearwater population increased by 1.5% from 2000 to 2007.
- The number of Clearwater employees increased by 2.2% from 2000 and 2007.
- The total emissions per 1,000 people increased approximately 7% from 2000 to 2007.

5.2 Greenhouse Gas Emissions by Sector

Building Sector

- The Building sector is the second highest greenhouse gas emitter in 2007, just behind the water/sewage sector.
- Total emissions from buildings have increased, primarily due to increased construction between 2000 and 2007.
- Within the building sector, most city departments show overall reductions. Parks and Recreations and Library Departments show the largest relative increase in emissions.
- Many buildings show decreases in electricity usage (and thus a decrease in emissions).
- Emissions per 1,000 SF have increased approximately 10% from 2000 to 2007; however, the cost of electricity has increased 97% during the same period. Electricity accounts for 80% of the greenhouse gas source emissions.

Vehicle Fleet Sector

- Emissions account for about 20% of total emissions in 2007.
- Overall, emissions have increased by 30% from 2000 to 2007.
- The number of vehicles has increased by 22.7% from 2000 to 2007.
- While the city has invested in 11 hybrid vehicles, the number of full-size, light trucks/SUVs, heavy trucks, and passenger vans have all increased by at least 20% from 2000 to 2007.

Employee Commute Sector

- Not a significant source of greenhouse gas emissions (less than 1%), when compared to other municipal operations (e.g., water/sewage and building sectors).
- About 35% of employees live in Clearwater and about another 14% live in a neighboring city.
- The average roundtrip commute of a city employee was 20 miles.

Streetlight Sector

- The streetlight sector accounted for about 16% of municipal emissions and is the fourth largest emission sector.
- Overall emissions have increased approximately 34% from 2000 to 2007 from 2000 to 2007.
- The highest increase is attributed to increased emissions from streetlights. Traffic signals experienced an overall reduction

Water/Sewage Sector

- The highest emission sector accounting for approximately 34% of emissions in 2007.
- Overall reductions decreased approximately 20% from 2000 to 2007.

Municipal Solid Waste Sector

- Not a significant source of emissions (1.4% of total emissions in 2007) and next to last when compared to other sectors.
- Overall, about 30% more waste was generated from municipal operations from 2000 to 2007. (Analysis does not include transportation of waste that is included in the vehicle fleet sector).

5.3 Greenhouse Gas Emissions by Source

- Greenhouse Gas Emissions produced from electricity consumption represented the highest source (78% in 2007)
- Gasoline and diesel fuel accounted for 11% and 8%, respectively, of all emissions sources.
- Municipal solid waste is the lowest source of greenhouse gas emissions (about 1%)

5.4 Greenhouse Gas Emissions by Department

- The top three greenhouse gas emitters in decreasing order in both 2000 and 2007 were Public Utilities, Engineering, and Parks & Recreations Departments.
- The lowest greenhouse gas emitters in both 2000 and 2007 were the Gas, General Services, and Marine & Aviation Departments.

6.0 RECOMMENDATIONS

6.1 Greenhouse Gas Accounting

6.1.1 *Improve and Automate Data Collection Systems*

Future data collection techniques could be improved upon by automating the data collection system. Creating a specific software program whereby records could be imported from electric, natural gas, fuel, and waste databases could be created to accomplish this task. A geographic information system (GIS) could also be employed to manage the data as well as provide geographic representation of the data. Inventory data could be analyzed more efficiently and at shorter timescales (e.g., quarterly or monthly), which may prove to be useful when testing specific mitigation measures. Thus, City employees should explore the feasibility of automating the data collection system.

The following provides some specific recommendations within each sector.

Buildings Sector

- Current databases are aggregated on a fiscal year; however, greenhouse gas inventories are generally reported in calendar years. As part of automation, future data collection should be aggregated into calendar years.
- Some electricity records were not easily identified within the database. Adding more detailed description and/or codes within the database to aid in the sorting process is recommended.
- Creating a GIS data layer for all city electric meters is recommended to aid in future geographic representation of all buildings.
- Some electricity consumption is billed to outside organizations (e.g., Harborview Center) and was not included in this inventory. Understanding these types of relationships would be useful in future analysis.

Vehicle Fleet Data

- Like electricity data, fuel data of the vehicle fleet is aggregated on a fiscal calendar. Aggregating the data to a calendar year is recommended for inventorying greenhouse gas emissions.
- The vehicle fleet inventory that was provided did not have fields that described the vehicle classes for each vehicle. Adding this data within the database would be helpful in future analysis.
- The marine vessel data was estimated from both the Fire and Marine and Aviation Department for 2000 and 2007. While the fuel usage was comparatively low compared to

the vehicle fleet data, it is recommended that more accurate records be kept for future inventories.

Streetlights

- Currently, street light data is not configured in electronic format, but rather is contained on paper copy maps. City street lights have various dates and wattages that would be useful to understand as mitigation measures are analyzed in the next phase. Therefore, creating a GIS data layer and associated attribute table of all street lights is recommended.
- During the course of this investigation, it was learned that some of the data collected in the streetlight data might not be based on actual usage, but rather estimated by Progress Energy. In addition, some of the lighting is paid by the city, but owned by the county.

Municipal Solid Waste

- During the course of this investigation, it was learned that municipal solid waste is not specifically tracked by the Solid Waste Department. The data used in this inventory was based on counting trash bins and estimating waste. Therefore, it is recommended that city-generated waste be tracked.

Additional Inventory Analysis

- ICLEI software does not consider carbon sequestration in urban forestry; however, greenhouse gas accounting protocols exist for such analysis. Benefits from carbon sequestration should be included in an update to this report and in future analysis. Note that an inventory of municipal trees is available.
- Data associated for historic municipal landfills was not available and should be further studied for inclusion.
- Data related to employee business travel was not included in this inventory and should be considered in future analysis.
- Nitrogen and methane emissions in the wastewater process were not included in this study and should be included in future updates.

6.1.2 Conduct Additional Interim and Subsequent Annual Inventories

For this analysis, 2000 was selected as the base year due to the availability of records from 2000 to the present. Inventorying greenhouse gas emissions for interim years (2001 through 2006) would provide additional information regarding trends that have occurred between 2000 and 2007. This activity would be recommended following development of an automating data system. In addition, subsequent annual reporting of greenhouse gas emissions is recommended to continue to quantify greenhouse gas emissions as well as monitor mitigation processes.

6.2 ICLEI Next Steps

6.2.1 Adopt a Reduction Target

According to ICLEI guidelines, a reduction target should be formally adopted by a city council resolution. By adopting a resolution, a tangible goal is set, which then provides a basis for mitigation planning. Several aspects must be considered when determining a reduction target. An overall target must first be established (e.g., 10% below 2000 emission levels). A time period by which to achieve the goal must then be determined (e.g., 10% below 2000 emission levels *in 10 years*). In identify a target, it is necessary to also consider the feasibility of a target. ICLEI indicates that a 2% annual reduction is a reasonable target for most cities (ICLEI, personal communication, May 27, 2008).

To quantify a reduction target that would meet the Kyoto Protocol target (i.e., 7% below 1990 emissions by 2012) as dictated in the U.S. Conference of Mayor’s Climate Protection Agreement, “business as usual” projections were forecasted using ICLEI software for 2010, 2015, and 2020 and linear regression was used to back-forecast emissions to 1990. Figure 6.1 indicates that the 1990 greenhouse gas emissions can be approximated at 48,000 tonnes of CO₂e. Thus, Clearwater would need to reduce emissions by approximately 4,600 tonnes of CO₂e from 2007 emissions within a four-year period (2008-2012) to meet the Kyoto Protocol target. This roughly corresponds to approximately 2% reduction each year.

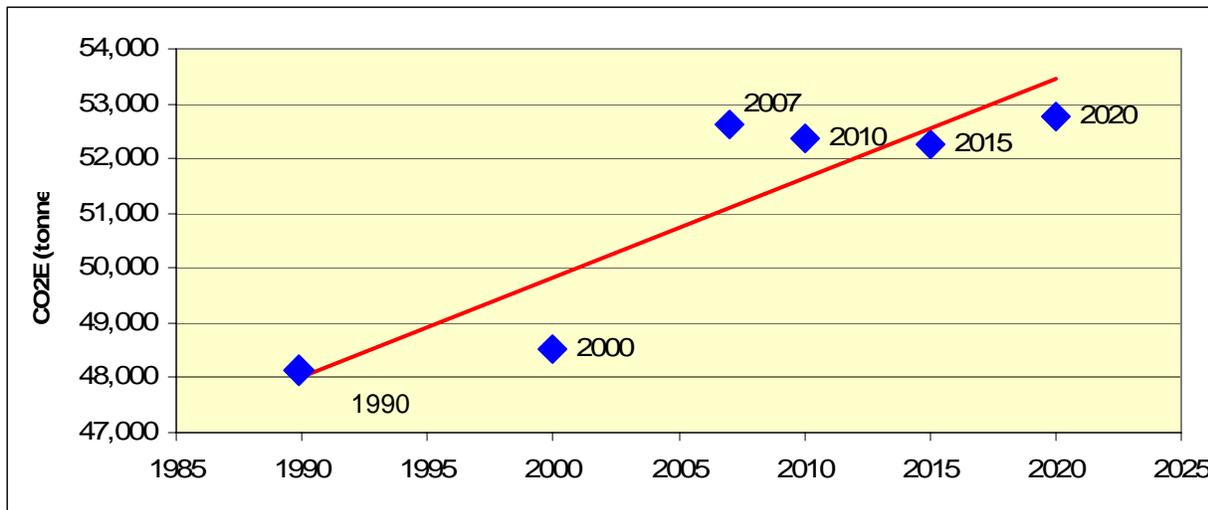


Figure 6.1. GHG Emissions (TCO₂e) under “Business as Usual” Projections (2000 and 2007 emissions are calculated emissions; 2010, 2015, and 2020 were forecasted using ICLEI software; and 1990 was back-forecasted using linear regression.)

Since the Kyoto Protocol target ends in 2012, setting a target farther into the future would be recommended. The IPCC reports that greenhouse gas emissions need to be reduced to levels from 50% to 85% from 2000 levels by 2050 in order to stabilize the climate (i.e., to prevent the temperature from rising more than 2.4 degrees Celsius and keeping CO₂ emissions below 400 parts per million from 2000 levels) (IPCC, 2007c). ICLEI recommends setting targets that cover a

shorter time frame (e.g., 15% from baseline emissions over a 10 to 20 year period). Therefore, to aid in determining a specific reduction target for Clearwater, reduction targets for various scenarios are presented in Table 6.1 and annual reduction calculations are presented in Table 6.2.

Table 6.1
Overall GHG Emissions (TCO₂e)
Reduction Calculations from 2000 Levels

Percent Below 2000 Baseline (48,520 TCO ₂ e)	Overall Reduction Target (TCO ₂ e)
5%	46,094
10%	43,668
15%	41,242
20%	38,816
30%	33,964
40%	29,112
50%	24,260
60%	19,408
70%	14,556
80%	9,704

Table 6.2
Annual GHG Emissions (TCO₂e) Reduction
Calculations from 2007 Levels

Year	1%	2%	3%	4%
2007	52,613	52,613	52,613	52,613
2008	52,087	51,561	51,035	50,508
2009	51,566	50,530	49,504	48,488
2010	51,050	49,519	48,018	46,549
2011	50,540	48,529	46,578	44,687
2012	50,034	47,558	45,181	42,899
2013	49,534	46,607	43,825	41,183
2014	49,039	45,675	42,510	39,536
2015	48,548	44,761	41,235	37,954
2016	48,063	43,866	39,998	36,436
2017	47,582	42,989	38,798	34,979
2018	47,106	42,129	37,634	33,580
2019	46,635	41,286	36,505	32,236
2020	46,169	40,461	35,410	30,947
2025	43,906	36,573	30,408	25,233
2030	41,754	33,059	26,112	20,575
2035	39,708	29,883	22,423	16,776
2040	37,762	27,012	19,256	13,679
2045	35,911	24,417	16,536	11,153
2050	34,151	22,071	14,200	9,094

Therefore, a short term overall reduction target that would meet both the Mayor’s Climate Protection Agreement and IPCC projections (assuming 50% will be sufficient to stabilize the climate) could be achieved with a reduction target of between 15% and 20% below 2000 levels by 2020. This corresponds to a 2% annual reduction, which has been reported by ICLEI to be a reasonable target. This target is generally in line with what other cities have resolved to achieve (Table 6.3).

Table 6.3
Example GHG Reduction Targets from Other Municipalities

CO₂ Reduction Targets of Select CCP Jurisdictions		
Jurisdiction	% Below Baseline Emissions	Target Year
Austin, TX	10-20%	2010
Berkeley, CA	15%	2010
Burien, WA	10%	2010
Burlington, VT	10%	2005
Chula Vista, CA	20%	2010
Durham, NC	5%	2025
Hillsborough Co., FL	20%	2010
Miami-Dade Co., FL	20%	2005
Minneapolis, MN	20%	2005
Oakland, CA	15%	2010
Portland, OR	20%	2010
Saint Paul, MN	20%	2005
Takoma Park, MD	20%	2010
Toledo, OH	20%	2020
Tucson, AZ	20%	2010

Source: ICLEI Climate Action Handbook, undated

6.2.2 Evaluate Reduction Measures

Upon passing the resolution, specific reduction measures should be identified within each sector and modeled to determine the greenhouse gas reduction potential of each measure. Short-term strategies should initially be identified within Public Utilities, Building and Maintenance, Vehicle Fleet, and Engineering Departments due to their high relative contribution to overall greenhouse gas emissions. Long-term strategies should be identified and modeled considering all government operations.

To identify measures, collaborating with key staff is crucial, particularly those in Public Utilities, Buildings and Maintenance, and Fleet Management. In addition, key city staff identified themselves on the employee commuter survey conducted in early 2008. The staff was asked if

they would be willing to serve on a “green” team and were given the option to identify themselves by name on the survey. Over 200 employees responded with either “yes” or “maybe” and 84 employees provided their name for inclusion on the stakeholder list.

The survey also asked all city employees two open-ended questions to provide suggestions on employee commuting and on how to “green” the city. The responses are included in Tables B-1 and B-2 in the Appendix. These suggestions should be cataloged and carefully considered when formalizing an action plan.

6.2.3 Formalize a Local Action Plan

Upon adopting a reduction target and identifying short- and long-term measures to achieve the target, the city should formalize all actions into a local action plan. This policy document would also include a timeline, an outline of financing measures, and assignment of duties to specific staff. Upon implementation of the plan, annual greenhouse gas inventorying should be conducted and formally reported.

6.3 Foster Existing and Form New Partnerships

Partnering with the University of South Florida has been beneficial to Clearwater as well as the university and its students. Continuing this partnership is highly recommended. In addition, local colleges (i.e., Saint Petersburg College, Clearwater Christian College, and Eckerd College) could be included in future partnerships and stakeholder work.

The data acquisition process has been initiated for the citywide Greenhouse Gas Inventory (which includes all residents and businesses within Clearwater); however, some data gaps and issues have been identified (e.g., transportation data is compiled at the county level). The Bushnell Center for Sustainability, a division of IFAS/Pinellas County Extension, has informed the City of Clearwater that they are in the process of formulating a plan to assist all cities in the county to complete this task. Continuing this partnership is highly recommended.

6.4 Designate a Sustainability Coordinator/Office of Sustainability

Many cities have included climate change issues in an overall “green” or “sustainability” strategy and have created a department (or office) of sustainability. In all cases, a coordinator would be critical to act as the liaison between the 24 departments and to ensure that momentum is continued. In addition, housing all sustainability issues into one office will avoid duplication of effort among city staff. For example, the standards to become a green local government, as set forth by the Florida Green Building Coalition (FGBC), include many measures that would have a co-benefit of addressing climate change. Table C-1 in the Appendix provides an internal stakeholder analysis that considers how each of the 24 departments would be affected by overall sustainability issues.

In light of budgetary constraints, Clearwater could officially assign an employee to act as Interim Coordinator and provide ample time and resources to begin formulating an inclusive local action plan that encompasses climate change, green local government standards, and urban sustainability. In addition, lead persons should be identified within each sector and job descriptions should be expanded to include work duties specific to providing input on sustainability issues.

When funding becomes available through the Energy and Environment Block Grant Program (EEBG) (expected to become available as soon as 2009), Clearwater would be well positioned to take swift action to implement mitigation strategies outlined in the action plan.

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8.0 ACKNOWLEDGEMENTS AND DATA SOURCES

8.1 Acknowledgements

University of South Florida graduate student, Sandra Kling completed this inventory during the Spring 2008 and Summer 2008 academic sessions. In order to complete the inventory, I became an official intern to become familiar with city operations as well as to interface with specific city staff.

Ed Chesney, Environmental Manager, was extremely helpful in providing general background information and indicating key individuals for obtaining necessary data sets. A special thank you is also extended to Sarah Josuns, Environmental Specialist, for providing additional background information, particularly pertaining to the Florida Green Building Coalition (FGBC)'s green local government standard process.

In addition, key staff to acknowledge includes Melvin Maciolek, Engineering Specialist I, who was always available to answer general questions related to city operations and Ken Sides, Engineer III, who took the time to connect me with key individuals within the city and county. Many other city employees (too numerous to name) were also helpful in facilitating the project, for which I am deeply grateful.

8.2 Data Sources

The following specific data sets were obtained and used to complete this inventory.

Population Statistics

Catherine Porter, Long Range Planning Manager, Planning Department, 727-562-4626
Catherine provided population statistics for the city.

Electricity Data

Jim Woods, Building and Maintenance Superintendent, 727-562-4890 ext. 2805
General Services maintains a city-wide Microsoft Access database records that include all electric usage within City, including buildings, streetlights, and water/sewer operations.

Natural Gas

Brian Langille, Gas Program Coordinator, Gas Department, 727- 562-4900 ext. 7406
Brian provided background information on the natural gas system and provided the natural gas usage for all city operations for 2000 and 2007.

Vehicle Fleet

Steve Bochno, Administrative Analyst, Fleet General Operations, 727-562-4890 ext. 2863
Steve provided complete vehicle inventories as well as fuel usage data for 2000 and 2007.

Marine Fleet

William Morris, Director, Marine and Aviation, 727-462-6954 ext. 22

William provided estimates of marine fuel usage from city operations that includes both Marine and Police Department Data for 2000 and 2007.

Stanley Loveday, Logistics Manager, Fire Department, 727-224-2244

Stanley provided an inventory and fuel usage estimates for marine vessels owned and operated by the Fire Department for 2000 and 2007.

Employee Commute

Christine Schlerf, Senior Human Resources Analyst, Human Resources, 727-562-4846

Christine retrieved the number of full-time and part-time employees for 2000 and 2007.

Streetlights

Paul Bertels, Traffic Operations Manager, Engineering, 727-562-4794

Christopher Melone, Traffic Engineer Assistant, Engineer, 727-562-4778

Paul provided a general overview of the traffic light and signal program. Chris provided an inventory of all traffic signals in the city.

Water

Lynn Stevens, Water Supply Operator B, Public Utilities, Water Division, 727-224-7993

Lynn provided general background information on the water supply and reclaimed water systems as well as total water pumped, purchase, and distributed to customers in 2000 and 2007.

Sewage

Nan Bennett, Assistant Public Utilities Director, Public Utilities, 727-562-4960 ext. 7221

Nan provided a general history of sewage plant operation and overview of measures that include plant upgrades and lift station pump replacement projects.

Waste

David Powers, Senior Accountant, Solid Waste Administration, 727-562-4938

David provided an estimate of government generated waste for 2000 and 2007 as well as a Pinellas County report summarizing the waste stream composition.

APPENDIX A
DATA SUMMARY TABLES

Table A-1
2000 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	ELECTRICITY USE (KWH)	COST	CO2e (tonnes)	ENERGY (MMBtu)
CITY HALL	CITY HALL	112 OSCEOLA AVENUE S.	1,022,720	\$57,173	624	3,491
		SUBTOTALS	1,022,720	\$57,173	624	3,491
ENGINEERING	GARDEN AVENUE GARAGE	28 GARDEN AVENUE N.	197,800	\$11,760	121	675
ENGINEERING	MSC PARKING GARAGE	640 PIERCE STREET	283,360	\$12,714	173	967
ENGINEERING	SIGN SHOP, TRANSPORTATION	410 MYRTLE AVENUE N.	49,279	\$3,798	30	168
		SUBTOTALS	530,439	\$28,272	324	1,810
FIRE	FIRE DEPT. ANNEX	600 FRANKLIN STREET	25,388	\$2,475	15	87
FIRE	FIRE DEPT. TRAINING BLDG.	1700 BELCHER ROAD N.	33,509	\$2,902	20	114
FIRE	FIRE STATION # 1	610 FRANKIN STREET	292,640	\$18,248	178	999
FIRE	FIRE STATION # 2	534 MANDALAY AVENUE (CLW BEACH)	113,143	\$6,447	69	386
FIRE	FIRE STATION # 3	1460 LAKEVIEW ROAD	99,902	\$6,954	61	341
FIRE	FIRE STATION # 4	1700 BELCHER ROAD N.	120,604	\$8,314	74	412
FIRE	FIRE STATION # 5	520 SKY HARBOR DRIVE	135,307	\$9,109	83	462
FIRE	FIRE STATION # 6	2681 COUNTRYSIDE BLVD	109,183	\$6,871	67	373
		SUBTOTALS	929,676	\$61,321	567	3,174
GAS	CATHODE PROTECTION	VARIOUS ADDRESSES	2,458	\$1,092	1	8
GAS	GAS DISTRIBUTION (LARGO)	12360 134th AVE. N. , LARGO	0	\$144	0	0
GAS	GAS DIVISION OFFICE	400 MYRTLE AVE N.	174,625	\$11,731	106	596
GAS	GAS OFFICE PASCO	7302 US HIGHWAY 19 SIGN, A	46,508	\$3,736	28	159
GAS	GAS SALES OFFICE	2551 DREW ST. #304	53,243	\$3,553	32	182
GAS	GAS SERVICE WAREHOUSE	400 MYRTLE AVE N.	188,522	\$13,113	115	643
GAS	GATE STATION	VARIOUS ADDRESSES	6,771	\$960	4	23
		SUBTOTALS	472,127	\$34,329	286	1,611
GENSER	BLDG. & MAINT. SHOP	1900-A GRAND AVENUE	53,294	\$3,963	32	182
GENSER	EAST AVENUE STORAGE	105 EAST AVENUE # 80	42,577	\$2,850	26	145
GENSER	FLEET ADMINISTRATION	1900 GRAND AVENUE	698,360	\$47,839	426	2,383
GENSER	MADISON AVE. PROPERTY	406 S. MADISON AVENUE	31,074	\$2,122	19	106
GENSER	RADIO TOWERS	VARIOUS ADDRESSES	116,744	\$7,497	71	398
GENSER	STORAGE	711 MAPLE STREET	87,762	7,251	54	299
		SUBTOTALS	1,029,811	\$71,522	628	3,513

Table A-1
2000 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	ELECTRICITY USE (KWH)	COST	CO2e (tonnes)	ENERGY (MMBtu)
LIBRARY	LIBRARY, CLW BEACH	483 MANDALAY AVE STE 108	37,688	\$3,417	23	129
LIBRARY	LIBRARY, COUNTRYSIDE BR.	2741 S.R. 580	334,400	\$21,039	204	1,141
LIBRARY	LIBRARY, EAST BRANCH	2203 DREW STREET E.	281,280	\$20,846	172	960
LIBRARY	LIBRARY, MAIN	100 OSCEOLA AVENUE N.	1,092,200	\$64,291	666	3,728
LIBRARY	LIBRARY, N.E. BRANCH	1250 PALMETTO STREET	48,011	\$3,681	29	164
		SUBTOTALS	1,793,579	\$113,273	1,094	6,122
MAR-AV	AIRPARK SECURITY GATE	1000 N. HERCULES AVE	24,456	\$2,251	15	83
MAR-AV	BEACH GUARD BLDG.	180 S GULFVIEW BLVD.	14,731	\$1,311	9	50
MAR-AV	DOCK	201 MAGNOLIA DRIVE	1,226	\$249	1	4
MAR-AV	MARINA POSTS (ISLAND ESTATES)	10 MARINA WAY	71,691	\$4,924	44	245
MAR-AV	MARINA, ALL OPERATIONS	25 CAUSEWAY BLVD	1,201,445	\$73,890	733	4,100
MAR-AV	PIER 60	160 S GULFVIEW BLVD.	135,240	\$9,413	82	462
MAR-AV	SAILING CENTER	1001 GULF BLVD.	56,041	\$4,718	34	191
		SUBTOTALS	1,504,830	\$96,756	918	5,135
MUNICIPAL	MUNICIPAL SERVICES BLDG.	100 S MYRTLE AVE	2,128,700	\$129,043	1,298	7,265
		SUBTOTALS	2,128,700	\$129,043	1,298	7,265
PARKS	ATRIUM PARK	1707 N FORT HARRISON AVE	9,279	\$591	6	32
PARKS	BAND XMAS DISPLAY-TEMP	702 FRANKLIN STREET	0	\$77	0	0
PARKS	BAYFRONT TENNIS COMPLEX	SE COR CLEVELAND ST & PIERCE BLVD	23,750	\$2,030	14	81
PARKS	BELMONT FIELD	GREENWOOD AVENUE S. & VERNON STREET	6,857	\$752	4	23
PARKS	BOMBERS STADIUM/CARPENTER FIELDS	651 N. OLD COACHMAN RD.	376,502	\$31,650	230	1,285
PARKS	CEMETERY WORKSHOP	1300 MYRTLE AVENUE S.	914	\$272	1	3
PARKS	CHERRY HARRIS PARK	1141 BECKETT ST.	5,488	\$607	3	19
PARKS	CHESAPEAKE BALLFIELDS	3070 CHESAPEAKE ST.	10,569	\$2,222	6	36
PARKS	CLEARWATER BEACH	30 BAY ESPLANADE	533,268	\$34,607	325	1,820
PARKS	CLEVELAND ST. MINI PARK	612 CLEVELAND ST.	52,266	\$3,221	32	178
PARKS	CLW HIGH TENNIS AND BALL COURTS	540 HERCULES AVE S. (1900 E. DRUID)	7,146	\$646	4	24
PARKS	COACHMAN PARK	100 N.OSCEOLA AVE,	99,031	\$7,932	60	388
PARKS	COACHMAN RIDGE PARK	1400 OLD COACHMAN RD.	45,151	\$3,857	28	154
PARKS	CONDON GARDENS REC CENTER	2930 SANDLEWOOD DRIVE	36,318	\$3,345	22	124
PARKS	COUNTRYSIDE	2640 SABAL SPRINGS DR.	443,025	\$30,216	270	1,512
PARKS	COUNTRYSIDE HIGH	2870 MCMULLEN BOOTH RD.	70,278	\$6,424	43	240
PARKS	COURT STREET SOCCER FIELD	1345 COURT STREET	14,320	\$1,380	9	49
PARKS	ED WRIGHT PARK	1130 GREENWOOD AVENUE S.	19,432	\$2,319	12	66

Table A-1
2000 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	ELECTRICITY USE (KWH)	COST	CO2e (tonnes)	ENERGY (MMBtu)
PARKS	EDDIE MOORE COMPLEX	200 MCMULLEN BOOTH ROAD	295,924	\$25,489	180	1,012
PARKS	FOREST RUN PARK	3450 LANDMARK DR.	26,674	\$2,246	16	91
PARKS	FRANK TACK PARK	1967 N HERCULES AVE	96,800	\$8,054	59	330
PARKS	HOLT AVENUE	1259 HOLT AVENUE	72,264	\$4,769	44	247
PARKS	JOE DIMAGGIO/SPJC	420 OLD COACHMAN ROAD	27,606	\$2,630	17	94
PARKS	KINGS HWY REC. CNTR.	1735 KINGS HWY.	154,421	\$10,691	94	527
PARKS	LAWN BOWLS CLUB	1040 CALUMET ST.	4,451	\$503	3	15
PARKS	MANDALAY PARK	MANDALAY AVE & BAY ESPLANADE	9,696	\$1,150	6	33
PARKS	MARYMONT PARK	1900 GILBERT STREET	15,622	\$1,552	10	53
PARKS	MCKAY BALLFIELD	MANDALAY & JUANITA STREETS	1,651	\$283	1	6
PARKS	MCMULLEN TENNIS COMPLEX	1000 EDENVILLE AVENUE	98,440	\$8,566	60	336
PARKS	MLK	1201 MLK BLVD.	609,128	\$39,744	371	2,079
PARKS	MOCCASIN LAKE	2750 PARK TRAIL LANE	48,360	\$3,533	29	165
PARKS	MONTCLAIR PARK	1821 MONTCLAIR RD, E. OF N. KEENE	3,661	\$440	2	12
PARKS	MORNINGSIDE	2400 HARN BLVD.	354,875	\$25,586	216	1,211
PARKS	NURSERY	901 SATURN AVENUE N.	43,721	\$3,595	27	149
PARKS	OVERBROOK SHUFFLEBOARD CT	1135 STEVENSON AVENUE	632	\$63	0	2
PARKS	PARKS AND REC	900 PIERCE ST	19,174	\$1,403	12	65
PARKS	PHILLIP JONES	1190 RUSSELL STREET	45,521	\$3,895	28	155
PARKS	RAY GREEN	801 GREENWOOD AVE N.	6,651	\$887	4	23
PARKS	REC FAC MAINT DIV	507 VINE STREET	148,744	\$10,368	91	508
PARKS	RECREATION STORAGE	422 S. MADISON AVE.	28,033	\$2,358	17	96
PARKS	ROSS NORTON	1428 GREENWOOD AVENUE S.	347,663	\$22,414	212	1,187
PARKS	SAFETY VILLAGE	1450 LAKEVIEW ROAD	4,761	\$761	3	16
PARKS	SAND KEY PARK SOUTH	1551 GULF BLVD.	3,738	\$446	2	13
PARKS	SHUFFLEBOARD CLUB	1020 CALUMET STREET	58,160	\$4,567	35	198
PARKS	SID LICKTON	714 SATURN AVENUE N.	137,942	\$12,647	84	174
PARKS	TEMP 1 JAZZ FEST	210 DREW STREET	1,757	\$292	1	6
PARKS	THE PLEX	3060 MCMULLEN BOOTH ROAD	98,816	\$7,800	60	337
PARKS	US 19 PRACTICE SOCCER FLD	21135 N. US 19	9,658	\$1,022	6	33
PARKS	VALENCIA PARK	HERCULES AVE, W. SIDE, N. OF MONTCL	18,209	\$1,586	11	62
PARKS	WOOD VALLEY	2816 PARK TRAIL LANE	53,720	\$4,372	33	183
PARKS	WOODGATE PARK	2495 COUNTRYSIDE BLVD	10,781	\$1,001	7	37
		SUBTOTALS	4,610,848	\$346,858	2,810	15,489

Table A-2
2007 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	KWH	COST	CO2e (tonnes)	ENERGY (MMBtu)
CITY HALL	CITY HALL	112 OSCEOLA AVENUE S.	980,320	\$88,269	529	3,346
		SUBTOTALS	980,320	\$88,269	529	3,346
ENGINEERING	GARDEN AVENUE GARAGE	28 GARDEN AVENUE N.	209,880	\$19,115	113	716
ENGINEERING	MSC PARKING GARAGE	640 PIERCE STREET	300,380	\$26,759	162	1,025
ENGINEERING	SIGN SHOP, TRANSPORTATION	410 MYRTLE AVENUE N.	63,187	\$6,538	34	216
		SUBTOTALS	573,447	\$52,412	309	1,957
FIRE	FIRE DEPT. ANNEX	600 FRANKLIN STREET	36,318	\$3,807	20	124
FIRE	FIRE MAINTENANCE	2150 RANGE ROAD	95,715	\$9,982	52	327
FIRE	FIRE STATION # 47	1460 LAKEVIEW ROAD	113,434	\$11,198	61	387
FIRE	FIRE STATION # 48	1700 BELCHER ROAD N.	129,825	\$12,805	70	443
FIRE	FIRE STATION # 51	1720 OVERBROOK AVE	133,519	\$12,912	72	457
FIRE	FIRE STATION # 50	2681 COUNTRYSIDE BLVD	109,208	\$11,150	59	373
FIRE	FIRE STATION # 46	534 MANDALAY AVENUE	90,009	\$8,848	49	307
FIRE	FIRE STATION # 49	565 SKY HARBOR DRIVE	157,366	\$15,295	85	537
FIRE	FIRE STATION # 45	610 FRANKIN STREET	311,896	\$29,855	168	1,064
FIRE	FIRE STATION # 44	950 GULF BLVD	92,640	\$9,017	50	316
FIRE	FIRE DEPT. TRAINING BLDG.	1700 BELCHER ROAD N.	31,285	\$3,602	17	107
		SUBTOTALS	1,301,215	\$128,471	703	4,442
GAS	CATHODE PROTECTION	VARIOUS ADDRESSES	2,907	\$1,388	2	10
GAS	GATE STATIONS	VARIOUS ADDRESSES	4,672	\$970	3	16
GAS	GAS DIST.(LARGO)	12360 134th AVE. N. , LARGO	83	\$140	0	0
GAS	GAS SALES OFFICE	2551 DREW ST. #304	36,585	\$3,901	20	125
GAS	GAS SERVICE WAREHOUSE	400 MYRTLE AVENUE S.	224,382	\$13,277	121	766
GAS	GAS ADMIN. BUILDING	400 N. MYRTLE AVE.	143,806	\$14,593	78	491
GAS	GAS OFFICE PASCO	7302 US 19 NEW PORT RICHY	44,312	\$4,537	24	151
GAS	GAS UTILITIES	HERCULES AVENUE & PALMETTO STREET	2,230	\$391	1	8
		SUBTOTALS	458,977	\$39,197	249	1,567
GEN_SERV	FLEET ADMINISTRATION	1900 GRAND AVENUE	703,040	\$69,223	379	2,399
GEN_SERV	BLDG. & MAINT. SHOP	1900A GRAND AVE.	68,007	\$7,467	37	232
GEN_SERV	RADIO TOWER, S.	MISSOURI AVENUE S.	127,326	\$11,836	69	435
GEN_SERV	EAST AVENUE STORAGE	105 EAST AVENUE # 80	18,302	\$2,095	10	62
GEN_SERV	MADISON AVE. PROPERTY	406 S. MADISON AVE.	25,019	\$2,618	13	85
GEN_SERV	STORAGE	601 N. MYRTLE	20,133	\$2,380	11	69
GEN_SERV	CULTURAL ARTS STORAGE, GRAPHICS, RECORDS RETENTION	711 MAPLE STREET	66,655	\$5,026	36	227
		SUBTOTALS	1,028,482	\$100,645	555	3,509

Table A-2
2007 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	KWH	COST	CO2e (tonnes)	ENERGY (MMBtu)
LIBRARY	COUNTRYSIDE BRANCH	2741 S.R. 580	314,040	\$30,976	169	1,072
LIBRARY	EAST BRANCH	2203 DREW STREET E.	288,200	\$28,004	155	984
LIBRARY	NORTH GREENWOOD BRANCH	905 N. GREENWOOD AVE	404,753	\$42,773	218	1,381
LIBRARY	MAIN BRANCH	100 N. OSCEOLA AVENUE	2,897,080	\$272,339	1,562	9,888
LIBRARY	CLW BEACH LIBRARY 108	483 MANDALAY AVE STE 108	23,891	\$3,056	13	82
LIBRARY	LIBRARY BEACH TEMP TRL	69 BAY ESPLANADE	1,567	\$261	1	5
		SUBTOTALS	3,929,531	\$377,409	2,118	13,412
MAR-AV	BEACH GUARD BLDG.	180 S GULFVIEW BLVD.	18,754	\$2,259	10	64
MAR-AV	MARINA POSTS (ISLAND ESTATES)	10 MARINA WAY	48,425	\$4,866	26	165
MAR-AV	MAGNOLIA ST. DOCK	201 MAGNOLIA DR,	1,220	\$277	1	4
MAR-AV	MARINA, ALL OPERATIONS	25CAUSEWAY BLVD	988,899	\$97,246	533	3,375
MAR-AV	PIER 60, OPERATIONS	VARIOUS ADDRESSES	256,617	\$24,574	138	876
		SUBTOTALS	1,313,915	\$129,221	708	4,484
MUNICIPAL	MUNICIPAL SERVICES BLDG.	100 S MYRTLE AVE	2,074,802	\$214,437	1,119	7,081
		SUBTOTALS	2,074,802	\$214,437	1,119	7,081
PARKS	ALLEN'S CREEK PARK	1281 S HERCULES AVE	314	\$174	0	1
PARKS	ARMORY	706 N. MISSOURI AVE	843	\$285	0	3
PARKS	ATRIUM PARK	1707 N FORT HARRISON AVE	9,470	\$916	5	32
PARKS	BEACHWALK	561 BAY ESPLANADE	7,115	\$1,287	4	24
PARKS	BELMONT FIELD	GREENWOOD AVENUE S. & VERNON STREET	14,558	\$1,785	8	50
PARKS	CARPENTER FIELD	651 OLD COACHMAN RD.	418,550	\$43,561	226	1,429
PARKS	CEMETERY WORKSHOP	1300 MYRTLE AVENUE S.	636	\$210	0	2
PARKS	CHERRY HARRIS PARK	1141 BECKETT ST.	1,090	\$262	1	4
PARKS	COACHMAN PARK	VARIOUS ADDRESSES	189,921	\$20,999	102	648
PARKS	COACHMAN RIDGE PARK	1400 OLD COACHMAN RD.	28,619	\$3,482	15	98
PARKS	COUNTRYSIDE	2640 SABAL SPRINGS DRIVE	650,197	\$70,571	351	2,219
PARKS	GLEN OAKS PARK	1345 COURT ST.	88,756	\$10,935	48	303
PARKS	COURT ST/ SPECIAL EVENT STORAGE	703 COURT ST.	4,107	\$491	2	14
PARKS	CREST LAKE DOGGIE DAYS PARKING	1520 GULF TO BAY BLVD	902	\$199	0	3
PARKS	COUNTRYSIDE HS	2870 MCMULLEN BOOTH RD.	37,805	\$5,065	20	129
PARKS	CLEARWATER HS TENNIS	540 HERCULES AVE S. (1900 E. DRUID)	1,458	\$303	1	5
PARKS	ED WRIGHT PARK	1130 GREENWOOD AVENUE S.	14,146	\$1,877	8	48
PARKS	EDDIE C MOORE COMPLEX	3050 DREW ST.	378,554	\$54,936	204	1,292
PARKS	FOREST RUN PARK	3450 LANDMARK DR.	32,019	\$3,759	17	109
PARKS	FRANK TACK PARK	2049 MONTCLAIR RD.	104,284	\$12,207	56	356

Table A-2
2007 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	KWH	COST	CO2e (tonnes)	ENERGY (MMBtu)
PARKS	GARDEN AVE PARK	1008 N. GARDEN AVE	47	\$144	0	0
PARKS	N. GREENWOOD COMPLEX	900 N. M.L.K. JR AVE/ 900 N. GREENWOOD	1,075,234	\$120,374	580	3,670
PARKS	TEMP 1 JAZZ FEST	210 DREW STREET	3,236	\$546	2	11
PARKS	JOE DIMAGGIO, GYM	2465 DREW STREET	64,160	\$5,617	35	219
PARKS	LAWN BOWLING	1040 CALUMET STREET	35,612	\$4,306	19	122
PARKS	LONG CENTER	1501 N BELCHER ROAD	2,666,762	\$249,685	1,438	9,102
PARKS	REC FAC MAINT DIV	507 VINE ST	111,581	\$12,491	60	381
PARKS	MANDALAY PARK	MANDALAY AVE & BAY ESPLANADE	7,060	\$1,154	4	24
PARKS	MARYMONT PARK	1900 GILBERT STREET	12,362	\$1,536	7	42
PARKS	MCKAY BALLFIELD	MANDALAY & JUANITA STREETS	3,568	\$542	2	12
PARKS	MCMULLEN TENNIS COMPLEX	1000 EDENVILLE AVENUE	199,240	\$22,666	107	680
PARKS	MLK SOFTBALL FIELD	1201 DOUGLAS AVE	24,371	\$3,033	13	83
PARKS	MOCCASIN LAKE	2750 PARK TRAIL LANE	49,436	\$5,333	27	66
PARKS	MONTCLAIR PARK	1821 MONTCLAIR RD, E. OF N. KEENE	6,399	\$862	3	22
PARKS	MORNINGSIDE COMPLEX	2400 HARN BLVD.	366,548	\$36,301	198	1,251
PARKS	NURSERY	901 SATURN AVENUE N.	50,575	\$5,195	27	173
PARKS	PHILLIES COMPLEX	801 PHILLIES DR/651 N. OLD COACHMAN ROAD	2,656,621	\$276,153	1,433	9,067
PARKS	PHILLIP JONES FIELD	1190 RUSSELL STREET	105,599	\$10,315	57	360
PARKS	THE PLEX	3060 MCMULLEN BOOTH ROAD	106,968	\$12,372	58	365
PARKS	BEACH POOL	51 BAY ESPLANADE	195,512	\$17,594	105	667
PARKS	PROSPECT LAKE	160 EWING AVENUE	214,523	\$20,350	116	732
PARKS	JRS PARKING LOT - MAINT. BUILDING	801 GREENWOOD AVE N.	235	\$165	0	1
PARKS	CLEARWATER BEACH REC CTR	30 BAY ESPLANADE	246,139	\$24,002	133	840
PARKS	ROSS NORTON COMPLEX	1428 GREENWOOD AVENUE S.	814,867	\$91,910	439	2,781
PARKS	SAFETY VILLAGE	1450 LAKEVIEW ROAD	6,478	\$1,085	3	22
PARKS	SAND KEY PARK SOUTH	1551 GULF BLVD.	3,684	\$555	2	13
PARKS	NEW SHUFFLEBOARD	1020 CALUMET	30,319	\$3,616	16	103
PARKS	SID LICKTON COMPLEX	714 SATURN AVENUE N.	144,326	\$17,685	78	493
PARKS	US 19 SOCCER FIELDS	21135 N. US 19	8,843	\$1,138	5	30
PARKS	JOE DIMAGGIO BALLFIELD	420 S. OLD COACHMAN RD	110,446	\$12,903	60	377
PARKS	RECREATION STORAGE	422 S. MADISON AVE.	28,706	\$3,089	15	98
PARKS	BAYFRONT TENNIS COMPLEX	SE COR CLEVELAND ST & PIERCE BLVD	34,632	\$4,054	19	118

Table A-2
2007 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	KWH	COST	CO2e (tonnes)	ENERGY (MMBtu)
PARKS	VALENCIA PARK	HERCULES AVE, W. SIDE, N. OF MONTCL	20,371	\$2,442	11	70
PARKS	WOOD VALLEY - BALLFIELDS/COURTS	2816 PARK TRAIL LN	6,755	\$902	4	23
PARKS	WOODGATE PARK	2495 COUNTRYSIDE BLVD	19,618	\$2,357	11	67
		SUBTOTALS	11,414,177	\$1,205,777	6,155	38,854
POLICE	COUNTRYSIDE STATION	2851 N. MCMULLEN BOOTH RD	289,466	\$27,567	156	988
POLICE	CLEARWATER BEACH STATION	700 BAYWAY BLVD. (CLW BCH)	123,221	\$13,368	66	421
POLICE	POLICE BUSES	644 PIERCE ST./332 S. GULFVIEW BLVD	18,306	\$2,347	10	62
POLICE	GREENWOOD (N & S)	1498 S. GREENWOOD AVE.	70,019	\$7,563	38	239
POLICE	MAIN POLICE STATION	645 PIERCE ST.	2,117,610	\$195,461	1,142	7,227
POLICE	OLD CLW BAY SUB-STATION	1409 N. FT HARRISON AVE UNIT A	31,441	\$3,765	17	107
POLICE	WOOD VALLEY PD SUBSTATION	2816 PARK TRAIL LANE	14,861	\$1,819	8	51
		SUBTOTALS	2,664,924	\$251,889	1,437	9,095
PUBLIC WORKS	PUBLIC WORKS COMPOUND, #A	1650 ARCTURAS AVE N.	97,460	\$10,265	53	333
PUBLIC WORKS	PUBLIC WORKS COMPLEX #B	1650 N. ARCTURAS	85,558	\$8,719	46	292
PUBLIC WORKS	PUBLIC WORKS BLDG. #C	1650 N. ARCTURAS - #C	166,971	\$16,943	90	570
PUBLIC WORKS	PUBLIC WRKS BLD D & LS 73	1650 ARCTURAS AVENUE N.	201,546	\$19,619	109	688
PUBLIC WORKS	ENG. FIELD OPERATIONS	1650 N ARCTURAS AVE, STE E	58,917	\$6,231	32	201
		SUBTOTALS	610,452	\$61,776	330	2,084
SOLID WASTE	HERCULES CENTER	1701 N. HERCULES	346,050	\$36,902	187	1,181
SOLID WASTE	TRANSFER STATION	1005 OLD COACHMAN ROAD	163,134	\$18,861	88	557
		SUBTOTALS	509,184	\$55,763	275	1,738
STREETLIGHTS	BRIDGE LIGHTS	600 GULF BLVD./950 GULF BLVD	92,201	\$8,651	50	315
STREETLIGHTS	TRAFFIC CAMERA AND TIME CLOCK	VARIOUS ADDRESSES	3,513	\$1,310	2	12
STREETLIGHTS	MEDIAN LIGHTS	VARIOUS ADDRESSES	30,432	\$4,363	16	104
STREETLIGHTS	OTHER	VARIOUS ADDRESSES	163,431	\$28,839	88	558
STREETLIGHTS	TRAFFIC LIGHTS AND SIGNALS	VARIOUS ADDRESSES	1,581,847	\$149,785	853	5,399
STREETLIGHTS	STREET LIGHTS	VARIOUS ADDRESSES	14,094,935	\$1,642,000	7,602	48,106
		SUBTOTALS	15,966,359	\$1,834,950	8,611	54,494

Table A-2
2007 Electricity Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	KWH	COST	CO2e (tonnes)	ENERGY (MMBtu)
WATER	WATER CONNECTION	VARIOUS ADDRESSES	57,601	\$6,272	31	197
WATER	COOPER'S BAYOU - FOUNTAIN PUMP	801 N. BAYSHORE BLVD.	12,763	\$1,582	7	44
WATER	HYDROGEN PEROXIDE STATION	900 FAIRWOOD AVENUE	382	\$182	0	1
WATER	IRRIGATION	VARIOUS ADDRESSES	235,045	\$32,030	127	802
WATER	LIFT STATIONS	VARIOUS ADDRESSES	1,630,651	\$172,815	879	5,565
WATER	PUMP STATIONS	VARIOUS ADDRESSES	185,950	\$24,488	100	635
WATER	WATER TREATMENT PLANTS & RO	VARIOUS ADDRESSES	3,599,493	\$326,323	1,941	12,285
WATER	WATER TANKS	VARIOUS ADDRESSES	38,371	\$4,754	21	131
WATER	WATER WELLS	VARIOUS ADDRESSES	1,327,126	\$123,202	716	4,529
WATER	RECLAIMED WATER - OTHER	VARIOUS ADDRESSES	8,585	\$1,252	5	29
WATER	WPC - MARSHALL ST	1605 HARBOR DRIVE	10,081,920	\$795,352	5,437	34,409
WATER	WPC EAST PLANT PRIMARY	3141 GULF TO BAY BLVD.	4,624,800	\$312,020	2,494	15,784
WATER	WPC, N.E. PLANT, # 1	3290 S.R. 580	10,838,400	\$844,433	5,845	36,991
		SUBTOTALS	32,641,087	\$2,644,706	17,603	111,402

TOTAL ALL 75,466,872 \$7,184,924 40,701 257,465

Table A-3
2000 Natural Gas Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	THERMS	eCO2 (tonnes)	ENERGY
CITY HALL	City Hall	112 S OSCEOLA AVE	39,433	221	3,943
		SUBTOTAL	39,433	221	3,943
FIRE	Fire	2753 GULF TO BAY BLVD	1,568	9	157
FIRE	Fire Station #1	610 FRANKLIN ST	2,582	14	258
FIRE	Fire Station #2	534 MANDALAY AVE	1,613	9	161
FIRE	Fire Station #3	1460 LAKEVIEW RD	642	4	64
FIRE	Fire Station #5	520 SKY HARBOR DR	0	0	0
FIRE	Fire Station #6	2681 COUNTRYSIDE BLVD	807	5	81
FIRE	Fire Training	1700 N BELCHER RD	764	4	76
		SUBTOTAL	7,977	45	797
GAS	Gas - Main	100 S MYRTLE AVE	1,191	7	119
GAS	Gas - Sales Office	2551 DREW ST #304	937	5	94
GAS	Gas - Division	400 N MYRTLE AVE	722	4	72
GAS	Gas - Office Pasco	7302 US HIGHWAY 19	271	2	27
		SUBTOTAL	3,120	18	312
GENSERV	Genser - Fleet - Bldg & Maint	1900 GRAND AVE	8,366	47	837
GENSERV	Genser - Storage	711 MAPLE ST	93	1	9
		SUBTOTAL	8,459	48	846
LIBRARY	Library - NE Branch	1250 PALMETTO ST	129	1	13
		SUBTOTAL	129	1	13
MAR-AV	Marina Sailing	1001 GULF BLVD	189	1	19
MAR-AV	Marina - all	25 CAUSEWAY BLVD	3,428	19	343
		SUBTOTAL	3,617	20	362
PARKS	Parks - Mandalay	MANDALAY AVE	6,437	36	644
PARKS	Parks - Tennis Courts	1020 CALUMET ST	71	0	7
PARKS	Parks - Lawn Bowling	1040 CALUMET ST	50	0	5
PARKS	Parks - Holt Avenue	1259 HOLT ST	46	0	5
PARKS	Ross Norton Complex	1426 S MARTIN LUTHER KING J	175	1	18
PARKS	Ross Norton Complex	1442 S MARTIN LUTHER KING J	7,751	43	775
PARKS	Parks	1776 DREW ST	144	1	14
PARKS	Parks - Morningside	2400 HARN BLVD	396	2	40
PARKS	Joe DiMaggio Complex	2450 DREW ST #A	491	3	49
PARKS	Parks - Mocassin Lake	2750 PARK TRAIL LN	3	0	0
PARKS	Harborview Center	300 CLEVELAND ST	12,105	68	1,211
PARKS	Parks - Rec	507 VINE AVE	33	0	3
PARKS	Parks - Bomber Stadium/Carpent	651 N OLD COACHMAN RD	4,261	24	426
PARKS	Parks - Sid Lickton	714 N SATURN AVE	38	0	4
		SUBTOTAL	32,001	178	3,201
POLICE	Police - Main	645 PIERCE ST	8,684	49	868
		SUBTOTAL	8,684	49	868
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #A	359	2	36
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #B	270	2	27
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #C	482	3	48
		SUBTOTAL	1,111	7	111
WATER	WasteWater Treatment Plant	1185 MARSHALL ST	0	0	0
WATER	WPC, NE Plant	3290 STATE ROAD 580	0	0	0
		SUBTOTAL	0	0	0
		TOTALS	104,530	587	10,453

Table A-4
2007 Natural Gas Summary

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	THERMS	eCO2	ENERGY
CITY HALL	City Hall	112 S OSCEOLA AVE	30,737	172	3074
		SUBTOTALS	30,737	172	3074
FIRE	Fire Station #1	610 FRANKLIN ST	2,197	12	220
FIRE	Fire Station #2	534 MANDALAY AVE	643	4	64
FIRE	Fire Station #3	1460 LAKEVIEW RD	837	5	84
FIRE	Fire Station #49	565 SKY HARBOR DR	1,382	8	138
FIRE	Fire Station #51	1720 OVERBROOK AVE	1,238	7	124
FIRE	Fire Station #6	2681 COUNTRYSIDE BLVD	797	4	180
FIRE	Fire Station #44	950 GULF BLVD	802	4	80
FIRE	Fire Training	1700 N BELCHER RD	921	5	92
FIRE	Fire/Fleet Service Garage	2150 RANGE RD	410	2	41
		SUBTOTALS	9,225	51	1023
GAS	Gas - Main	100 S MYRTLE AVE	13,987	78	1399
GAS	Gas - Sales Office	2551 DREW ST #304	631	4	63
GAS	Gas - Division	400 N MYRTLE AVE	837	5	84
GAS	Gas - Office Pasco	7302 US HIGHWAY 19	260	1	26
		SUBTOTALS	15,715	88	1572
GENSERV	Genser - Flet	1900 GRAND AVE	5,726	32	573
GENSERV	Genser - Fleet - Bldg & Maint	1900 GRAND AVE #A	6	0	1
GENSERV	Genser - Storage	711 MAPLE ST	0	0	0
		SUBTOTALS	5,733	32	574
LIBRARY	East Library	2251 DREW ST	4,866	27	487
		SUBTOTALS	4,866	27	487
MAR-AV	Marina - all	25 CAUSEWAY BLVD	2,036	11	24
		SUBTOTALS	2,036	11	24
PARKS	Parks - Tennis Courts	1020 CALUMET ST	55	0	6
PARKS	Parks - Lawn Bowling	1040 CALUMET ST	149	1	15
PARKS	Ross Norton Complex	1442 S MARTIN LUTHER KING JR AVE	1,360	8	136
PARKS	The Long Center	1501 N BELCHER RD	39,742	223	3974
PARKS	Parks - Morningside	2400 HARN BLVD	28	0	3
PARKS	Joe Dimaggio Complex - demolished	2450 DREW ST #A	0	0	0
PARKS	Parks - Moccasin Lake	2750 PARK TRAIL LN	4	0	0
PARKS	Harborview Center	300 CLEVELAND ST	4,320	24	432
PARKS	Phillies Complex (Brighthouse/Jack Russe	601 OLD COACHMAN RD/801 STADIUM	9,853	56	985
PARKS	Parks - Bomber Stadium/Carpent	651 N OLD COACHMAN RD	6,753	38	675
PARKS	Clearwater Beach Recreational ctr	69 BAY ESPLANADE	8,845	50	885
PARKS	Parks - Sid Lickton	714 N SATURN AVE	49	0	5
PARKS	N Greenwood Recreational ctr	900 N MARTIN LUTHER KING JR AVE	202	1	20
		SUBTOTALS	71,359	401	7136
POLICE	Police - Main	645 PIERCE ST	3,497	20	350
		SUBTOTALS	3,497	20	350
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #A	376	2	38
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #B	118	1	12
SOLID WASTE	Solid Waste - Hercules Comp	1701 N HERCULES AVE #C	631	4	63
		SUBTOTALS	1,125	7	113
STREETLIGHTS	Gas Light Alley	515 CLEVELAND ST	1,874	11	187
		SUBTOTALS	1,874	11	187
WATER	Waste Water Treatment facility	1185 MARSHALL ST	5,418	30	542
WATER	Water - WPC Marshall	1605 HARBOR DR	1,850	10	185
WATER	WPC, NE Plant	3290 STATE ROAD 580	4,914	28	491
		SUBTOTALS	12,182	68	1218
		TOTALS	158,348	888	15758

Table A-5
 Building, Streetlight, and Water Sector Carbon Dioxide Emissions Comparison Table (2000 and 2007)

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	2000 Totals	2007 Totals
ADMIN	CITY HALL	112 OSCEOLA AVENUE S.	845	701
ADMIN	MUNICIPAL SERVICES BLDG.	100 S MYRTLE AVE	1,298	1,119
		SUBTOTALS	2,143	1,820
ENGINEERING	GARDEN AVENUE GARAGE	28 GARDEN AVENUE N.	121	113
ENGINEERING	MSC PARKING GARAGE	640 PIERCE STREET	173	162
ENGINEERING	SIGN SHOP, TRANSPORTATION	410 MYRTLE AVENUE N.	30	34
		SUBTOTALS	324	309
FIRE	FIRE DEPT. ANNEX	600 FRANKLIN STREET	24	20
FIRE	FIRE MAINTENANCE	2150 RANGE ROAD	0	54
FIRE	FIRE STATION # 47/#3	1460 LAKEVIEW ROAD	65	66
FIRE	FIRE STATION # 48/#4	1700 BELCHER ROAD N.	74	70
FIRE	FIRE STATION # 51	1720 OVERBROOK AVE	0	79
FIRE	FIRE STATION # 50/#6	2681 COUNTRYSIDE BLVD	72	63
FIRE	FIRE STATION # 46/#2	534 MANDALAY AVENUE	78	53
FIRE	FIRE STATION # 49/#5	565 SKY HARBOR DRIVE	83	93
FIRE	FIRE STATION # 45/#1	610 FRANKIN STREET	192	180
FIRE	FIRE STATION # 44	950 GULF BLVD	0	54
FIRE	FIRE DEPT. TRAINING BLDG.	1700 BELCHER ROAD N.	24	22
		SUBTOTALS	612	754
GAS	CATHODE PROTECTION	VARIOUS ADDRESSES	1	2
GAS	GATE STATIONS	VARIOUS ADDRESSES	4	3
GAS	GAS DIST.(LARGO)	12360 134th AVE. N. , LARGO	0	0
GAS	GAS SALES OFFICE	2551 DREW ST. #304	37	24
GAS	GAS SERVICE WAREHOUSE	400 MYRTLE AVENUE S.	119	126
GAS	GAS ADMIN. BUILDING	400 N. MYRTLE AVE.	113	156
GAS	GAS OFFICE PASCO	7302 US 19 NEW PORT RICHY	30	25
GAS	GAS UTILITIES	HERCULES AVENUE & PALMETTO STREET	0	1
		SUBTOTALS	304	337
GEN_SERV	FLEET ADMINISTRATION	1900 GRAND AVENUE	473	411
GEN_SERV	BLDG. & MAINT. SHOP	1900A GRAND AVE.	32	37
GEN_SERV	RADIO TOWER, S.	MISSOURI AVENUE S.	71	69
GEN_SERV	EAST AVENUE STORAGE	105 EAST AVENUE # 80	26	10
GEN_SERV	MADISON AVE. PROPERTY	406 S. MADISON AVE.	19	13
GEN_SERV	STORAGE	601 N. MYRTLE	0	11
GEN_SERV	CULTURAL ARTS STORAGE, GRAPHICS, RECORDS RETENTION	711 MAPLE STREET	55	36
		SUBTOTALS	676	587
LIBRARY	COUNTRYSIDE BRANCH	2741 S.R. 580	204	169
LIBRARY	EAST BRANCH	2203 DREW STREET E.	172	182
LIBRARY	NORTHEAST BRANCH	1250 PALMETTO STREET	30	0
LIBRARY	NORTH GREENWOOD BRANCH	905 N. GREENWOOD AVE	0	218
LIBRARY	MAIN BRANCH	100 N. OSCEOLA AVENUE	666	1,562
LIBRARY	CLW BEACH LIBRARY 108	483 MANDALAY AVE STE 108	23	13
LIBRARY	BEACH LIBRARY (TEMP TRL)	69 BAY ESPLANADE	0	1
		SUBTOTALS	1,095	2,145

Table A-5
 Building, Streetlight, and Water Sector Carbon Dioxide Emissions Comparison Table (2000 and 2007)

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	2000 Totals	2007 Totals
MAR-AV	AIRPARK SECURITY GATE	1000 N. HERCULES AVE	15	0
MAR-AV	BEACH GUARD BLDG.	180 S GULFVIEW BLVD.	9	10
MAR-AV	MARINA POSTS (ISLAND ESTATES)	10 MARINA WAY	44	26
MAR-AV	MAGNOLIA ST. DOCK	201 MAGNOLIA DR.	1	1
MAR-AV	SAILING CENTER	1001 GULF BLVD.	35	0
MAR-AV	MARINA, ALL OPERATIONS	25CAUSEWAY BLVD	752	544
MAR-AV	PIER 60, OPERATIONS	VARIOUS ADDRESSES	82	138
		SUBTOTALS	938	719
PARKS	ALLEN'S CREEK PARK	1281 S HERCULES AVE	0	0
PARKS	ARMORY	706 N. MISSOURI AVE	0	0
PARKS	ATRIUM PARK	1707 N FORT HARRISON AVE	6	5
PARKS	CLEVELAND ST. MINI PARK	612 CLEVELAND ST.	32	0
PARKS	CHESAPEAKE BALLFIELDS	3070 CHESAPEAKE ST.	6	0
PARKS	BEACHWALK	561 BAY ESPLANADE	0	4
PARKS	BELMONT FIELD	GREENWOOD AVENUE S. & VERNON STREET	4	8
PARKS	CARPENTER FIELD	651 OLD COACHMAN RD.	254	264
PARKS	CEMETERY WORKSHOP	1300 MYRTLE AVENUE S.	1	0
PARKS	CONDON GARDENS REC CENTER	2930 SANDLEWOOD DRIVE	22	0
PARKS	CHERRY HARRIS PARK	1141 BECKETT ST.	3	1
PARKS	COACHMAN PARK	VARIOUS ADDRESSES	60	102
PARKS	COACHMAN RIDGE PARK	1400 OLD COACHMAN RD.	28	15
PARKS	COUNTRYSIDE	2640 SABAL SPRINGS DRIVE	270	351
PARKS	GLEN OAKS PARK/COURT STREET SOCCOR	1345 COURT ST.	9	48
PARKS	COURT ST/ SPECIAL EVENT STORAGE	703 COURT ST.	0	2
PARKS	CREST LAKE DOGGIE DAYS PARKING	1520 GULF TO BAY BLVD	0	0
PARKS	COUNTRYSIDE HS	2870 MCMULLEN BOOTH RD.	43	20
PARKS	CLEARWATER HS TENNIS	540 HERCULES AVE S. (1900 E. DRUID)	4	1
PARKS	ED WRIGHT PARK	1130 GREENWOOD AVENUE S.	12	8
PARKS	EDDIE C MOORE COMPLEX	3050 DREW ST.	180	204
PARKS	FOREST RUN PARK	3450 LANDMARK DR.	16	17
PARKS	FRANK TACK PARK	2049 MONTCLAIR RD.	59	56
PARKS	GARDEN AVE PARK	1008 N. GARDEN AVE	0	0
PARKS	HARBORVIEW CENTER	300 CLEVELAND STREET	68	24
PARKS	N. GREENWOOD COMPLEX	900 N. M.L.K. JR AVE/ 900 N. GREENWOOD	0	581
PARKS	TEMP 1 JAZZ FEST	210 DREW STREET	1	2
PARKS	JOE DIMAGGIO, GYM	2465 DREW STREET	21	35
PARKS	LAWN BOWLING	1040 CALUMET STREET	3	20
PARKS	LONG CENTER	1501 N BELCHER ROAD	0	1,661
PARKS	REC FAC MAINT DIV	507 VINE ST	91	60
PARKS	MANDALAY PARK	MANDALAY AVE & BAY ESPLANADE	42	4
PARKS	MARYMONT PARK	1900 GILBERT STREET	10	7
PARKS	MCKAY BALLFIELD	MANDALAY & JUANITA STREETS	1	2
PARKS	MCMULLEN TENNIS COMPLEX	1000 EDENVILLE AVENUE	60	107
PARKS	HOLT AVENUE	1259 HOLT AVENUE	44	0

Table A-5
 Building, Streetlight, and Water Sector Carbon Dioxide Emissions Comparison Table (2000 and 2007)

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	2000 Totals	2007 Totals
PARKS	KINGS HWY REC. CNTR.	1735 KINGS HWY.	94	0
PARKS	OVERBROOK SHUFFLEBOARD CT	1135 STEVENSON AVENUE	0	0
PARKS	PARKS AND REC	900 PIERCE ST	12	0
PARKS	MLK	1201 MLK BLVD.	371	0
PARKS	MLK SOFTBALL FIELD	1201 DOUGLAS AVE	0	13
PARKS	MOCCASIN LAKE	2750 PARK TRAIL LANE	29	27
PARKS	MONTCLAIR PARK	1821 MONTCLAIR RD, E. OF N. KEENE	2	3
PARKS	MORNINGSIDE COMPLEX	2400 HARN BLVD.	218	198
PARKS	RAY GREEN	801 GREENWOOD AVE N.	4	0
PARKS	NURSERY	901 SATURN AVENUE N.	27	27
PARKS	PHILLIES COMPLEX	801 PHILLIES DR/651 N. OLD COACHMAN ROAD	0	1,489
PARKS	PHILLIP JONES FIELD	1190 RUSSELL STREET	28	57
PARKS	THE PLEX	3060 MCMULLEN BOOTH ROAD	60	58
PARKS	BEACH POOL/REC CENTER	51 BAY ESPLANADE	0	155
PARKS	PROSPECT LAKE	160 EWING AVENUE	0	116
PARKS	JRS PARKING LOT - MAINT. BUILDING	801 GREENWOOD AVE N.	0	0
PARKS	CLEARWATER BEACH REC CTR	30 BAY ESPLANADE	325	133
PARKS	ROSS NORTON COMPLEX	1428 GREENWOOD AVENUE S.	256	447
PARKS	SAFETY VILLAGE	1450 LAKEVIEW ROAD	3	3
PARKS	SAND KEY PARK SOUTH	1551 GULF BLVD.	2	2
PARKS	NEW SHUFFLEBOARD	1020 CALUMET	35	16
PARKS	SID LICKTON COMPLEX	714 SATURN AVENUE N.	84	78
PARKS	US 19 SOCCER FIELDS	21135 N. US 19	6	5
PARKS	JOE DIMAGGIO BALLFIELD	420 S. OLD COACHMAN RD	0	60
PARKS	RECREATION STORAGE	422 S. MADISON AVE.	17	15
PARKS	BAYFRONT TENNIS COMPLEX	SE COR CLEVELAND ST & PIERCE BLVD	14	19
PARKS	VALENCIA PARK	HERCULES AVE, W. SIDE, N. OF MONTCL	11	11
PARKS	WOOD VALLEY - BALLFIELDS/COURTS	2816 PARK TRAIL LN	33	4
PARKS	WOODGATE PARK	2495 COUNTRYSIDE BLVD	7	11
		SUBTOTALS	2,988	6,556

Table A-5
 Building, Streetlight, and Water Sector Carbon Dioxide Emissions Comparison Table (2000 and 2007)

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	2000 Totals	2007 Totals
POLICE	COUNTRYSIDE STA. (DISTRICT III)	2851 N. MCMULLEN BOOTH RD	230	156
POLICE	CLW BEACH STA. (DISTRICT I)	700 BAYWAY BLVD. (CLW BCH)	38	66
POLICE	POLICE BUSES	644 PIERCE ST./332 S. GULFVIEW BLVD	0	10
POLICE	NEIGHBORHOOD PATROL GREENWOOD (N & S)	1310 N./1498 S. GREENWOOD AVE.	42	38
POLICE	CLW STATION 208	483 MANDALAY AVE STE 208	20	0
POLICE	HEADQUARTERS (DISTRICT II)	645 PIERCE ST.	1,477	1,162
POLICE	OLD CLW BAY SUB-STATION/N.FORTHARRISON	1409 N. FT HARRISON AVE UNIT A	12	17
POLICE	WOOD VALLEY SUBSTATION	2816 PARK TRAIL LANE	0	8
		SUBTOTALS	1,819	1,457
PUBLIC UTILITIES	PUBLIC WORKS COMPOUND, #A	1650 ARCTURAS AVE N.	74	55
PUBLIC UTILITIES	PUBLIC WORKS COMPLEX #B	1650 N. ARCTURAS	51	47
PUBLIC UTILITIES	PUBLIC WORKS BLDG. #C	1650 N. ARCTURAS - #C	87	94
PUBLIC UTILITIES	PUBLIC WRKS BLD D & LS 73	1650 ARCTURAS AVENUE N.	114	109
PUBLIC UTILITIES	ENGINEERING FIELD OPERATI	1650 N ARCTURAS AVE, STE E	33	32
		SUBTOTALS	359	337
SOLID WASTE	HERCULES CENTER	1701 N. HERCULES	175	187
SOLID WASTE	TRANSFER STATION	1005 OLD COACHMAN ROAD	102	88
		SUBTOTALS	277	275
		BUILDING SECTOR TOTALS	11,535	15,296
STREETLIGHTS	BRIDGE LIGHTS	600 GULF BLVD./950 GULF BLVD	67	50
STREETLIGHTS	TRAFFIC CAMERA AND TIME CLOCK	VARIOUS ADDRESSES	0	2
STREETLIGHTS	MEDIAN LIGHTS	VARIOUS ADDRESSES	5	16
STREETLIGHTS	OTHER	VARIOUS ADDRESSES	96	88
STREETLIGHTS	TRAFFIC LIGHTS AND SIGNALS	VARIOUS ADDRESSES	1,112	853
STREETLIGHTS	GAS LIGHT ALLEY	515 CLEVELAND ST	0	11
STREETLIGHTS	STREET LIGHTS	VARIOUS ADDRESSES	5,177	7,602
		STREETLIGHT SECTOR TOTALS	6,457	8,622
WATER	WATER CONNECTION	VARIOUS ADDRESSES	1	31
WATER	COOPER'S BAYOU - FOUNTAIN PUMP	801 N. BAYSHORE BLVD.	5	7
WATER	PIERCE ST RETENTION POND	905 PIERCE ST.	2	0
WATER	ROUNDAABOUT/FOUNTAIN	8 CAUSEWAY	495	0
WATER	HYDROGEN PEROXIDE STATION	900 FAIRWOOD AVENUE	0	0
WATER	IRRIGATION	VARIOUS ADDRESSES	123	127
WATER	LIFT STATIONS	VARIOUS ADDRESSES	1,410	879
WATER	PUMP STATIONS	VARIOUS ADDRESSES	0	100
WATER	WATER TREATMENT PLANTS & RO	VARIOUS ADDRESSES	1,723	1,941
WATER	WATER TANKS	VARIOUS ADDRESSES	2	21
WATER	WATER WELLS	VARIOUS ADDRESSES	567	716
WATER	RECLAIMED WATER - OTHER	VARIOUS ADDRESSES	0	5
WATER	WPC - MARSHALL ST	1605 HARBOR DRIVE	5,807	5,477

Table A-5
 Building, Streetlight, and Water Sector Carbon Dioxide Emissions Comparison Table (2000 and 2007)

DEPARTMENT	FACILITY NAME	FACILITY ADDRESS	2000 Totals	2007 Totals
WATER	WPC EAST PLANT PRIMARY	3141 GULF TO BAY BLVD.	3,196	2,494
WATER	WPC, N.E. PLANT, # 1	3290 S.R. 580	8,750	5,873
		PUBLIC UTILITIES TOTAL	22,081	17,671
TOTAL ALL			40,073	41,589

Table A-6
Vehicle Fleet Consumption and Emissions Summary (2000)

DEPARTMENT	VEHICLE SIZE	FUEL TYPE	FUEL USAGE	CO2e (tonnes)	ENERGY (MMBtu)
DEV SERVICES	MID	GAS	211		
DEV SERVICES	FULL	GAS	3,928		
DEV SERVICES	LIGHT TRUCK	GAS	5,409		
		SUBTOTALS	9,549	93	1,199
ECONOMIC DEVELOPMENT/HOUSING	LIGHT TRUCK	GAS	243		
		SUBTOTALS	243	2	31
ENGINEERING	HEAVY	DIESEL	1,349		
ENGINEERING	FULL	GAS	1,302		
ENGINEERING	VAN	GAS	4,054		
ENGINEERING	LIGHT TRUCK	GAS	11,993		
		SUBTOTALS	18,698	182	2,344
FIRE	HEAVY	DIESEL	11,574		
FIRE	EQUIPMENT	GAS	44		
FIRE	VAN	GAS	217		
FIRE	FULL	GAS	1,450		
FIRE	LIGHT TRUCK	GAS	6,918		
FIRE	MID	GAS	9,411		
FIRE	MARINE	GAS	110		
		SUBTOTALS	29,723	289	3,692
GAS	EQUIPMENT	GAS	181		
GAS	FULL	GAS	2,449		
GAS	HEAVY	DIESEL	3,949		
GAS	LIGHT TRUCK	GAS	37,249		
GAS	VAN	GAS	5,836		
		SUBTOTALS	49,664	484	6,224
GENSERV	COMPACT	GAS	204		
GENSERV	EQUIPMENT	GAS	316		
GENSERV	FULL	GAS	1,711		
GENSERV	HEAVY	DIESEL	9,158		
GENSERV	LIGHT TRUCK	GAS	18,283		
GENSERV	MID	GAS	42		
GENSERV	MOTORCYCLE	GAS	593		
GENSERV	VAN	GAS	2,075		
		SUBTOTALS	32,381	315	4,034
INFORMATION MANAGEMENT	VAN	GAS	102		
INFORMATION TECHNOLOGY	LIGHT TRUCK	GAS	6,367		
		SUBTOTALS	6,469	63	813
LIBRARY	FULL	GAS	178		
LIBRARY	VAN	GAS	1,220		
		SUBTOTALS	1,398	14	176
MARINA	HEAVY	DIESEL	402		
MARINA	EQUIPMENT	GAS	365		
MARINA	LIGHT TRUCK	GAS	2,274		
MARINA	MARINE	DIESEL	300		
MARINA	MARINE	GAS	50		
		SUBTOTALS	3,391	33	423
PARKS	EQUIPMENT	GAS	2,312		
PARKS	FULL	GAS	329		
PARKS	HEAVY	DIESEL	10,102		
PARKS	LIGHT TRUCK	GAS	37,199		
PARKS	MID	GAS	409		
PARKS	VAN	GAS	2,811		
		SUBTOTALS	53,162	517	6,641

Table A-6
Vehicle Fleet Consumption and Emissions Summary (2000)

DEPARTMENT	VEHICLE SIZE	FUEL TYPE	FUEL USAGE	CO2e (tonnes)	ENERGY (MMBtu)
PLANNING	LIGHT TRUCK	GAS	655		
		SUBTOTALS	655	6	82
POLICE	HEAVY	DIESEL	75		
POLICE	EQUIPMENT	GAS	133		
POLICE	MOTORCYCLE	GAS	537		
POLICE	VAN	GAS	646		
POLICE	COMPACT	GAS	1,484		
POLICE	LIGHT TRUCK	GAS	15,886		
POLICE	MID	GAS	18,409		
POLICE	FULL	GAS	163,919		
		SUBTOTALS	201,089	1,963	25,257
PUBLIC COMMUNICATIONS	VAN	GAS	748		
		SUBTOTALS	748	7	94
PUBLIC WORKS	EQUIP	GAS	1,012		
PUBLIC WORKS	FULL	GAS	1,429		
PUBLIC WORKS	HEAVY	DIESEL	39,127		
PUBLIC WORKS	LIGHT TRUCK	GAS	8,436		
PUBLIC WORKS	MID	GAS	1,802		
PUBLIC WORKS	VAN	GAS	150		
		SUBTOTALS	51,956	501	6,385
SOLID WASTE	EQUIPMENT	GAS	34		
SOLID WASTE	FULL	GAS	337		
SOLID WASTE	HEAVY	DIESEL	259,367		
SOLID WASTE	LIGHT TRUCK	GAS	10,101		
SOLID WASTE	MID	GAS	1,560		
SOLID WASTE	VAN	GAS	961		
		SUBTOTALS	272,360	2,617	33,278
WATER	EQUIPMENT	GAS	285		
WATER	FULL	GAS	257		
WATER	HEAVY	DIESEL	10,621		
WATER	LIGHT TRUCK	GAS	50,960		
WATER	VAN	GAS	4,836		
		SUBTOTALS	66,959	652	8,372
TOTAL			798,446	7,738	99,045

Table A-7
Vehicle Fleet Fuel Consumption and Emissions Summary (2007)

DEPARTMENT	VEHICLE SIZE	FUEL TYPE	FUEL USAGE (gallons)	CO2e (tonnes)	ENERGY (MMBTU)
DEV	FULLSIZE	GASOLINE	3,216		
DEV	HYBRID	GASOLINE	194		
DEV	LIGHT TRUCK	GASOLINE	7,730		
DEV	VAN	GASOLINE	169		
		SUBTOTAL	11,309	110	1,420
EDH	LIGHT TRUCK	GASOLINE	27		
EDH	VAN	GASOLINE	1,389		
		SUBTOTAL	1,416	14	178
ENGINEERING	HEAVY	DIESEL	651		
ENGINEERING	COMPACT	GASOLINE	462		
ENGINEERING	EQUIPMENT	GASOLINE	1,234		
ENGINEERING	FULLSIZE	GASOLINE	474		
ENGINEERING	LIGHT TRUCK	GASOLINE	7,432		
ENGINEERING	MOTORCYCLE	GASOLINE	1,520		
ENGINEERING	VAN	GASOLINE	2,799		
		SUBTOTAL	14,571	141	1,828
FIRE	EQUIPMENT	GASOLINE	13,109		
FIRE	HEAVY	DIESEL	31,961		
FIRE	FULLSIZE	GASOLINE	4,303		
FIRE	LIGHT TRUCK	GASOLINE	15,026		
FIRE	VAN	GASOLINE	2,200		
FIRE	MARINE	GASOLINE	115		
		SUBTOTAL	66,714	643	8,265
GAS	HEAVY	DIESEL	11,094		
GAS	EQUIPMENT	GASOLINE	2,884		
GAS	FULLSIZE	GASOLINE	1,113		
GAS	HYBRID	GASOLINE	160		
GAS	LIGHT TRUCK	GASOLINE	48,605		
GAS	VAN	GASOLINE	5,290		
		SUBTOTAL	69,146	670	8,645
GEN SERV	HEAVY	DIESEL	11,528		
GENSERV	EQUIPMENT	GASOLINE	3,966		
GENSERV	FULLSIZE	GASOLINE	416		
GENSERV	LIGHT TRUCK	GASOLINE	16,964		
GENSERV	VAN	GASOLINE	2,715		
		SUBTOTAL	35,589	344	4,428
INFORMATION TECHNOLOGY	FULLSIZE	GASOLINE	241		
INFORMATION TECHNOLOGY	LIGHT TRUCK	GASOLINE	9,080		
INFORMATION TECHNOLOGY	VAN	GASOLINE	560		
		SUBTOTAL	9,882	96	1,241
MARAV	HEAVY	DIESEL	589		
MARAV	LIGHT TRUCK	GASOLINE	661		
MARAV	MARINE	DIESEL	300		
MARAV	MARINE	GASOLINE	100		
		SUBTOTAL	1,650	16	204

Table A-7
Vehicle Fleet Fuel Consumption and Emissions Summary (2007)

DEPARTMENT	VEHICLE SIZE	FUEL TYPE	FUEL USAGE	CO2e (tonnes)	ENERGY (MMBTU)
PARKS	HEAVY	DIESEL	20,740		
PARKS	EQUIPMENT	GASOLINE	13,000		
PARKS	LIGHT TRUCK	GASOLINE	38,023		
PARKS	VAN	GASOLINE	4,613		
		SUBTOTAL	76,376	738	9,519
PLANNING	LIGHT TRUCK	GASOLINE	1,142		
PLANNING	VAN	GASOLINE	207		
		SUBTOTAL	1,349	13	169
POLICE	HEAVY	DIESEL	3,773		
POLICE	COMPACT	GASOLINE	295		
POLICE	EQUIPMENT	GASOLINE	814		
POLICE	FULLSIZE	GASOLINE	206,172		
POLICE	HYBRID	GASOLINE	1,874		
POLICE	LIGHT TRUCK	GASOLINE	32,525		
POLICE	MIDSIZE	GASOLINE	5,966		
POLICE	MOTORCYCLE	GASOLINE	1,213		
POLICE	VAN	GASOLINE	2,930		
		SUBTOTAL	255,562	2,480	32,086
PUBLIC WORKS	HEAVY	DIESEL	39,662		
PUBLIC WORKS	EQUIPMENT	GASOLINE	23,160		
PUBLIC WORKS	FULLSIZE	GASOLINE	446		
PUBLIC WORKS	LIGHT TRUCK	GASOLINE	18,084		
PUBLIC WORKS	VAN	GASOLINE	3,237		
		SUBTOTAL	84,589	814	10,482
SOLID WASTE	HEAVY	DIESEL	288,849		
SOLID WASTE	EQUIPMENT	GASOLINE	12,612		
SOLID WASTE	FULLSIZE	GASOLINE	248		
SOLID WASTE	LIGHT TRUCK	GASOLINE	9,703		
SOLID WASTE	MIDSIZE	GASOLINE	968		
SOLID WASTE	VAN	GASOLINE	1,795		
		SUBTOTAL	314,174	3,018	38,425
WATER	HEAVY	DIESEL	20,530		
WATER	EQUIPMENT	GASOLINE	8,290		
WATER	FULLSIZE	GASOLINE	132		
WATER	LIGHT TRUCK	GASOLINE	55,747		
WATER	VAN	GASOLINE	10,102		
		SUBTOTAL	94,801	917	11,834
		TOTAL	1,037,128	10,014	128,724

Table A-8
Greenhouse Gas Emissions by Department Comparison Table (2000 and 2007)

DEPARTMENT	SECTOR	2000 Totals	2007 Totals
ADMIN	BUILDING	2,143	1,820
ADMIN	EMPLOYEE COMMUTE	114	111
ADMIN	SOLID WASTE	595	899
ADMIN	VEHICLE FLEET	171	233
	Subtotal	3,023	3,063
ENGINEERING	BUILDING	324	309
ENGINEERING	STREET LIGHTS	6,457	8,622
ENGINEERING	VEHICLE FLEET	182	141
	Subtotal	6,963	9,072
FIRE	BUILDING	612	754
FIRE	VEHICLE FLEET	289	643
	Subtotal	901	1,397
GAS	BUILDING	304	337
GAS	VEHICLE FLEET	484	670
	Subtotal	788	1,007
GEN_SERV	BUILDING	676	587
GEN_SERV	VEHICLE FLEET	315	344
	Subtotal	991	931
LIBRARY	BUILDING	1,095	2,145
LIBRARY	VEHICLE FLEET	14	0
	Subtotal	1,109	2,145
MAR-AV	BUILDING	938	719
MAR-AV	VEHICLE FLEET	33	16
	Subtotal	971	735
PARKS	BUILDING	2,988	6,556
PARKS	VEHICLE FLEET	517	738
	Subtotal	3,505	7,294
POLICE	BUILDING	1,819	1,457
POLICE	VEHICLE FLEET	1,963	2,480
	Subtotal	3,782	3,937
PUBLIC SERVICES	BUILDING	359	337
PUBLIC SERVICES	VEHICLE FLEET	501	814
	Subtotal	860	1,151
PUBLIC UTILITIES	WATER/SEWAGE	22,081	17,671
PUBLIC UTILITIES	VEHICLE FLEET	652	917
	Subtotal	22,733	18,588
SOLID WASTE	BUILDING	277	275
SOLID WASTE	VEHICLE FLEET	2,617	3,018
	Subtotal	2,894	3,293
	TOTAL EMISSIONS	48,520	52,613

APPENDIX B

EMPLOYEE RECOMMENDATION TABLES

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
(1) EXPLORE POSSIBILITY OF TELECOMMUTING
10 hour days; 4 day weeks
4 - 10 hour work days
4 10hr work days
4 day weeks, 10 hour per day (we usually do 5 ten hour plus days at this time. :-)
4 day work schedules
4 day work week, Incentives, For Walk/bicycle, stress the health related effects.
4 DAY WORK WEEK.
4 day work week; making it easier to find out who lives in your area intersted in car pooling; and allowing more flexible work schedules
4 day work weeks
4 day work weeks reduce the number of miles driven each year. I drive 1,144 less miles a year.
4 days a week
4 days a week
4 days a week
4 ten hour days. Use the Clearwater gas company parking lot on US19 in new port richy as a carpool site for city employees who live in pasco county. Provide transportation with a large city vehicle (Van/Bus)from this site to our work areas in Clearwater at a reduced fee to make it less expensive than to drive alone.
A bus for city employees to take them to work
A) Provide a "Shuttle" service from one main point in the outlining cities (i.e. - For Largo employees - Publix shopping center at Westbay Dr. Only would need to make two morning & evening runs. B) Allow "Flex" time so that spouses would only use one vehicle instead of two. W
Add lighting to the Pinellas Trail and open it 24 hours. Use taxis and reduce the fare.
affordable housing plan
Allow all employees to work 4 day work weeks.
allow for bus times and secure bicycle parking
Allow some employees to work from home two days a week or allow longer hours and fewer days(e.g. 4 workday a week with 10 hour shifts)
Allow telecommuting at least once a week for those employees with applicable jobs. Provide flex-time to allow applicable employees to work four-day work weeks.
Allow telecommuting; encourage carpools.
Allow those who are able to work from home. Allow employees to work 4- 10 hour days Provide housing opportunitites closer to work.
Allow work from home (without great complications)
Allow work-from-home programs where feasible. Allow more flexible work schedules that avoid rush hour traffic congestion.
awards for commuting miles logged each month using an alternative form of transportation (non-automobile).
Banana peels could be burned as a fuel.
Bay Area Commuter Services free cab ride home is a great program - I've not had to use it, but it's nice to have in case of a thunderstorm in the PM.
better bus schedule or cost lower price of housing
Better parking for carpoolers
bus
bus passes
bus, psta
bus, trolley, vanpool
Buy us all a condo on the beach, then we could take the Jolly Trolly
CAR POOL BETTER PUBLIC TRANSPORTATION
car pool program, shuttle, etc.
carpool
Carpool employees going to the same area fro the same area

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
cash
cash incentives Early retirement
Change work week to 4 days a week
city bus
City sponsored car pool system. Work with PSTA to improve routes and times to and near major city work locations, MSB, public works and fleet complex off hercules.
City wide work schedule change. Mon. - Thur., 10 hour workdays. Incentive: three days off a week, less drive time too and from work, save on gas and decrease pollution.
Clock in at worksite versus going to clock in central location
Comment: Question #7 is missing any fixed guideway choices. There is a RR that goes right by the Municipal Services Building, and one goes fairly close by the field offices off Hercules Av near the airport.
commuting miles is part of the problem. commuting time is also a factor. stagger the starting time and quitting time of city employees to reduce traffic.
Consider telecommuting (2-3 days per week)in situations where viable.
Continue to EDUCATE people that if they can ride a bike, then ride a bike...if they can walk, then they should do that. This will only appeal to those whose commute is fairly short and whose health is good. Beyond that, perhaps staff can be surveyed by where they live, and if there are large numbers of folks in the same areas, perhaps there could be a "Park and Ride" kind of thing. Beyond that, bite the bullet, ruffle some feathers, and start phasing in mandatory ride-sharing, public transit, bicycling, etc.
County needs viable mass transit. Study northern cities that excel in this regard and follow their examples.
Covered parking for Motor Cycles
Create affordable housing in city.
Do not penalize someone for being under 15 minutes late to work if they are carpooling.
Don't transfer them without their knowledge, which happened to me and added 7 miles a day to my commute.
education
encourage carpooling, so this would mean changing/staggering working hours. In some cases, some departments could go to a 4-day workweek.
Encourage employees to carpool. That means every employee in every department. Also minimize take home vehicles for ANY employee , no matter their position in the city.
Explore work from home options. Four day 10 hour schedules for some positions possible.
Extra pay for car-pooling. Day off per year for carpooling. Eliminate supervisors from having to come in on the weekends to pull samples, the plants already have staff on duty who can do that.
extra vacation hours
Firefighters seemed to be moved from station to station at a higher rate in recent years.
Flex schedule to allow 10hour days, 4 days per week. Telecommute option. Advocate for route improvement with PSTA. Monetary incentive and administrative support for car pools. Provide bus vouchers.
flex schedules; reduced work week
Flexible schedule, telecommuting, 4 day work week (4 10-hour days)
flex-time
four-day work week
free bus service, a bus stops just 1 block from my house, line 22 on the PSTA. If it were free, I would probably spend the extra commuting time to utilize it.
Giving them Gift Certificates if they do any mean to reduce commuting miles.
go to 4 day work week without cutting hours. I get here early to beat the traffic, but have to wait to report to work. example: I arrive here at 7am and report to work in my unit at 7:30am.
Go to 4 days a week work, close recreation facilities on Sundays, one less work day a week.
GO TO A 4 DAY WORK WEEK WITHOUT CUTTING WORKING HOURS.

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
Have the majority of city work M-Th 10 hour days. This will eliminate all the trips per employee on Fridays, eliminate all the work related vehicle trips for the workday plus cut down energy consumed by the city from having facilities closed on Fridays. The county does this with a lot of public works, road and traffic divisions. That would decrease emissions from vehicle and emissions from power plants providing the electricity for buildings. The incentive would be three days off a week with four workdays, less drive time too and from work, save on gas, less pollution.
Have the traffic signals on major roads synchronized so traffic can flow. Develop carpooling lanes only on major throughfares.
having a deli or restaurant in the building Possible carpooling per locations
Hire only City of Clearwater residents.
I can do 85% of my work from home - all computer based. Or, different hours, i.e. 4-10hr days per week.
I do not like carpooling, have done it and it does not work for me. Unless the City is willing to give cash incentives of some type? One must be realistic. Many of us drop off children on the way to work and pick-up at the end of the day. To save on time and gas I run many errands on the way home. Make a list of those who are interested and they would make arrangements between themselves to see if this could work for them.
I don't know that they "should".
I dont know. This study should help figure it out.
I live 5 miles from work. I would consider riding a bicycle however it is too dangerous because there are no practical trails. Painting a white line down the side of a busy roadway is not a bicycle trail it is a death warrant. Also, there is really no incentive to add an hour or two to my daily commute by riding a bicycle.
I live in a 4/2/2 brand new home that in the city of Clearwater would cost \$500,000. Mine cost \$220,000. I could not afford to live in the nice parts of Clearwater.
I walk to city hall as often as possible. Everyone should.
i will be retiring. have no answer
I WILL LIKE TO MOVE CLOSER AND MAYBE THE CITY COULD GIVE SOME KIND OF HELP.
IF DEPT WAS IN A SAFER PART OF TOWN I WOULD CONSIDER RIDING A BIKE
IF take home cars are only available to employees that live within the city, make available more affordable options to live within the city.
If you car pool you could have assigned parking space.
Incentive day off for meeting a certain goal: e.g. 1 day off for every 50 days of either car pooling or bike-riding
Incentives to purchase Hybrid vehicles at City cost.
Include a bus pass in the list of benefits for all city employees who want one; Provide a larger shower room with lockers so people can commute by bicycle and store their commuting clothes during the work day
Invite mobile caterers to stop by all facilities to sell their catering / lunch items to employees
It would be hard for me as I only work 4 hours a day. (Part-time)
It's more expensive to live in Clearwater than surrounding cities. The City could offer property tax breaks for employees who live in Clearwater to make living in Clearwater more affordable.
it's too expensive to live in clearwater or i would have bought here
Let people flex their schedules to allow for more carpooling. My manager did, and it has made a huge difference.
List of employees willing to carpool by residence area of town, work area, and work schedule
live closer
LOOK AT 10 HOUR WORKDAYS SO THAT SOME EMPLOYEES WOULD COMMUTE ONE LESS DAY A WEEK
lots to park in to carpool/vanpool. allow "work from home" days.
lower taxes so employees could afford housing; incentive bonus if resident or once moved to city; allow telecommuting for more positions
Make housing affordable in the City limits
Make housing in the city affordable for our mid to lower level pay scales, or vice versa.
Make it possible to afford to live in the city we work for...
Make it so employees can afford to buy their homes within the city of Clearwater limits.

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
Mass Transit sounds good, however the automobile dealers will give you a run for your money.
Maybe a little work time could be PAID if bicycling?
Maybe give those that commute an extra 15 minutes in the Morning and Evening for picking up and dropping off fellow employees.
money bonus
money(i.e. bus/trolley passes, bicycle shop discounts, carpool rebates, etc.)
More direct routes to and from work, bus doesn't run early enough
More equitable housing cost vs salary ratio
More flexibility in telecommuting for employees able to work from home.
More frequent/convenient public transportation
More telecommuting
OFFER 4 DAY 10 HR WORK WEEK OPTION OR POSSIBLE WORK AT HOME DAY IF POSSIBLE
-OFFER A RELIABLE, LOW-COST BUS OR VAN SERVICE FOR EMPLOYEES ONLY. -PROVIDE INCENTIVES FOR WORKERS WHO JOIN A VERIFYABLE CARPOOLING PROGRAM. -INVEST IN A WORK-AT-HOME PROGRAM WHERE CUSTOMER SERVICE REP AND OTHERS WHO DO A SIGNIFICANT PORTION OF THEIR WORK OVER THE TELEPHONE COULD PLUG IN VIA A LAPTOP COMPUTER AND BROADBAND CONNECTION AND CONTRIBUTE THE SAME AMOUNT OF WORK WITHOUT THE NEED FOR A DAILY COMMUTE. (I KNOW VERIZON OFFERS THE PRIVATE SECTOR A READY-MADE PROGRAM FOR THIS TYPE OF VENTURE. THEY MAY OFFER DISCOUNTS FOR THE PUBLIC SECTOR.)
Offer four 10 hours day to reduce the number of times driven to work
Offer incentives to purchase a home within the City itself. The only thing available now is if you are a 1st time home buyer.
Offer segway rent bicycle
Offer telecommuting to SAMP employees whose work is computer-based.
Offering gas cards/gift cards for those that use mass transit and other modes of travel. Provide financial aid for employees who wish to rent or own a home closer to work.
offering PSTA discounts or allowing a certain # of miles on a card per month that are free allowing employee to get to/from work using transit system
Only offer vehicles to those who would have to respond to emergencies police and fire. For example, SWAT call-outs were time is critical. Traffic homicide investigators, detectives who deal with crimes against person. There are numerous take home vehicles in the city fleet which is more of a perk rather than out of necessity.
Organize car pools and adjust hours to form a car pool
organzie car pool for employees. Provide maps so employees can find out who to car pool with.
Paid gas for each carpool or vanpool
Paid Time off
Park city vehicles at the closest city owned lot or building. The employees could pick up their vehicles there.
Pay for bus passes for those that can take a bus. See about more telecommute business for those in jobs that can work that.
Pay fuel charges for carpool groups over certain numbers
Pick up points on the east side of Clearwater so employees could be shuttled in.
Place workers closer to their homes with possible. Example there are 3 wastewater plants. There are workers passing some plants to go work at others.
preferred parking for carpools convenient, secure parking for bicycles and scooters reduced bus fare pass
Private jet space we have a runway at work
Promote more efficient bus services
Promoting restaurants in walkable distance in downtown Clearwater and that might spark some people to carpool/vanpool as transportation to and from work without them having to figure out how to get somewhere for lunch.

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
Provide a PSTA bus to pick up at 5:10 pm at the corner of Pierce St and East St. and travel around the city wherever the riders need to go fro home. Have a check off list of stips that can be marked by each passenger as they step on the bus and the driver could set out to directly to the needed areas
provide city-owned housing for employees to walk to their job within walking distance
Provide energy efficient vehicles for staff use for business travel.
Provide more flex time so that transit delays can be accommodated
Provide take home vehicles to police so that an officer can immediately go into service once they reach the City limits.
providing childcare facilities within close distance of city offices
Reduce the number of work-days per week. Four, 10-hour work-days.
reimplement the telecommuting policy
reward carpoolers with occasional perks, like \$10.00 gas card.
Rewards.
See to it that city wages are enough to afford to live in Clearwater.
Shuddle bus to pickup employees for work and back home for a small fee, weekly or monthly
Small amount of gas rebates per pay check. People choose how far away the want to live from where they work.
Spearhead a consensus movement with other Bay area municipalities and counties to determine the feasibility of light rail to connect the Bay.
Subsidize bus pass
Take home city vehicle
telecommute
Telecommute 1 day a month to begin with and see how it works.
Telecommute.
Telecommuter programs, I can easily do my job from home with a computer and phone, certain employees could work from home 2-3 days per week and then come into the office the other days. I am sure a lot of people would even work 3 days from home and 3 days from the office if allowed to telecommute.
telecommuting
Telecommuting 4-10 hour work days
telecommuting 1 - 2 days per week
Telecommuting.
The city should allow telecommuting for employees that qualify.
The only way I could see to reduce my personal commuting miles would be for the city to provide a considerable increase in salary so that it would be possible to maintain my current home lifestyle while being able to afford the much greater cost of housing/living here in Pinellas county and/or the city of Clearwater. Perhaps some kind of work force housing program would be an assist to those employees who have not yet purchased homes elsewhere. Either a system of downpayment assistance tied to continuing city service or a city funded low rate mortgage program similar to the VA system.
The problem with Public Transportation is reliability (THERE IS NONE!) Reliable public transportation is key to an efficient city (ecspecially the Bay Area). I would gladly give up my SUV if I knew that a shuttle and bus would run on time to get me to my destination.
There is none we all choose to live where we live regardless of our occupation
They shouldn't
Time off
use vehicles brought into garage to commute to and from work when possible as test driving instead of using more fuel commuting.
vacation hours, gift cards, rebates, refunds, gas cards, telecommuting, etc.
Van arrives at psta bus station at 7:00 Am and I have to be to work at 7:00 AM otherwise I would ride bike to bus then bike to work a few blocks away.
van pool, from npr to clearwater, workers take home vehicle for on personnel
Various Park'n'Rides outside city limits every half hour at approp. times

Table B-1
Employee Suggestions on Reducing Employee Commutes

Please provide any other suggestions on how the City should provide incentives to reduce employee commuting miles.
Very hard as a police officer. We need to get around during our work hours
We need to have an area for covered bike parking in the parking garage.
Work At Home Programs
Work at home situations
Work from home
work from home
Work from home on assigned days
Work from home one day a week or one day every other week. (If it is possible to work at home)
Work from home program. Incentives for Carpooling/Biking etc
Work from home.
Work from home.

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
<p>· Built a people mover from downtown to the beach. Use Automated People Mover technology (APM), same as at Tampa International Airport. Include a loop through downtown garages, hotels, theaters, conference centers, etc. · Use leadership pulpit to encourage businesses to recycle. · Symbolic: Re-start the wind turbine atop the St Pete Times building on Myrtle Av. · Put more IMPLEMENTATION emphasis on completing the sidewalk network, bike lanes, and trails. · Encourage conversion to LEDs for street luminaires (pilot project now, full implementation as soon as the LED technology is ready). · Consider converting suitable signalized intersections to modern roundabouts, which could reduce greenhouse gas generation as much as 25-30% at some locations. Start by compiling a list of candidate intersections (those where a 2-lane street intersects another 2-lane street). Then use SIDRA software to identify and rank the best opportunities for greenhouse gas reduction. · Encourage engineering staff to attend engineering seminars on green topics, such as the recent Florida Engineering Society Green Engineering conference</p>
<p>1) USE MORE OF OUR EXISTING COMPUTER(S) & RELATED TECHNOLOGY INSTEAD OF PAPER. WE STILL USE (PRINT & PHOTOCOPY) TOO MUCH PAPER. (2) REDUCE THE SIZE OF OUR FLEET. WE APPEAR TO HAVE MORE VEHICLES THAN ARE NEEDED. (3) DEVELOP SOME TYPE OF EMPLOYEE CARPOOL (NON-MONETARY) INCENTIVE. (4) REVIEW EMPLOYEE BUSINESS DRIVING FOR POSSIBILITIES OF REDUCING THE NUMBER OF MILES DRIVEN (DURING THE WORK DAY). (5) CONDUCT REGULAR ENERGY AUDITS (BUILDINGS) TO EVALUATE POSSIBILITIES OF ENERGY CONSUMPTION REDUCTIONS. (6) ENCOURAGE EMPLOYEES TO WALK MORE (INSTEAD OF USING THEIR VEHICLE) WHEN TRAVELING AMONG THE MSB, CITY HALL, & THE MAIN LIBRARY. (7) WHERE APPLICABLE, ENCOURAGE MORE CARPOOLING WHEN EMPLOYEES TRAVEL TO TRAINING, CONFERENCES, SEMINARS, ETC.</p>
<p>1. Convert all buildings to compact fluorescent or low power consumption lighting. 2. Change city schedule to four 10-hour days for all departments. This will save on vehicle trips to and from work, all the work related vehicle trips within the workday and energy consumption for facilities on Fridays thus decreasing pollution. I know some customer service personnel may be required at libraries, rec centers, and critical services however the majority of maintenance departments may be closed with emergency items covered via the existing call out plans i.e. public works, engineering, traffic operations, survey and construction services, utilities, parks and rec maintenance, general services, gas and so on. 3. City mandate of temperature setting and programming of thermostats of run times to match facility hours and make only accessible by building and maintenance. This will result in more energy savings for the city. 4. Spend where you have to, save where you can.</p>
<p>1. have payroll checks mailed to departments instead of having them picked up 2. avoid trips to deliver checks, disbursements, etc. 3. limit take home vehicles to standby vehicles</p>
<p>1. solar water heaters, 2. xeriscape only plant florida native plants less water usage and maintenance, 3. LEEDs cert buildings, and 4. more green trails.</p>
<p>Adopt LEED standard for all City Building including retrofit existing facilities. Adopt LEED/Florida Green Building Council building standard for all construction. Create "density nodes" along identified transportation corridors to facilitate development of transit service/stations.</p>
<p>AIR CONDITIONING SET TOO LOW</p>
<p>All City of Clearwater vehicles except for Police Cruisers and Fire Dept rescue and fire units should be powered by alternative method, all electric or gas/electric.</p>
<p>Allow vegetation in undeveloped parks to "grow". Stop mowing them altogether or drastically cut back. Saves on mower fuel & fewer employees.</p>
<p>Alternative fuel vehicles , why so many big SUV's being used to transport one person around?</p>
<p>Ask Al Gore. Global warming is the scam he made up.</p>
<p>Automate meter reading. There's no good reason for an army of meter readers to constantly travel all over the city when an automated system could do the same job more effectively. Also, increase use of technology that would allow field workers to be dispatched and instructed by mobile computer.</p>
<p>Avoid wasting fuel. Stock gas stations with ethanol. Run biodiesel in all diesel engines (you can run biodiesel without a conversion(. I have more suggestions upon request.</p>
<p>Basic green building materials - Sustainable flooring, no-VOC paint, cleaning materials. Incorporate green in to the basic B&M activities including renovations...not just new buildings. Geothermal HVAC on new buildings, too.</p>

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
-Bio-degradable cleaning products for everything. I am building a home business that uses these products that are non-caustic/toxic and use natural disinfectants. Products range from multi-purpose cleaner, glass cleaner, laundry detergent/whitener, toothpaste, skin products, food items, etc. -photovoltaic energy to provide a certain percentage of energy for each building -xeriscaping with perennials -energy/fuel efficient work vehicles -have recycling competitions between departments -switching to non-toxic pool chemicals just to name a few :)
Build an electric rail system to pick us up in the morning and take us home at night.
Buy vehicles that use less gas.
Capture stormwater for reuse, density restrictions for strip stores, convenience stores, and businesses like CVS and Walgreens. Set aside more green space.
Capturing more wind power and solar power. Use ocean currents and sea changes to generate power.
Change all lighting to fluorescent
Classes - I need to be educated.
Composting
Computers for Chambers - Council/boards use many reams of paper each month so that every member can hold a hard copy.
Convert trucks to natural gas
copies, paperwork is a huge waste in the City, with the technology today more records/copies should be on the computer/disk/CD
Currently all marked patrol vehicles for the city must park on the top floors of the parking garage. Most of these vehicles are used three shifts per day. That means burning fuel all the way to the roof (uphill) and backdown three times everyday while most of the first floor and parts of second floor are filled up with privately owned vehicles or city supervisor cars that rarely move during the day. Changing the rules to allow only marked patrol vehicles in assigned spots on first floor and moving the current reserved spots to the top, would save not only money in fuel cost for the city but also eliminate pounds of emissions from the vehicles per year. This would not only be fiscally beneficial to the city but also make it more sustainable or green. An added benefit to the citizens of Clearwater would be a potential decrease in response times of officers to answer calls early in shifts, which currently can be complicated by officers having to search upper floors for their vehicles prior to going in service.
Decrease the wait time at the traffic lights. especially when traveling the east/west lanes of the main roads. when caught at the lights on US19 and McMullen Booth9(East-West direction), the wait is about 3 1/2 -4 minutes and if you are lucky enough not to be first in line(1st 5 cars),then you get to wait another 3-4 minutes. too much exhaust accumulating at the lights,-. I agree with TF Miller about the police cars and the 4th floor, better yet, city should acquire the lot just south of MSB & across from the PD and let that be the Police vehicles lot, then they don't have to circle around, they can just zip out as needed.
discontinue use of cypress mulch
Do not allow city vehicles to run constantly while parked!!
Do not allow vehicles to run constantly. Also stop driving half way across town to take breaks.
Don't know what you mean by sustainable in this context.
Encourage natural gas use
enforce city manager's letter from about a year ago, that said, turn off city when not driving and do not warm them up. modern vehicles do not need to be warmed up. make sure every one including sanitation, shuts their vehicles off when they gas them.
Establishing guidelines on electric/power reduction - requirements for shutting down computers and TVs upon exit
Florida Yard Program Rain gardens Encourage LEED Accreditation Reduce pavement Support green transportation (transit/bikes/walking) Encourage mixed use development
Garbage pick up could go to one day a week without affecting many people.
Get rid of giant, practically riderless PSTA buses. Replace with vans or smaller buses with more routes and reduced travel time.
Green roof tops, more fuel efficient automobiles, LEED public facilities.

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
Have a green team from General Electric send a consultant to provide information on their lighting products and energy uses that are environmentally friendly.
have city employees air up their tires. Stop excessive idling time of vehicles. Try to combine transport and p/u usage.
Have lights that turn off after so many minutes when someone leaves an office. Think before you print, remove the openness to the stairs in the hallways a lot of air conditioning is lost through our lobby, when purchasing computers and different office equipment make sure we check for the ethical and environmental records of various manufacturers, what about solar?, turn off our computers at lunch, make sure at night employees turn off lights and machines as not to leave them running, employees should all have cups for coffee, tea, we should all have a glass or plastic cup for drinking instead of paper or plastic cups, going green even a little is great if everyone who went grocery shopping brought the green bags that is a savings to our trees and to our environment.
Have more bike trails to get to and from work
hybrid cars for code inspection, etc.
I am having my custodians use as many green products as possible. I think we need to limit the use of nongreen chemicals around the city.
I called Ed in early December to offer help in regards to Environmental Education's role in this process, for city employees as well as our citizens of all ages and academic backgrounds. He said he was swamped at the time and would contact me after the holidays. Haven't had any calls yet. It's been incredibly swamped here too with the loss of another staff member due to the budget cuts and looks to only get busier with the Jan 29th tax reduction vote going the "wrong" way. Give me a call when you get a chance. Say hi to Ed. I know he is being pulled in a thousand directions but is doing a fantastic job in all he gets involved with. I've heard he is even sitting on the steering board of the upcoming Green Expo at the Harborview Center! Talk to you soon. Cliff
I don't believe there is any climate warming and it's just a cycle that the earth goes thru from period to period.
I like the idea of forming a City Green Team so they can educate us more on green ideas.
I often travel extra miles in my city vehicle to park it at the main station. If I had a take home vehicle I would often times be closer to my residence which is .07 miles north of the city line.
I really think 4 - 10 hour work days would be a successful plan. I also think we should eliminate some of the paperwork that could be best taken over electronically (ie banking, reports). City vehicles could be made to run on biodiesel (for larger trucks) or E-85 (for newer smaller vehicles). All smaller vehicles like the utility carts, should be made electric as they are replaced. All facilities should be planted with xeriscaped-native species. All parks should be linked with greenways for access by animals as well as used for recreation by citizens. All employees should receive a monthly newsletter that has examples of greener ways to carry out their job as well as personal lives. Financial incentives should be installed (an award system) for green projects that noticeably affect a workplace. All City facilities should add solar power panels to their rooftops and all new roofs should have to include a plan to use photovoltaic technology (photovoltaic shingles, etc.) for generating electricity and hot water supplies. Reduce meetings or incorporate technology links that would allow workers to stay in their workplace and not have to leave. (T)
I think we could recycle office paper, alum cans better.
I would take PSTA if it was only 15 or 20 minutes more than my commute, it would be at least an additional hour to commute by PSTA, two hours total.
If any employees need to work overtime or work alone, they can drive the city vehicle home over the weekend if working more hours.
If take home vehicles were available to all employees, especially those subject to call out, it would reduce the amount of fuel being used. It would make those employees able to respond directly to the scene, not to the station to pick up a vehicle, and then have to drive to the scene.
If the Federal Government offers incentives, I suggest purchasing more hybrid vehicles for non construction type vehicles and look into using hybrid type vehicles for Police and Fire Departments if possible.
Improve traffic signals so the traffic flows more freely through downtown Clearwater especially.
In addition to #8, there needs to be an equally strong marketing strategy to build public interest and show them that they can depend on public transport as an alternative to burning fossil fuels.

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
INVEST IN A DIGITAL METER READING SYSTEM WHERE READINGS ARE DOWNLOADED REMOTELY AND TRANSMITTED TO THE MSB'S COMPUTER SYSTEM WHERE TURN-ON'S, TURN-OFF'S AND OTHER MISCELLANEOUS MAINTENANCE CAN BE DONE VIA COMPUTER. THIS WOULD DRASTICALLY REDUCE THE CITY'S CONTRIBUTION OF CARBON EMISSIONS AND GREENHOUSE GASES BY ELIMINATING THE NEED FOR A CONSTANT DEPLOYMENT OF CITY VEHICLES IN THE FIELD. ANOTHER ADVANTAGE OF A DIGITAL SYSTEM IS TO ALLOW OUR CUSTOMERS TO MONITOR THEIR CONSUMPTION DAILY FROM A HOME COMPUTER. PRELIMINARY TESTING OF THIS TYPE OF SYSTEM BY AN ENERGY COMPANY UP NORTH HAVE SHOWN THAT WHEN CUSTOMERS CAN MONITOR THEIR ENERGY USAGE IN REAL TIME, THEY ARE MUCH MORE LIKELY TO USE LESS. I THINK THE SAME MODEL CAN BE APPLIED TO THE CITY'S WATER AND GAS SERVICES. GIVEN THE CURRENT SITUATION WITH WATER RESTRICTIONS AND SO FORTH, I CAN SEE A SYSTEM LIKE THIS BEING MUTUALLY BENEFICIAL FOR BOTH THE CITY AND ITS CUSTOMERS. IT'S A WIN-WIN SITUATION, AND IT WOULD BE A HUGE STEP FOR THE CITY IN TERMS OF SUSTAINABILITY OF RESOURCES.
It is currently not safe to ride a bicycle between my house and work because of traffic issues. If the City had safer bike trails or sidewalks - I would consider riding my bicycle.
It's not the city that has to change, it is the greedy oil companies that control the world economy along with the car manufactures.
Jacksonvill Florida is using biodiesel on their fleet vehicles and looking at building a small plant to convert donated WVO waste vegetable oil into biodiesel. This system has the potential in Jacksonville to save the city 200,000 plus dollars a year on fuel. Power generating windmills along the intercostals could substantially generate revenue through sold back power and not detract from the beaches.
Keeping the thermostats in city buildings at reasonable levels...making sure all buildings are weatherproof and insulated properly, using electric golf carts or walkingto travel between city buildings in the downtown area
less construction
Less paper versions, more electronic versions. Such as the Connections, and the union flyers. Stope duplication of these publications.
Look at non-chemical landscape treatments in lieu of chemical herbicides; reduce grass landscape areas, etc.
Make it a City policy that everyone turns off computers' power strips when they leave for the day; turn off lights in rooms not occupied for more than 15 minutes (when people leave for lunch, etc.); print on both sides of paper; purchase all office supplies and furniture from recycled materials; bring reusable mugs, dishes, glasses, and silverware to work.
Make reycling easier and more effective by having containers for plastic/cans/newspaper/etc. in the individual departments, instead of just located in one place on the 3rd floor of the MSB. I recycle and don't mind going up there, but people are lazy, resistant to change, and just need it in there face sometimes to actually participate.
Make those responsible, accountable.
Mandate that all public facilities in future utilize green design and construction.
Mandatory shut down of pc's would save a lot of energy and money, at no cost to the city. Doing so will also prolong the life of the computers.
Maybe something like group transportation that are like the park and ride that PSTA has into Tampa.
More heavily promote recycling. Bring the idea to the residents. Engage them.
MORE HYBRID VEHICLES
More mass transit, both bus and light rail.
MORE RESTAURANTS WITHIN WALKING DISTANCE, A BUILDING THAT PROVIDED ALL OF THE CITY EMPLOYEES BANKING, EXERCISE, DAYCARE, CAFETERIA,LEGAL, ALL IN ONE BUILDING/ OR WITHIN WALKING DISTANCE.
MOVE DEPTS CLOSER TOGETHER WHENEVER POSSIBLE
Now, more than ever with gas prices where they are, we need MORE Police Bike Units. Especially on the beach. You could almost COMPLETELY eliminate Police vehicles on the beach, with the exception of transporting units.

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
Offer small "perks" for green initiatives like biking, or carpooling. Assign parking space for carpool members. Have some flexibility in hours for carpoolers.
Only the employees who control the cities budget can truly take this city into a future of green. All employees must stop wasting at each and every building. Lights are left on. Rooms are too cold. New construction must include new engery saving methods to reduce waste. All employees must learn this way of life. The City should take steps to live the life of non-waste, not just talk about it. In the paper today, an article on city vehicles that are taken home. Now there is start, however, will it really happen? Again does all our city leaders walk the walk, we do not see that. Good Luck!
Place LEED in the forefront for all new buildings.
Plant more trees
Plant more trees
Presently developing with WPC Superintendent The plan is to produce energy, generate revenue, reduce miles travel by non city service provider. generating, mileage re
Promote working at home if the job can be done at home. Promote driving to work during non peak hours. Improve the bus system by increasing the pick up schedules. Build a light rail system and bus rapid system. Encourage large companies to promote car pooling and use alternative fuel vehicles for employees and give incentives for such improvements. Eliminate large buses that run empty or have few passsengers and use 16 passenger vans that use alternative fuels instead.
Property values and taxes have caused many employees to relocate outside of Pinellas County. Salaries don't support living here. Daycare costs are a big issue with many city employees, forcing them to relocate outside of Pinellas. Could the city support a day care program for its employees.
Provide bottled water for drinking at worksites.
PROVIDE MORE RECYCLING AREAS
Provide more recycling opportunities at employee work sites
PSA on car pooling for employees
PUBLIC TRANSPORTATION
purchase vehicles with the best fuel efficiency. We currently have numerous vehicles such as full size trucks, SUVs, and autos that could be replaced by fuel efficient vehicles that would be equally functional. Encourage telecommuting and 4 day work weeks where practical. Encourage file folder reuse and discourage printing emails and other computer generated material. Stop using cyprus mulch. Xeriscape all city property. Use only solar heating for city pools.
Pursue alternative energy sources on a very serious basis By that I mean, a task force should be created from key stakeholders such as fleet, traffic engineering, building, planning, and the C? office to really examine alternative energy sources. Traffice engineering has already started with the conversion of our traffic signals to LED technology. This will save some 70% on energy consumption. Street lights should be next but will take a high profile initiative.
Put recycle bins (glass, newspaper, etc.) at Infrastructor
Put Recycle bins for Plastic, Paper,Glass and aluminum in all the different breakrooms instead of just the main breakroom. People are more likely to recycle if they don't have to make a special trip upstairs/downstairs to do so.
raise littering fines
Recycle bins in every office for cans, bottles, paper Reduce paper trail and use computer for paperwork classes showing people how to conserve
Recycle more
recycle more and different products and materials
Recycle more in the city buildings
recycle more, different materials
Recycle, plastic, paper, boxes, glass,etc. in the PD
Recycling at special events, more recycling bins and programs inside the City (staff), Employee discounts at downtown restaurants to promote walking to lunch, intranet site where people can hook up with other employees that live near them and can carpool,mandatory computer and light turn off after hours, lunch and learns on different "green" topics at the library

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
Reduce the size/number of the City's full size pickup truck fleet
re-implement the City's telecommuting policy
REINSTALL RECYCLING BINS FOR ALL KINDS OF PAPER, CARDBOARD, PLASTIC, ALUMINUM, ETC AT ALL CITY FACILITIES. CUT DOWN ON COPYING/PRINTING WASTE
Relax rules to allow for more grass parking lots.
schedule transition to alternate lighting sources (light bulbs)
See EAB study materials. Convert fleet to hybrid vehicles. Pursue LEED certification for City buildings. Adopt Green Building Code.
See PU Dept plan
solar power, wind, tidal action... look at "MagneGas" for city vehicles
Standardize colors of for city buildings. As it is now, hundreds of gallons are wasted every year, because of all the different colors. Put more recycle containers so that people don't throw away newspaper, aluminum cans, etc.
Stop all redevelopment.
Stop allowing workers to park their city trucks for hours with the air on in the summer/heat in the winter.
Stop building buildings that are all glass and take megabucks of money and mega-watts of electric to keep the lights and AC on.
Stop paper copies of the newsletter. Thought they were already going to do this, then the paper arrived again.
Stop wasting money on junk and get more solid businesses into the down town area.
Synchronized lights to improve flow and reduce emissions waiting at traffic stops. Allow employee fleet pricing on hybrid vehicles. Employee discounts at gas stations. Greatly discounted cab fares or employee home pickup to and from work.
take a leadership role in solar power and inspire residents to follow. curb the excessive running of parked city vehicles for the sake of keeping the ac on.
The city needs to buy more fuel efficient vehicles.
The city should consider some sort of incentive program for those that are showing a certifiable effort towards reducing their impact on the environment.
The three Wastewater Plants could use electric golf carts instead of gas golf carts. The Operators could ride bikes (if made available) in the Treatment plants instead of trucks or gas golf carts.
The use of wind power to generate electricity. Place wind mill in areas of the bay that they will not obstruct the water ways.
There are successful large-company precedents for: 1) Developing a telecommuting program 2) Setting up a 4-day work week, 10-hour day with staff staggering the extra day off to make sure the departments were covered
trucks that get good gas mileage
Turn trucks off during breaks and lunch
Turn up the AC. The mSB is kept way too cold!!! I'll think of some more.
Use Bio-fuels for our diesel vehicles. The switch is not too expensive and pays off incredibly quickly. Do the research and used cooking oil can get you a long way for much cheaper than diesel. It would be worth a try for trucks rather than equipment at first for a try.
Use dishes that can be washed and reused rather than providing plastic plates and forks, etc.
use less power, less energy, less paper (more trees), make 4 day work weeks if possible and/or end of working day at 4:30.
Use more Hybrid vehicles.
Use more modern technology (usually more energy efficient) such as pumps, motors Plan for more hybrid vehicles on replacement Plan for energy efficient equipment with replacement
Use more the bikes....
use of hybrid vehicles
Use vehicles powered by natural gas. Use diesel vehicles powered by biomass fuels. Add green roofs to qualified city buildings Use solar technology for suitable uses to supplement the grid. Use available technologies to capture gases created by the digesters at the water treatment plants. Improve participation in the City's recycling program.

Table B-2
Employee Suggestions on Improving Sustainability in the City

Please provide any other suggestions on making the City more sustainable (or green).
Vegetated roof where people can sit and enjoy their lunches; Don't keep the lights on all the time; Buy hybrid cars for the city's department cars
walk

APPENDIX C

CLEARWATER GOVERNMENT DEPARTMENT STAKEHOLDER ANALYSIS

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Mayor & City Council	Mayor Vice-Mayor Three council members 15 Boards, included in Departmental Divisions below.	The duty of the City Council is to discharge the obligations and responsibilities imposed by State Law, City Ordinance, and the Clearwater Charter. Policy is set by the City Council, the elected representatives of the City. The City Council is responsible for approving the budget and determining the ad valorem tax rate on all real and personal property within the corporate limits of the City.	Provides leadership and vision Enacts legislation Allocates budget
City Attorney	No further division	The Office of the City Attorney provides timely, cost-efficient, quality services and advice to support the City Council, the City Manager, and all city departments, boards, and agencies in fulfilling their missions and goals; and to advance, advocate, and safeguard the interests of the City within the bounds of the law.	Provides legal advice Has knowledge on Clearwater Codes of Ordinances, Florida Statutes, Pinellas County Ordinances, and U.S. Code
City Auditor	No further division	To provide an independent, objective assurance and consulting activity by examining and evaluating City organizational activities through financial, compliance, operational, and revenue audits that promote maximum accountability, efficiency, and effectiveness. We are committed to providing proactive, accurate, and fair services within the City of Clearwater Government in a friendly, professional manner.	Part of General Administration Category
City Manager	No further division	Our mission is to ensure that the City of Clearwater government provides the municipal services and infrastructure necessary for a high quality of life for all our citizens.	Coordinates overall administration and coordinates the City. Implements City Council's Ordinances and Policies Provides leadership and vision to all departments.
Clearwater Customer Service	No further division	Realizing that Customer Service is an attitude, rather than a department, Clearwater Customer Service provides courteous, understanding, efficient service to our customers, citizens and the internal departments that we are privileged to serve.	Provides centralized customer service for utilities (water/sewer, solid waste/recycling, reclaimed water, stormwater, and gas) Paperless bills

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Development and Neighborhood Services Department	Building Services Community Response Team (Code Enforcement) Neighborhood Services Business Tax Receipts Beautification Committee Community Development Board Municipal Code Enforcement Board	Our objective is to make the City of Clearwater the best place to work, live, and play by encouraging neighborhood involvement, empowerment and revitalization, and by guiding the future growth, development, and redevelopment of the City. We are committed to providing prompt, accurate, consistent and fair service in a friendly manner. Further, we strive to consistently, fairly and impartially regulate established community standards and quality of life issues as set forth by the City’s Code of Ordinances, with an emphasis on achieving voluntary code compliance through education, communication and cooperation.	Implement sustainability programs set forth (e.g., green building, native landscaping, etc.) Educational services through Block-by-Block program Beautification program to implement many sustainable programs.
Economic Development and Housing	Economic Development Housing Brownsfield Advisory Board Historical Committee Neighborhood and Affordable Housing Board Downtown Development Board Clearwater Housing Authority Enterprise Zone Development Agency Public Art and Design Advisory Board	Our mission is to improve and expand the economic base of the community through the retention and expansion of existing businesses and the attraction of new businesses and real estate investments, and by implementing value-added strategies and programs that enhance the community's overall high quality of life and local and national image. Further, our mission is to provide quality affordable housing and community services to the citizens of Clearwater.	Economic Development is interrelated with other City Agencies and focuses on vulnerable parts. Department will have big impact on incorporating sustainability issues in its programs. Relationship to tourism and chambers of Commerce Implement educational components in businesses Enhances “livability” and “image” of City Housing Department provides affordable housing to community, social services to community, and home rehabilitation. Housing can infuse sustainability in its programs and provide education to its recipients.

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Engineering	<p>Engineering Production (Utilities Engineering, Landscape Architectures, and GIS department)</p> <p>Environmental and Stormwater Management (Environmental Management, Stormwater Management, land development Engineering)</p> <p>Traffic Operations (Signal Systems, Traffic Calming, Traffic Engineers)</p> <p>Parking System</p> <p>Environmental Advisory Board</p>	<p>To provide engineering expertise to implement the transportation, parking, utility, and general engineering segments of the Capital Improvement Program; and to optimize the function of the City’s traffic operations and parking systems affording the maximum benefit and convenience to our residents and visitors.</p>	<p>Engineering Production Landscape architectures and contractors provide expertise and implement green ordinances.</p> <p>Environmental and Stormwater Management Implement green programs and educational component</p> <p>Traffic Operations Provide input for transportation options, traffic calming, and neighborhood input. Feasibility studies on streetlight replacement program.</p> <p>Parking Systems Parking garages, oversees parking and traffic flow associated with parking, supports Jolley Trolley Operations (green fleet for trolley)</p>
Equity Services	<p>No further division</p> <p>Community Relations Board</p>	<p>The City of Clearwater Equity Services Department promotes the dignity and worth of all people by ensuring strong opposition to unlawful discrimination, providing valuing diversity and discrimination law training, supporting social services, and engaging in positive community interactions.</p>	<p>Social services to diverse, equal opportunity, community relations</p> <p>Ensure that green initiative includes the needs of diverse populations – input and ideas</p>
Finance	<p>No further division</p>	<p>Our mission is to serve the citizens of Clearwater by effective coordination of the fiscal management of the City through efficiently providing timely, responsive and comprehensive financial/support services to all our customers.</p>	<p>Part of General Administration Category</p>
Fire & Rescue	<p>Operations</p> <p>Fire Prevention & Investigations</p> <p>Support Services</p>	<p>To ensure the health, safety, & well-being of our community by providing a wide range of innovative services.</p>	<p>Fuel use reduction, conversion of vehicles</p> <p>Water use information required for Florida Green Building Coalition Application</p> <p>Traffic pattern issues or concerns could be appropriate</p> <p>Natural disaster strategy</p>
Human Resources	<p>No further division</p>	<p>To optimize the City’s human resources capability by acquiring, maintaining, developing, and retaining, a diverse, highly qualified, motivated, and productive work force.</p>	<p>Employee training on green policies</p>

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Information Technology	No further division	Information Technology is committed to serving the business operations of the City by providing enterprise-wide integrated system solutions and high-quality customer service to ensure the efficient utilization of technology resources and investments.	Dissemination of information, website
Library	Five Branches Library Board	To meet the informational, educational, recreational and cultural reading and viewing needs and expectations of all citizens and population groups in the community, using a wide array of library formats and materials and a trained and dedicated staff.	Dissemination of information. Place to hold meetings Offer programs to the public regarding sustainability
Marine & Aviation	Pier 60 Operations Airpark Marina Operations Beach Patrol Operations Airport Advisory Board Marine Advisory Board	To maintain the Marine and Aviation Department as a revenue-producing department with a well trained and dedicated staff that provides high quality marine and aviation related services with excellent customer satisfaction to our citizens and customers.	Air Park – citywide fuel use Marina – marine fuel use, boater education, Waterfronts Community Program, Florida Clean Marina Programs Pier 60 and Beach Patrol – beach education, recycling, tourism
Office of Management & Budget	No further division	Our mission in the Office of Management and Budget is to offer accurate financial planning information and quality service to the City Management Team, the City Council, other City Departments, and our citizens in order to increase confidence in City leadership and provide comprehensive budgeting data to all of our customers.	Budgeting issues Fiscal impacts of programs
Official Records & Legislative Services	City Clerk	The Official Records and Legislative Services Department is the custodian of the City's current and historical knowledge. It is our mission to receive, organize, maintain, preserve, and disseminate this knowledge. We strive to do this accurately, effectively, and efficiently. Also, the Department coordinates the City's legislative and grants programs in efforts to optimize funding opportunities. We are committed to fulfilling this mission by keeping abreast of current issues, cutting red tape, and going the extra mile to provide quality service to our customers.	Lobbyist activities Grant identification and application to fund sustainability initiatives

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Parks and Recreation	Admin, Cultural Affairs & Events Recreation Programming Parks and Beautification Parks and Recreation Board	To provide parks and recreation programs, services, facilities and beautification to benefit the residents and visitors of the City of Clearwater.	Key stakeholder to maintain open landscapes in City, as well as provide education to community. Key programs: 1. Adopt a Park Program 2. Facilities (parks, structures, programs) 3. Bicycle and Pedestrian Master Plan and Task Force 4. Moccasin Lake Environmental Education Center 5. Healthy Choices for Healthy Clearwater 6. Golf Courses – sustainable practices 7. Swimming pools – sustainable practices
Planning	Development Review Long Range Planning	The Planning Department establishes the city's long range plans in concert with the city's overall goals. The department is responsible for administration of the city's Comprehensive Plan, the city's 20-year plan, as well as detailed neighborhood and area plans. The department also implements the city's redevelopment goals through site plan reviews of public and private projects.	Department that would develop and and incorporating green building and landscaping standards for new and redeveloped properties. Long-range planning to incorporate sustainability focus for City.
Public Communications	C-View Channel 15 Documents and publications	To communicate efficiently and effectively to the citizens of Clearwater all City business and events which impact our quality of life, safety and welfare.	This is key stakeholder for marketing and communicating green messages. Key programs include: Citizen's Academy Program C-View Channel 15 Got Gov! Shaping Clearwater Fun-In-The-Sun (FITS) Recreation Program Guide
Public Services	Administration Construction Stormwater Maintenance Right-of-way Maintenance (includes streets, sidewalks, urban forestry)	Our mission is to provide quality and efficient support services for the construction, supervision and maintenance of the City's infrastructure relative to public works construction and site development, the streets and sidewalks, Stormwater structures and facilities, and the urban forest for the citizens and visitors of Clearwater.	Construction division would be affected by green initiatives in Lead-by Example. Key programs to expand: Adopt A Street program Stormwater Maintenance programs Get to the Point! Educational program

TABLE C-1. Clearwater Government Department Stakeholder Analysis

Office/Department	Further Divisions	Stated Mission/Vision Statement from Website	Rationale for Inclusion on Stakeholder List
Public Utilities	Water Reclaimed Water Wastewater collection Water Pollution Control	To provide the citizens of Clearwater, both regular customers and visitors, with the basic essential services (water, wastewater collection, wastewater treatment and disposal and reclaimed water) and maintain the infrastructure as efficiently as possible, while operating within a realistic cost effective budget with a vision for the future.	Reduce electricity and natural gas usage through pump replacement and plant upgrades, feasibility studies. Implement water initiatives, as well as educational programs related to water.
Solid Waste/General Services	Solid Waste/Recycling General Services 1. Admin 2. Building & Maintenance 3. Fleet Operation 4. Fleet Replacement 5. Radio Communications	The mission of Solid Waste/General Services department is two-fold; 1) to provide solid waste and recycling services to the citizens of Clearwater, and 2) to provide building maintenance, fleet maintenance, and radio service to the City departments.	Solid waste initiatives, to include recycling programs, as well as educational programs associated with solid waste General Services maintains City buildings and fleet so would implement Lead-by-Example sustainability initiatives. Evaluate electricity and natural gas reductions of buildings, possible LEED conversion, green fleet evaluations and conversion.