

City of Asheville

**Carbon Footprint
Annual Report**



{ FY 2011- 2012 }



City of Asheville
City Manager's Office

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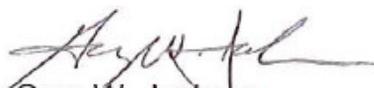
January 9, 2013

One of Asheville City Council's six strategic priorities is to be *Green and Sustainable*. Their vision is for **"Asheville to be the southeastern leader in clean energy and environmental sustainability."** This vision is supported by direct policy action that established a carbon footprint reduction goal for municipal operations. First established in 2008, then fortified in 2011 by doubling the goal to 4% per year until a total reduction of 80% is achieved in the year 2030. This bold policy leadership coupled with dedication from over 1,000 public servants generated a **17.67% decrease in municipal carbon footprint reductions since 2008.**

These carbon reductions come in many forms from efficient technology to energy conservation to changing the way we look at our work. To the City of Asheville being green is more than special projects with new technology. Sustainability has become part of our culture as public servants. You can witness glimmers of this culture on the first day on the job when our sustainability goals are discussed during new hire training, or when an employee goes above and beyond to save energy and earns a Quality of Service Award. This culture of sustainability is evident when the management team evaluates the economic, social and environmental impacts in their decisions. The City of Asheville has taken great strides towards a more sustainable future for our community and is dedicated to continuous improvement. The Annual Carbon Footprint Report is intended to evaluate how we have done and support our ability to look forward.

After review of the FY 2011-2012 Annual Carbon Footprint Report, it is my pleasure to share our progress with the community. I am proud of staff for their achievements in carbon footprint reduction. My gratitude extends to individuals and teams across all departments who worked hard to learn, to think creatively and to achieve tremendous success in sustainability. As we look forward I am certain we will make greater progress as the momentum continues to build.

Sincerely,


Gary W. Jackson
Asheville City Manager

Executive Summary

Key Highlights from this Report:

- Total municipal carbon footprint reductions over the past five years total 17.59%.
- Carbon footprint reductions in FY 2012 total 6.42%. The largest annual reduction to date.
- Although the LED streetlight program generated a significant portion of the FY12 carbon reductions, the influence of a warmer winter outpaced this keystone program by generating the most carbon reductions last year. In this case seasonal variations due to climate change resulted in cost savings and energy reductions.

Key Spending Conclusions:

- Vehicle fuel prices have increased over the last five years while carbon footprint has experienced minimal reductions. Significant fuel reductions are essential to reducing fuel spending.
- Despite the decline of natural gas usage and costs, this spending area needs to be closely monitored due to the significant fluctuations in seasonal temperature year after year. Natural gas is primarily used to heat public buildings in the winter.

Carbon footprint reduction in FY12 was 1,628 MT eCO₂ which equals

- Annual emissions from 3,435 barrels of oil
- Annual emissions from burning 6.3 railcars worth of coal
- Annual emissions from the energy used in 76 homes

{ **howlowcanavlggo?** }
{ raise the bar. lower the carbon. }

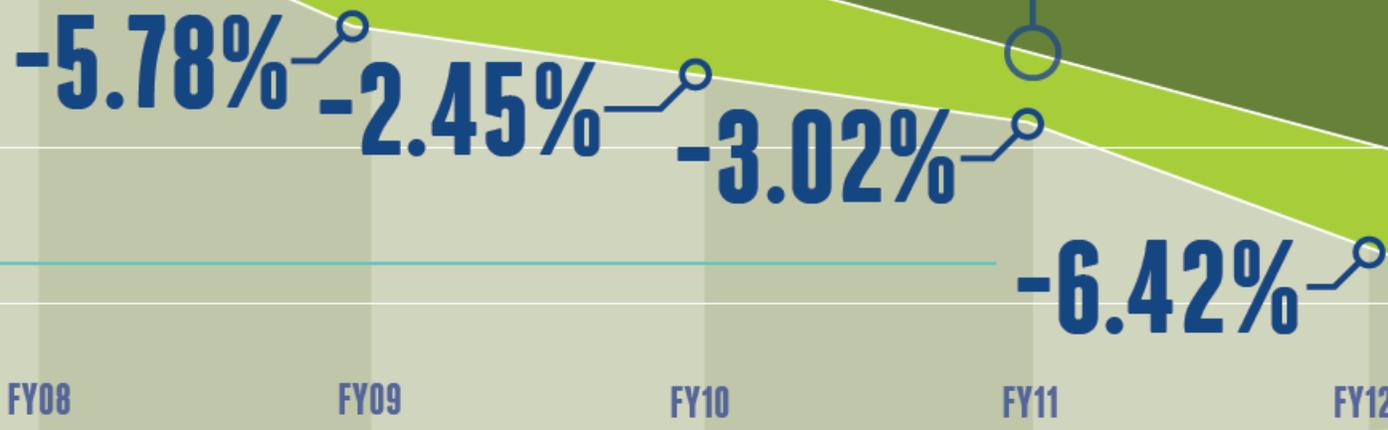
CARBON FOOTPRINT REDUCTIONS

How is Your Government Doing?

After consecutive years of achieving carbon footprint reductions above and beyond stated goals the Asheville City Council increased their commitment to municipal sustainability. In April 2011, Council doubled the goal for municipal carbon reductions to 4% each year in order to reduce the overall footprint 80% by the year 2030. A carbon footprint is the total set of greenhouse gas (GHG) emissions including carbon dioxide caused by an organization, event, product or person. The graph below shows the reductions each year since inception of the program in 2008. Note that last year was the best year to date!

MT CO₂E

31,000
29,000
28,265
27,000
25,000
23,576
23,000



ANNUAL GOAL CHANGED FROM 2% REDUCTION/YEAR TO 4% REDUCTION /YEAR BEGINNING FY2012



ELEPHANT IN THE ROOM

An average african elephant weighs 6 metric tons. Current annual reduction rates of CO₂e emissions are currently equivalent to 334 elephants...annually.



BUSINESS AS USUAL



PROPOSED REDUCTIONS

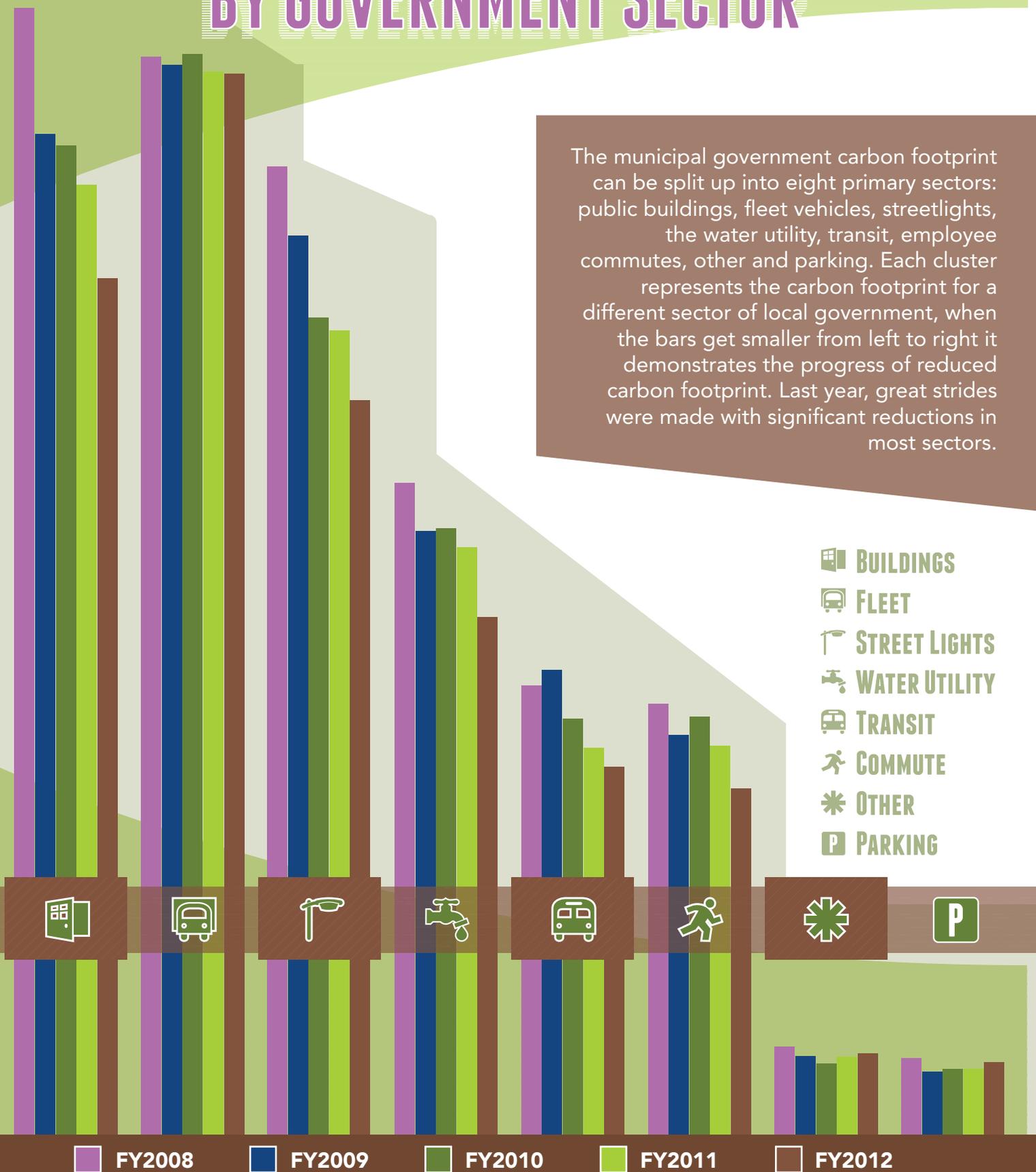


ACTUAL REDUCTIONS

2012 CARBON FOOTPRINT REDUCTIONS BY GOVERNMENT SECTOR

The municipal government carbon footprint can be split up into eight primary sectors: public buildings, fleet vehicles, streetlights, the water utility, transit, employee commutes, other and parking. Each cluster represents the carbon footprint for a different sector of local government, when the bars get smaller from left to right it demonstrates the progress of reduced carbon footprint. Last year, great strides were made with significant reductions in most sectors.

-  BUILDINGS
-  FLEET
-  STREET LIGHTS
-  WATER UTILITY
-  TRANSIT
-  COMMUTE
-  OTHER
-  PARKING



*Other includes area lighting, traffic signs, festivals, off road fuels, fuel pumps, and fountains

KEY ANNUAL REDUCTIONS

Featured below are the activities that made the biggest difference in our carbon footprint last year.

6.42%
REDUCTION

2011

2012

239
TONS

FOUR DAY WORK SCHEDULE

More work groups shifted to work four days a week at 10 hours a day. Now each employee commutes one day less a week.

148
TONS

BUILDING ENERGY CONSERVATION

Basic energy conservation continues to pay off in year 5 of the program.

394
TONS

LED STREET LIGHTS

Half of city streets lights were upgraded to LED fixtures reducing big carbon reductions and value dollar savings

480
TONS

WARMER WINTER

Due to an unseasonably warm winter there was a dramatic decrease in natural gas used to heat public buildings

65
TONS

TRANSIT SERVICE CHANGE & HYBRID BUSES

Service reductions and hybrid buses account for these reductions.

345
TONS

WATER SYSTEM EFFICIENCIES

The water department's ISO 14001 environmental management system ensures continual environmental improvement.

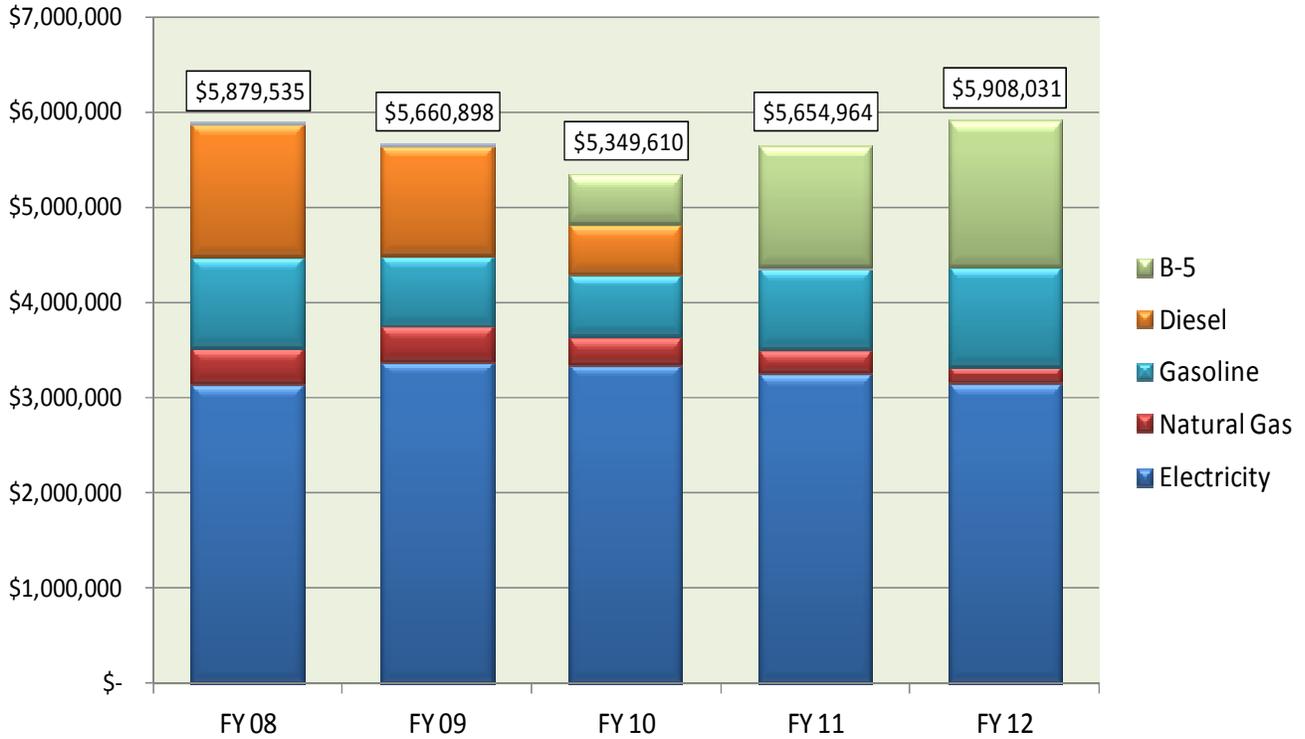
22
TONS

BIODIESEL FUEL

Continuing to use a 5% biodiesel blend in all diesel vehicles made a dent in the fleet sector

City-Wide Energy Spending Analysis

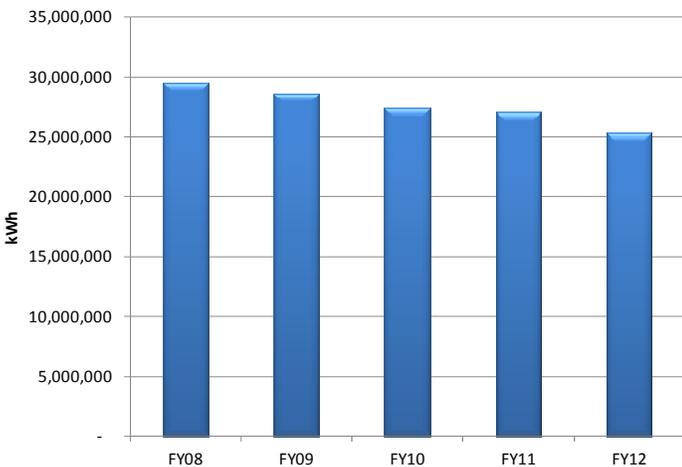
Total Energy Spending Over Time



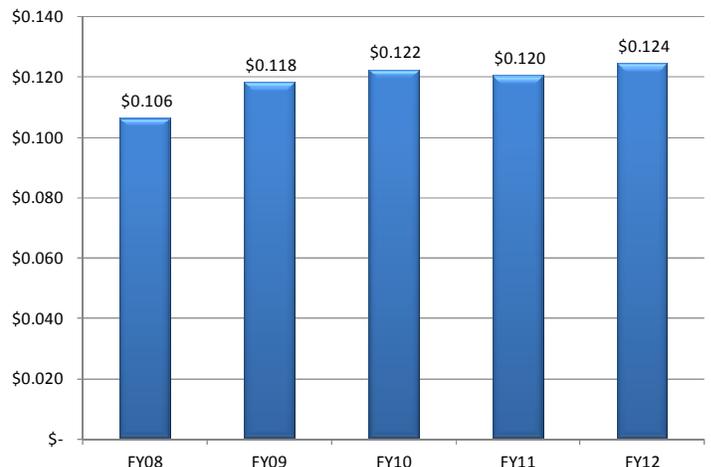
City energy spending totals \$5,908,031 which equals 4.5% of the entire municipal budget

City energy spending has increased over the last two years, due in large part to growing vehicle fuel prices. The following charts show 5-year cost trends for the major energy sources that the City's municipal operations rely on: electricity, natural gas, and motor vehicle fuel.

Electricity Consumption Over Time

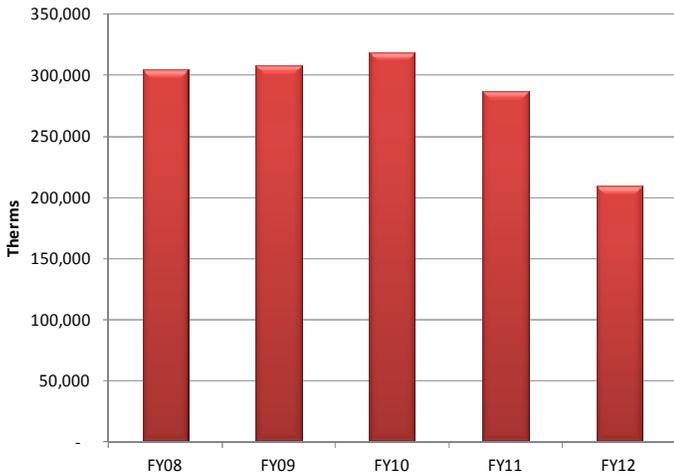


Average Price per kWh - Electricity

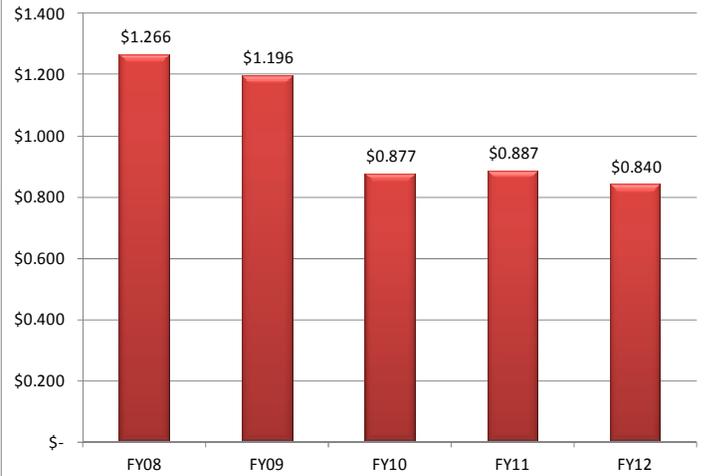


City-Wide Energy Spending Analysis (cont.)

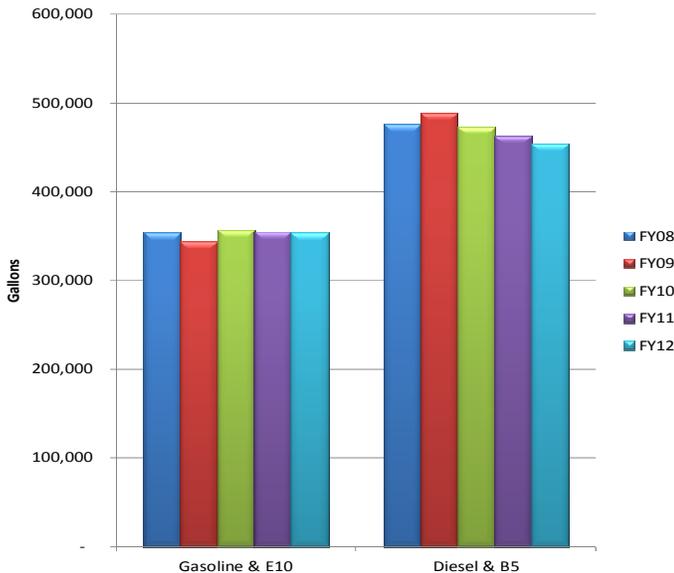
Natural Gas Consumption Over Time



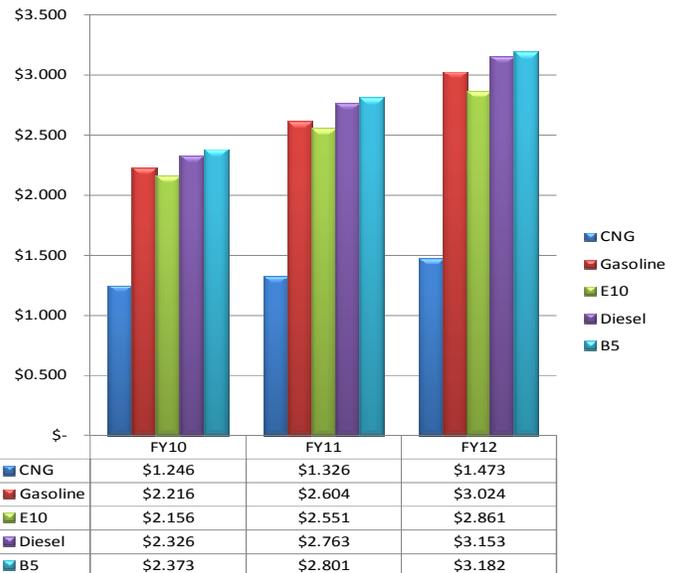
Average Price per Therm - Natural Gas



Fleet Gas & Diesel Consumption Over Time



Average Price per Gallon - Fleet Fuel



Spending Analysis Conclusions

- Significant fuel usage reductions will be needed to offset rising costs in the future.
- Reductions in electricity usage from conservation and technology efficiencies are out-pacing the increases in electricity costs.
- Despite the decline of natural gas usage and costs, this spending area needs to be closely monitored due to the significant fluctuations in seasonal temperature year after year. Natural gas is primarily used to heat public buildings in the winter.
- Using 5% biodiesel (B5) is the most cost effective short term carbon reduction measure the city has implemented to date, offsetting 253 MT CO₂e in FY12. B5 cost the city an additional \$14,552 last year which is less than the cost to convert one truck to compressed natural gas.

Carbon Footprint- General Fund

Energy Spending

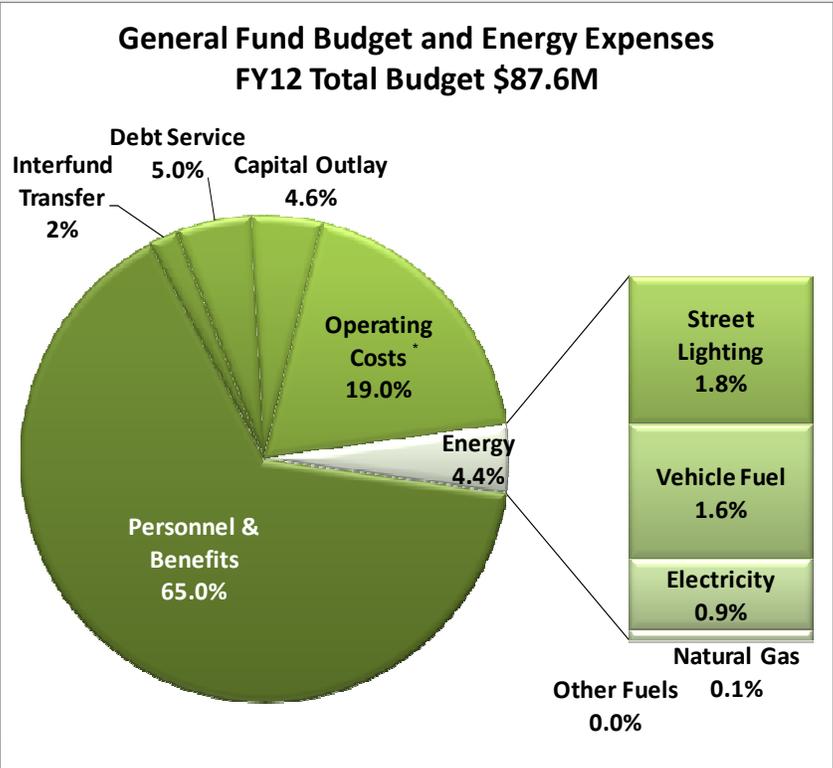
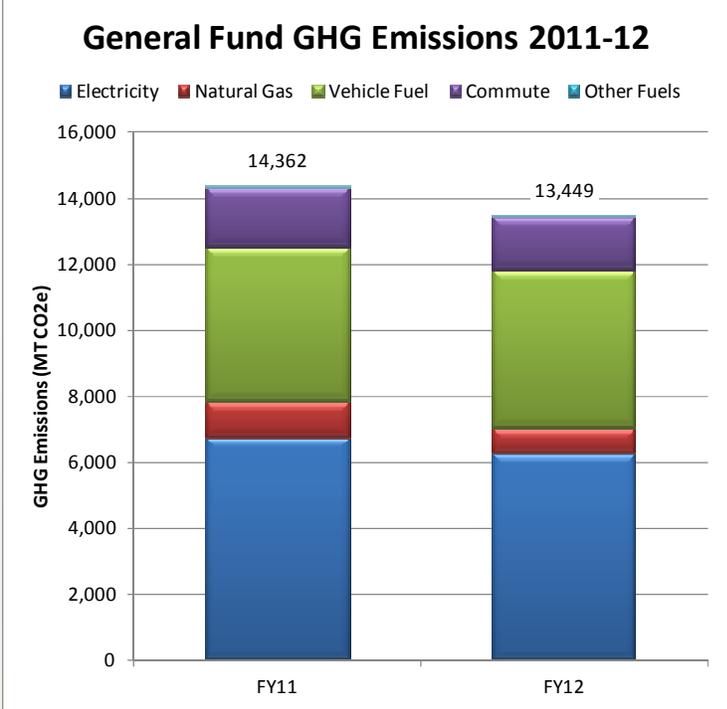
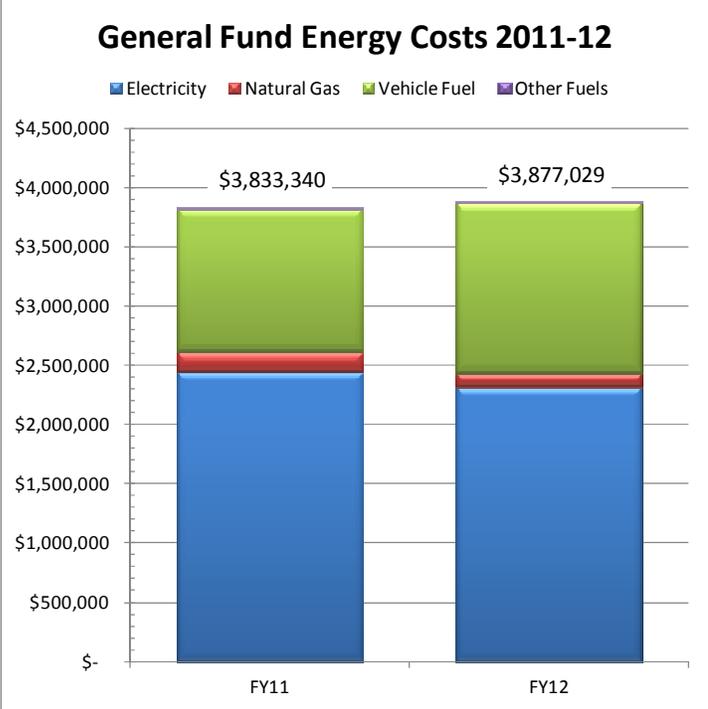
↑ 1.1% from FY11
+\$43,689

GHG Emissions

↓ 6.4% from FY11
-913 MT CO₂e

% of Municipal Footprint

57.2%



- ### Highlights / Notes
- Replaced over 3,300 LED streetlights over two years
 - Completed upgrade of CNG fueling station and purchased 25 new CNG vehicles
 - Warm winter of 2011-12 meant less natural gas for heating

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report.

Carbon Footprint- Water Resources Fund

Energy Spending

↓ 0.6% from FY11

-\$5,447

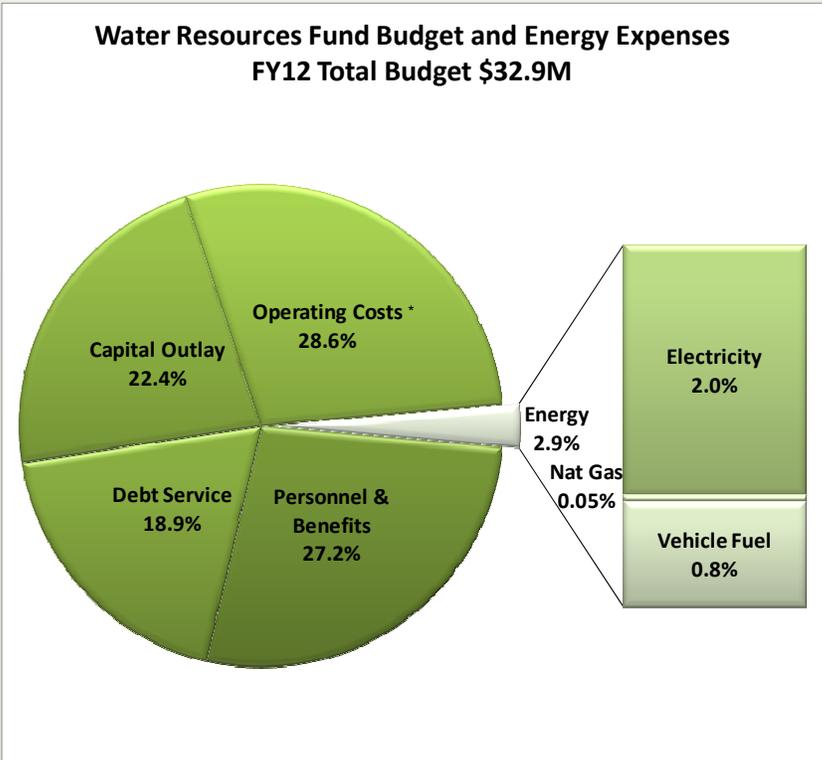
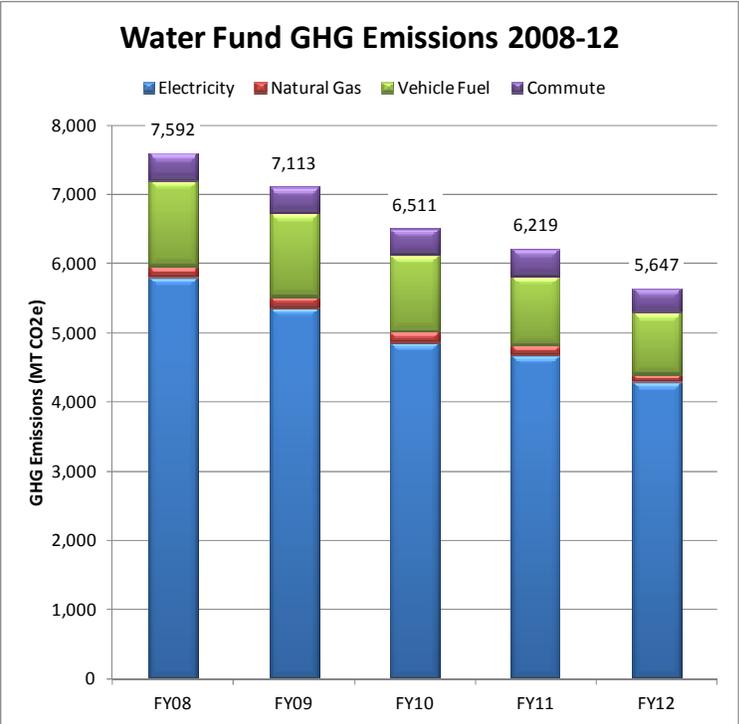
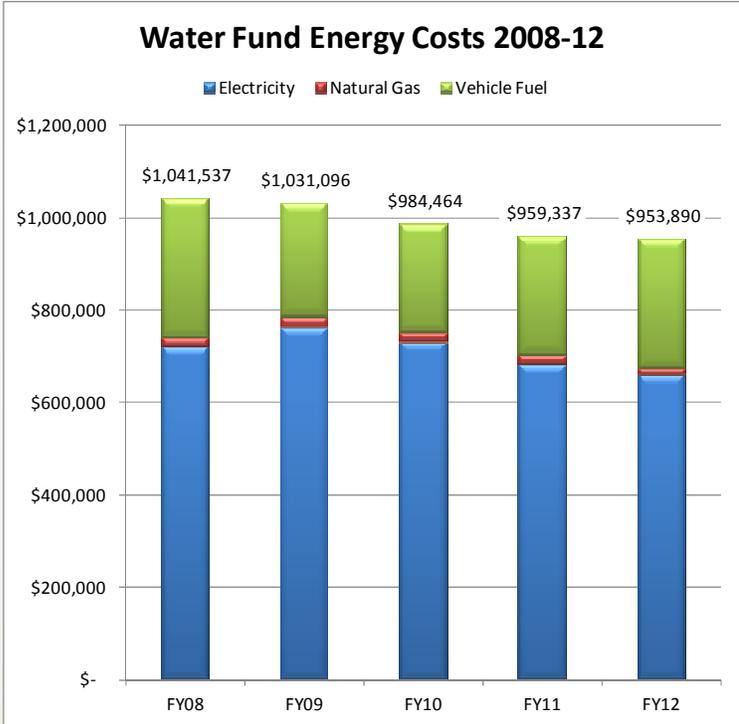
GHG Emissions

↓ 9.2% from FY11

-572 MT CO₂e

% of Municipal Footprint

23.9%



- ### Highlights / Notes
- ISO 14001 environmental management system has led to several vehicle policy changes
 - Anti idling policy
 - Revised take home policy
 - Drive-by meter reading
 - Warm winter required less space heating at water treatment plants

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report.

Carbon Footprint- Transit Services Fund

Energy Spending

↑ 17.1% from FY11
+\$100,334

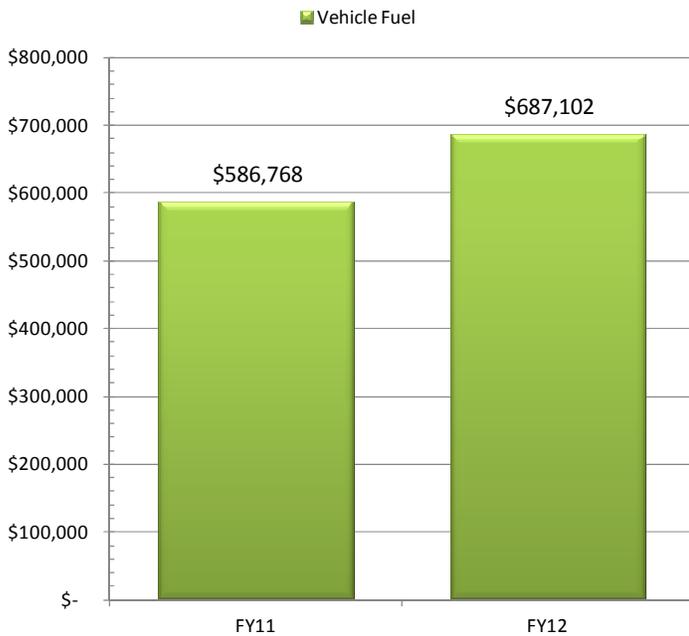
GHG Emissions

↓ 4.6% from FY11
-105 MT CO₂e

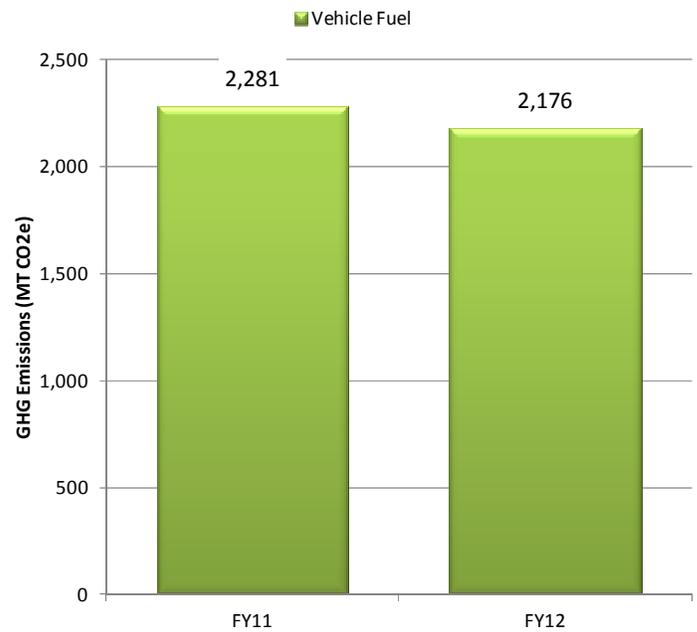
% of Municipal Footprint

9.2%

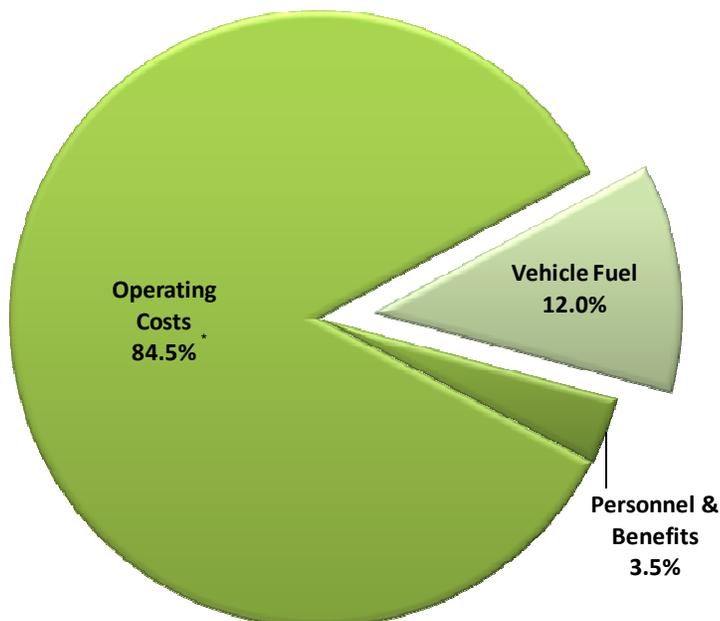
Transit Fund Energy Costs 2011-12



Transit Fund GHG Emissions 2011-12



Transit Fund Budget and Energy Expenses
FY12 Total Budget \$5.7M



Highlights / Notes

- Decrease in fuel usage due mainly to service reductions
- Increase in fuel costs due to rise in price of fuel
- ART system changes which began in May 2012 will be apparent in next year's report

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report. Most of transit staff are not City employees, thus their wages are rolled into operating costs.

Carbon Footprint- Civic Center Fund

Energy Spending

↓ 4.8% from FY11
-\$10,847

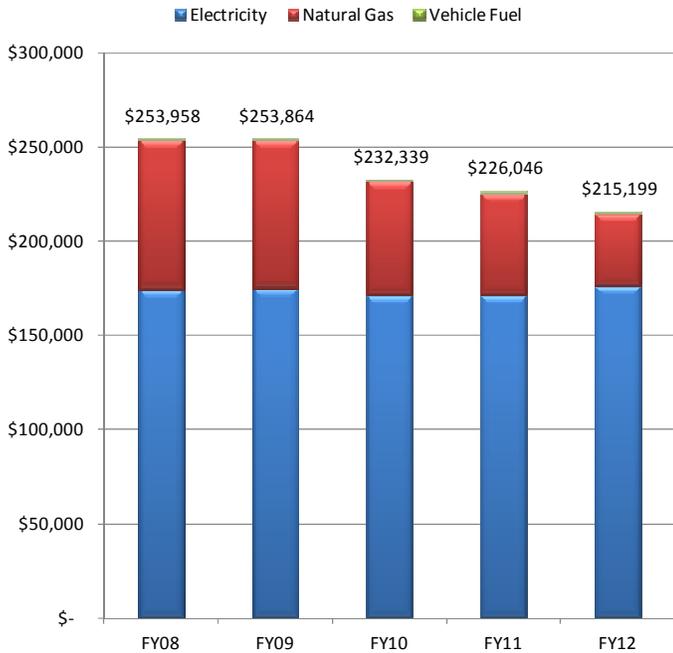
GHG Emissions

↓ 5.8% from FY11
-58 MT CO₂e

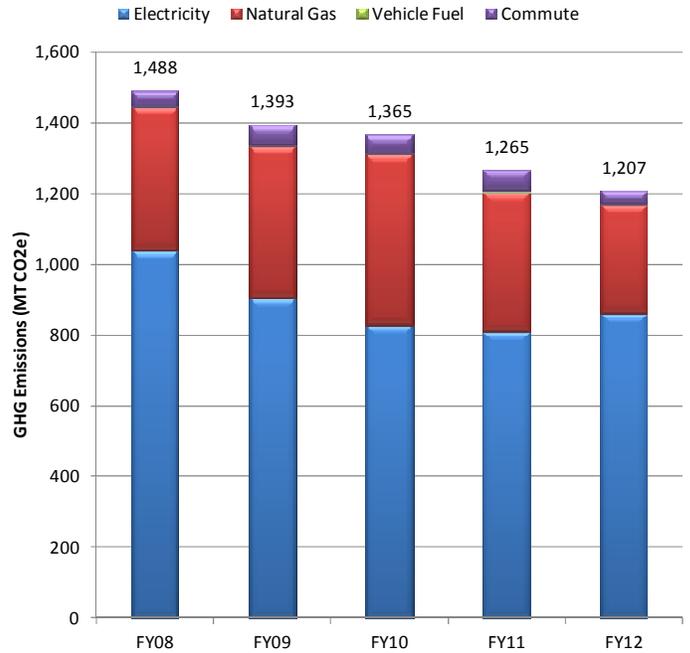
% of Municipal Footprint

5.1%

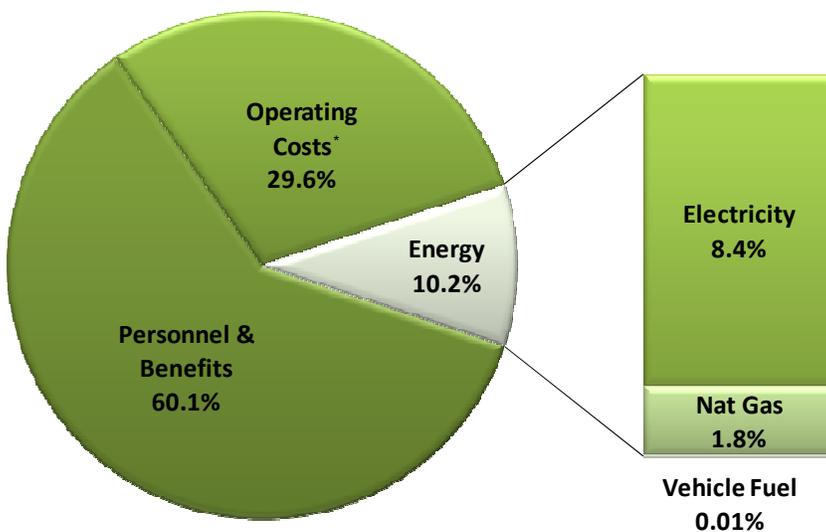
Civic Center Energy Costs 2008-12



Civic Center GHG Emissions 2008-12



Civic Center Fund Budget and Energy Expenses FY12 Total Budget \$2.1M



Highlights / Notes

- Banquet hall renovation completed spring 2012
 - Includes new, efficient HVAC system
 - Updated lighting
- Major arena and concourse renovations completed spring 2012
 - Updated arena lighting

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report.

Carbon Footprint- Parking Services Fund

Energy Spending

↓ 0.5% from FY11

-\$430

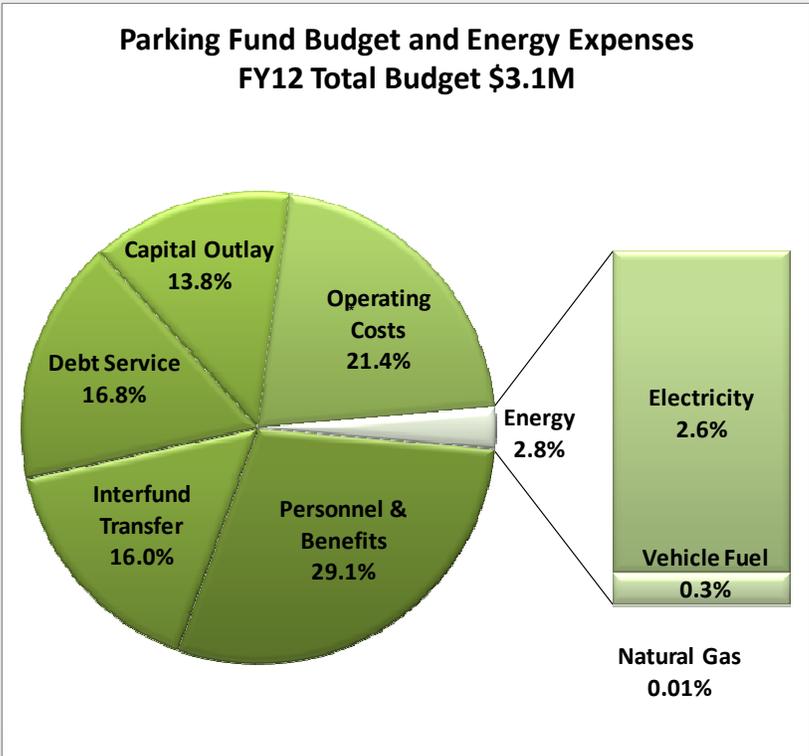
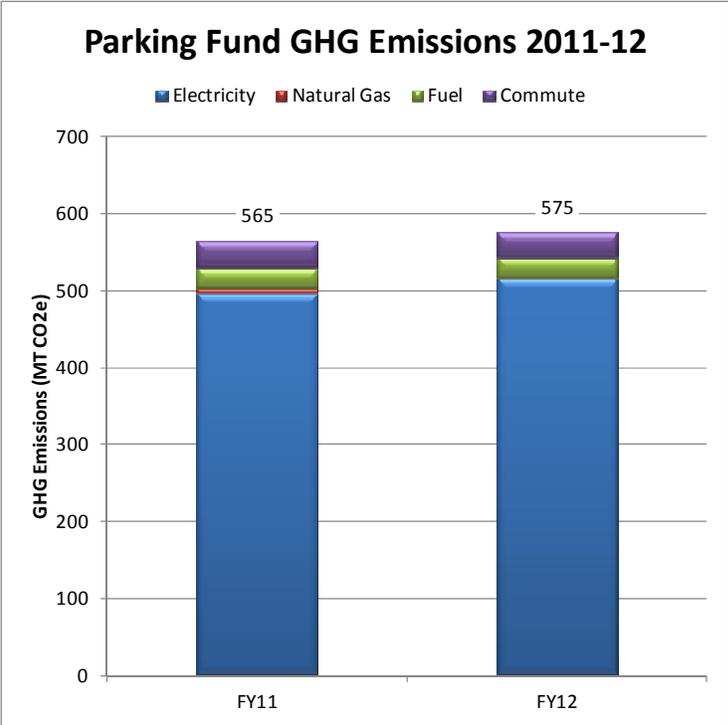
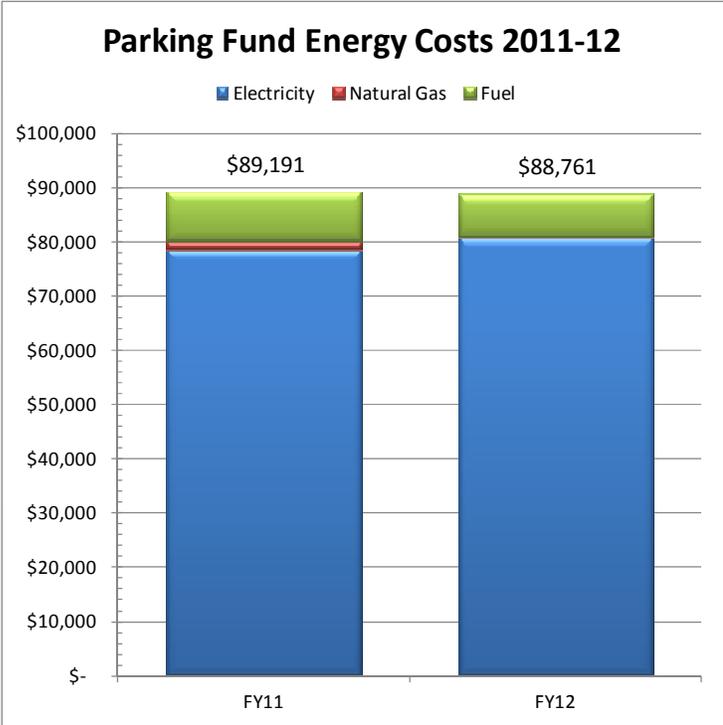
GHG Emissions

↑ 1.8% from FY11

+10 MT CO₂e

% of Municipal Footprint

2.3%



Highlights / Notes

- New parking garage at 51 Biltmore has all LED lighting (came online after end of FY)
- Natural gas reduction due to vacancy of a leased property

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report.

Carbon Footprint- Stormwater & Street Cut Utility

Energy Spending

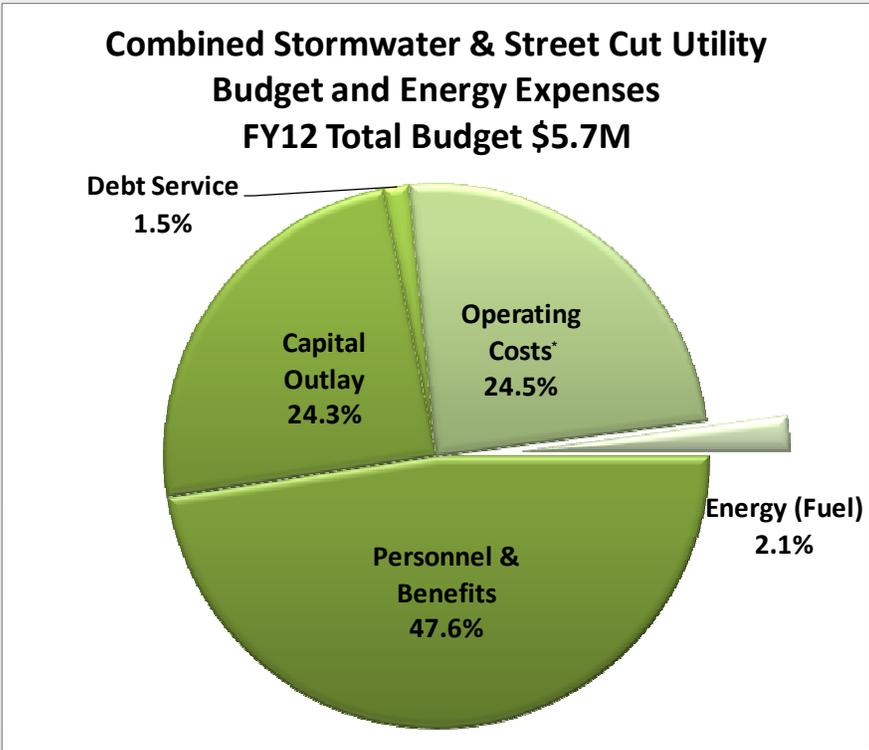
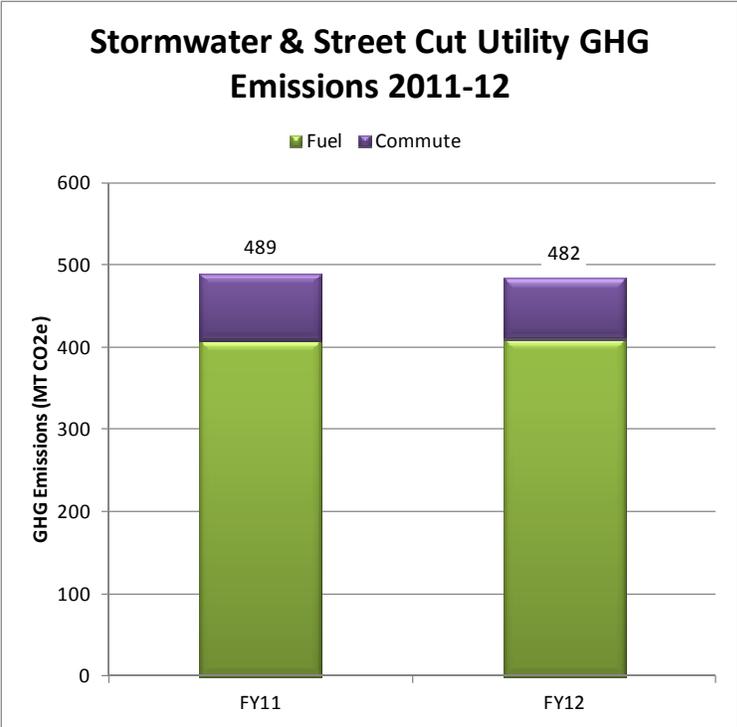
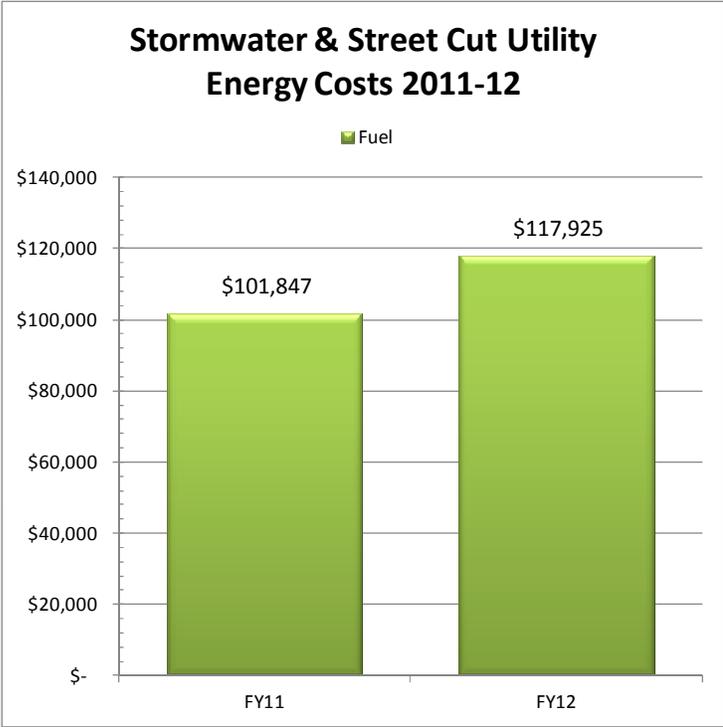
↑ 15.8% from FY11
+\$16,078

GHG Emissions

↓ 1.4% from FY11
-7 MT CO₂e

% of Municipal Footprint

1.7%



Highlights / Notes

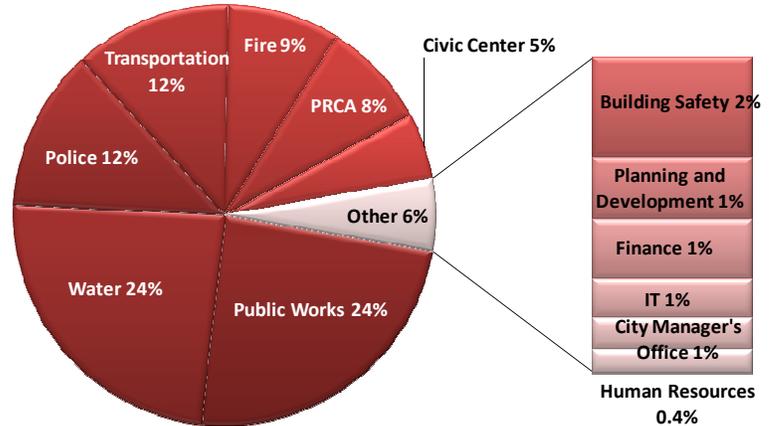
- Emissions decreased slightly, while energy costs increased due to rise in cost of fuel

* Energy expenses are paid out of operating costs, but are presented separately for the purposes of this report.

Carbon Footprint By Department

Another way to break apart the City's carbon footprint is on a departmental basis. The following analysis shows how each department is performing over time and where its emissions are coming from.

2012 GHG Emissions by Department



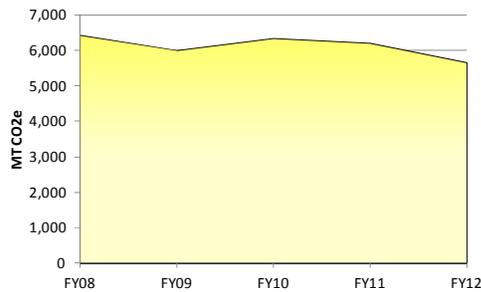
Public Works Department

FY12 Emissions: 5,661 MT CO₂e

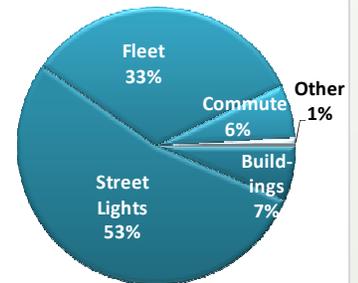
Percent change: -8.9%

Significant change factor: Led Streetlights

Emissions Trend 2008-12



GHG Emissions by Sector



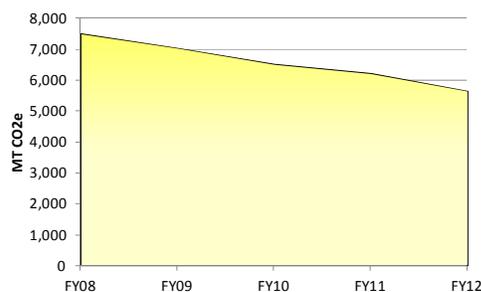
Water Department

FY12 Emissions: 5,647 MT CO₂e

Percent change: -9.2%

Significant change factor: System efficiencies

Emissions Trend 2008-12



GHG Emissions by Sector



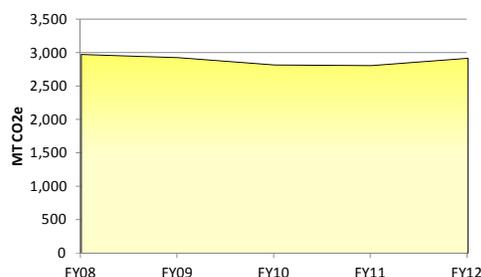
Police Department

FY12 Emissions: 2,923 MT CO₂e

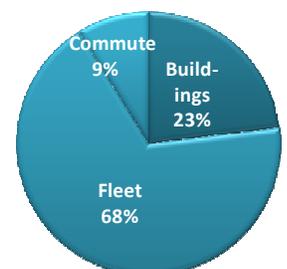
Percent change: +3.6%

Significant change factor: Fuel usage

Emissions Trend 2008-12



GHG Emissions by Sector



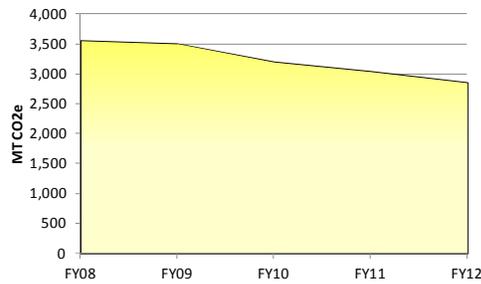
Transportation Department

FY12 Emissions: 2,854 MT CO₂e

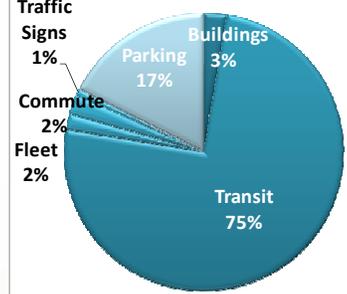
Percent change: -6.1%

Significant change factor: Transit service reduction

Emissions Trend 2008-12



GHG Emissions by Sector



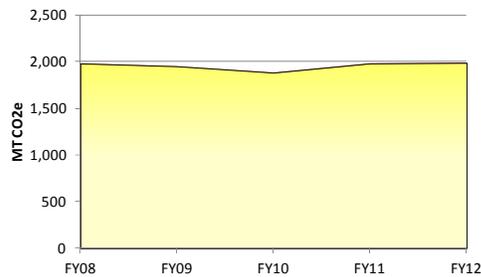
Fire Department

FY12 Emissions: 1,992 MT CO₂e

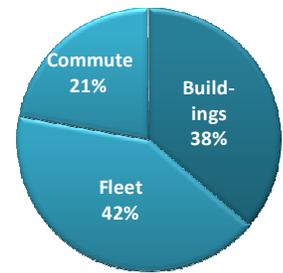
Percent change: +0.3%

Significant change factor: Steady

Emissions Trend 2008-12



GHG Emissions by Sector



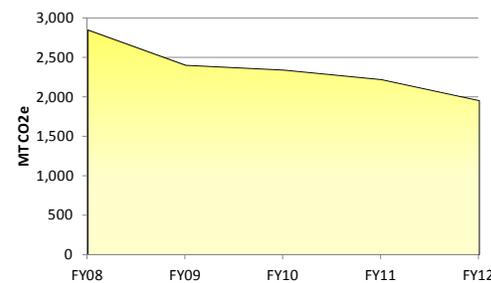
PRCA Department

FY12 Emissions: 1,958 MT CO₂e

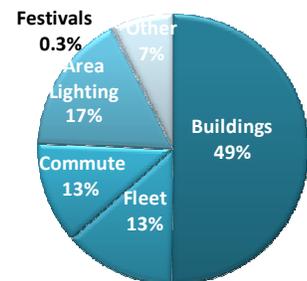
Percent change: -12.0%

Significant change factor: Warm winter

Emissions Trend 2008-12



GHG Emissions by Sector



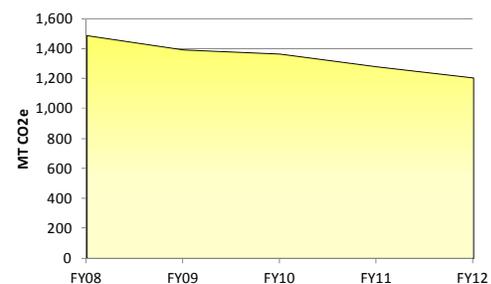
Civic Center Department

FY12 Emissions: 1,206 MT CO₂e

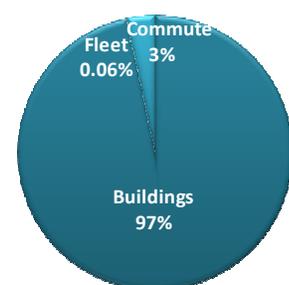
Percent change: -5.8%

Significant change factor: Warm winter

Emissions Trend 2008-12



GHG Emissions by Sector



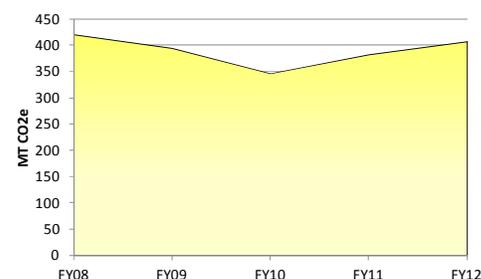
Building Safety Dept

FY12 Emissions: 408 MT CO₂e

Percent change: +6.6%

Significant change factor: New facility came online

Emissions Trend 2008-12



GHG Emissions by Sector



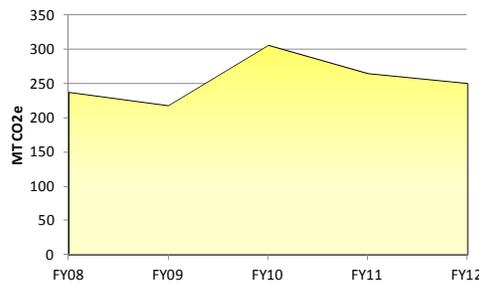
Planning Department

FY12 Emissions: 250 MT CO₂e

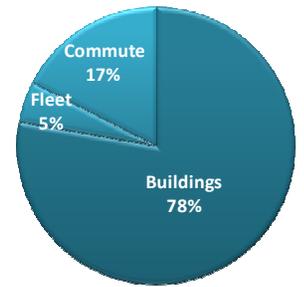
Percent change: -5.5%

Significant City Hall
change factor: conservation

Emissions Trend 2008-12



GHG Emissions by Sector



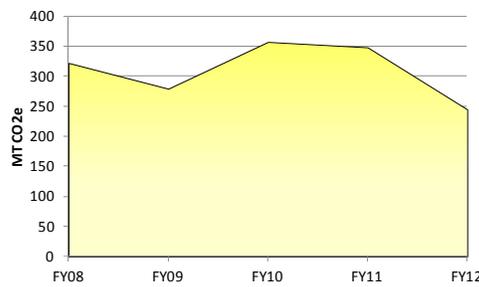
Finance Department

FY12 Emissions: 245 MT CO₂e

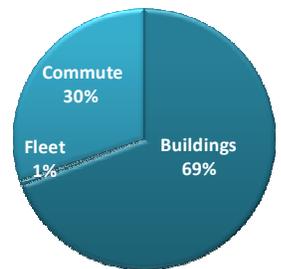
Percent change: -29.7%

Significant City Hall
change factor: conservation

Emissions Trend 2008-12



GHG Emissions by Sector



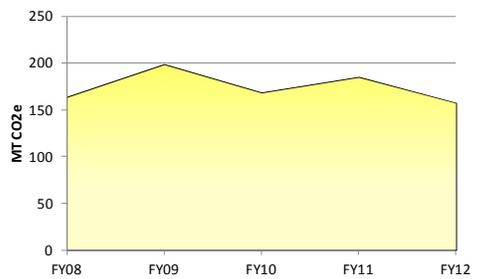
Information Technology

FY12 Emissions: 158 MT CO₂e

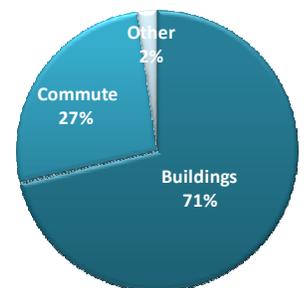
Percent change: -14.9%

Significant City Hall
change factor: conservation

Emissions Trend 2008-12



GHG Emissions by Sector



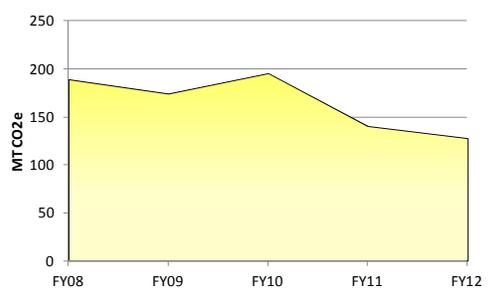
City Manager's Office / Communications / Legal

FY12 Emissions: 128 MT CO₂e

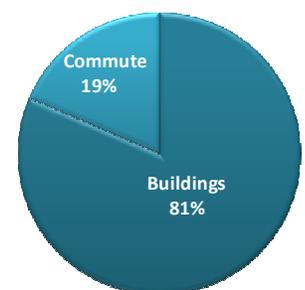
Percent change: -9.0%

Significant City Hall
change factor: conservation

Emissions Trend 2008-12



GHG Emissions by Sector



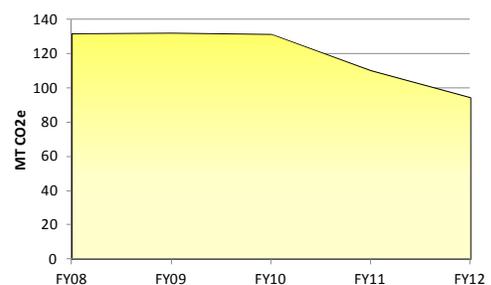
Human Resources Dept

FY12 Emissions: 94 MT CO₂e

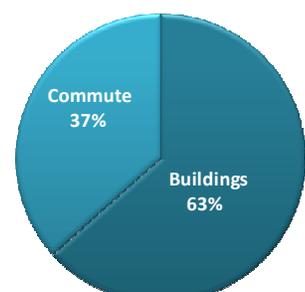
Percent change: -14.4%

Significant City Hall
change factor: conservation

Emissions Trend 2008-12



GHG Emissions by Sector



* Note - In many cases the buildings sector emissions are allocated to multiple departments based on a fraction of department employees that use the building. For example, City Hall's emissions are apportioned among the 8 departments that work there.

