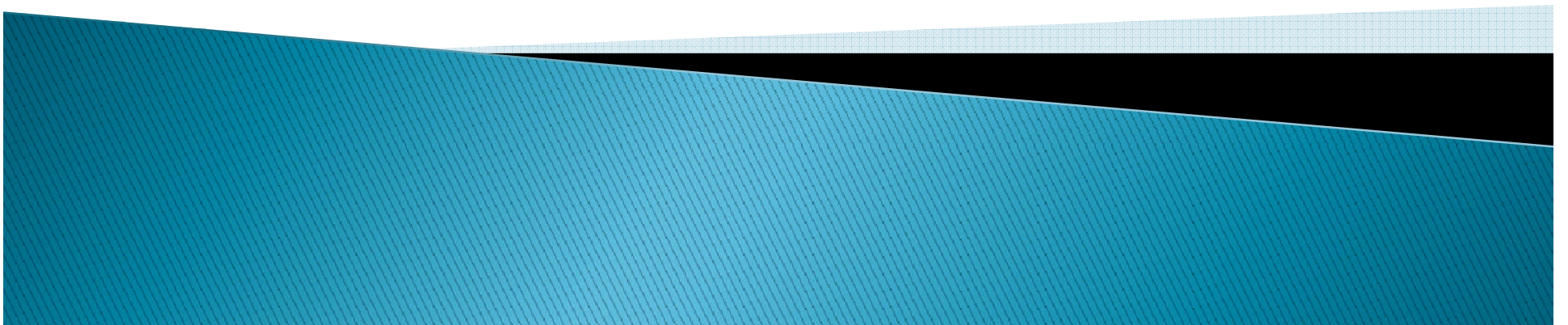


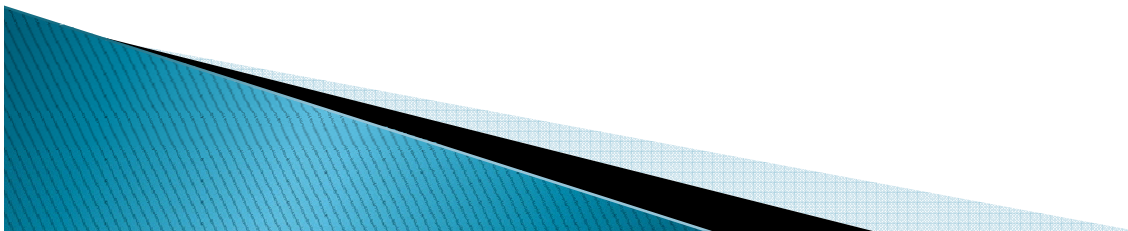
Carbon Footprint and Energy Use

2010



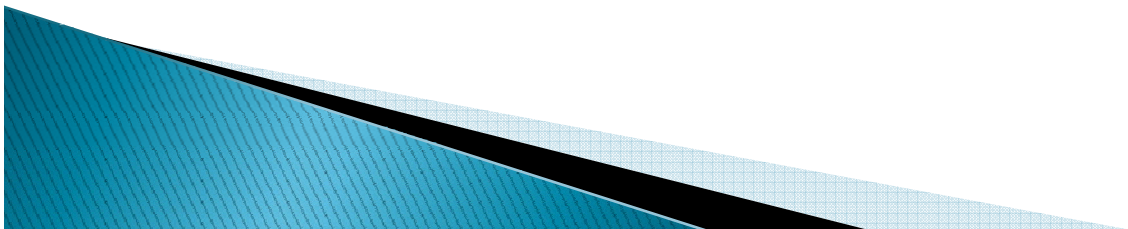
Emissions Scope

- ▶ Electrical Energy Consumption
- ▶ Heating Fuel Consumption
- ▶ Motor Fuel Consumption
- ▶ Employee Commute
- ▶ Water Consumption



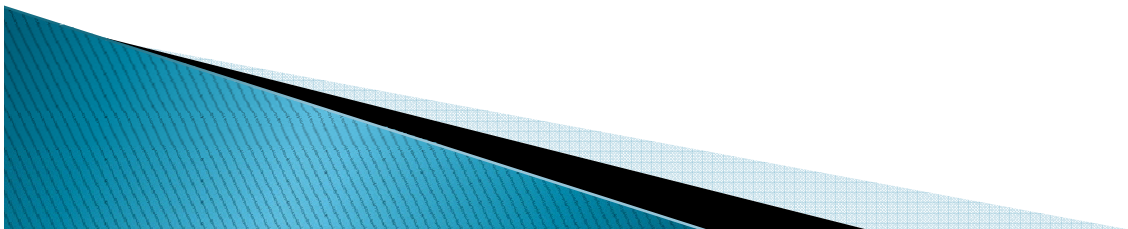
How Do We Compare

- ▶ National Average
 - 90,500 BTU/sq ft
 - University of Wisconsin 50lbs eCO₂ per square foot
- ▶ Buncombe County Buildings
 - 64,862 BTU/sq ft
 - 38 lbs eCO₂ per square foot
 - Reduction of 20.6% from 2005 baseline



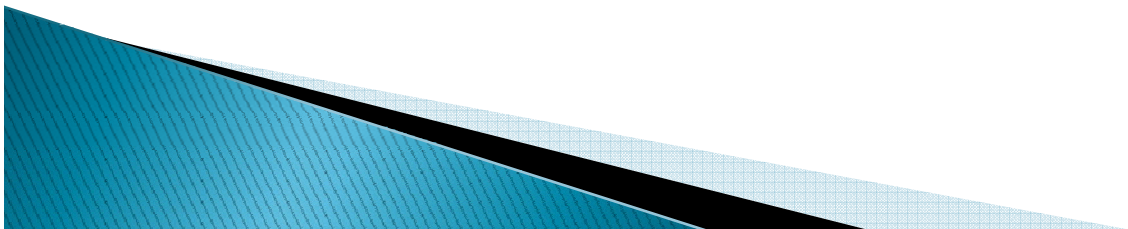
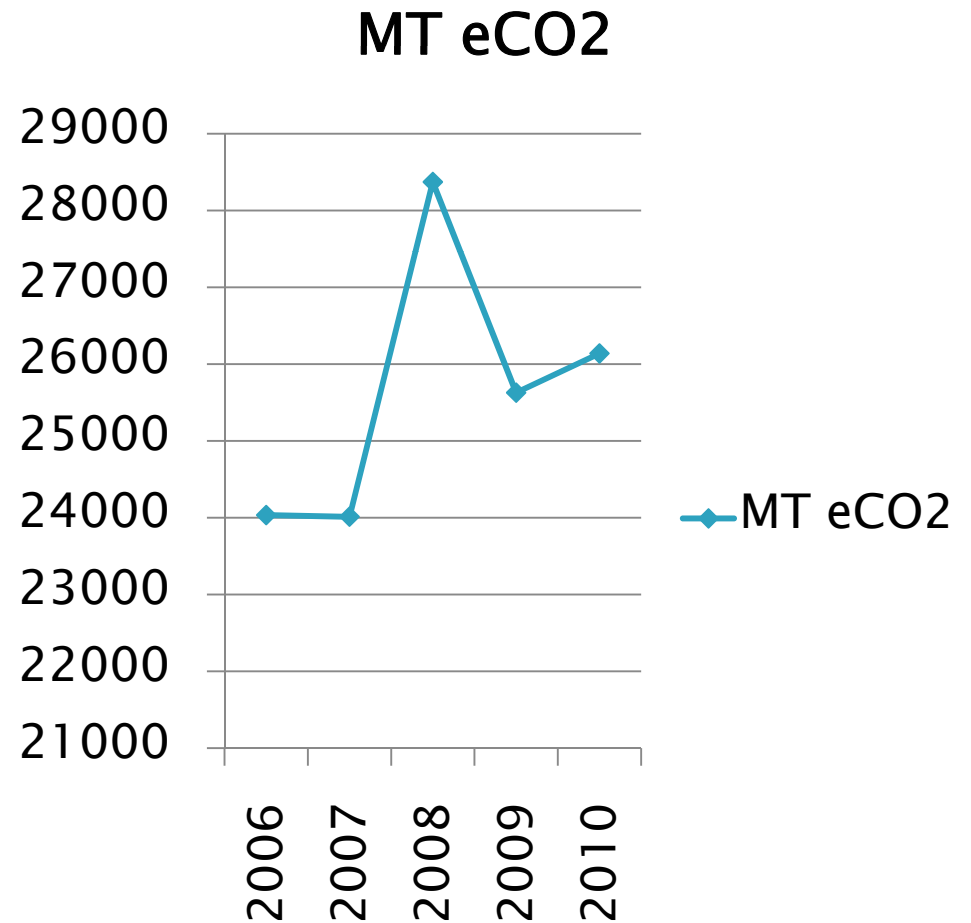
Carbon Emissions For 2010

- ▶ Total of 26,096 MT eCO₂
 - Buildings 60.7%
 - Employee Commute 18.5%
 - Vehicle Fleet 17.4%
 - Off Road Equipment Emissions 3.4%



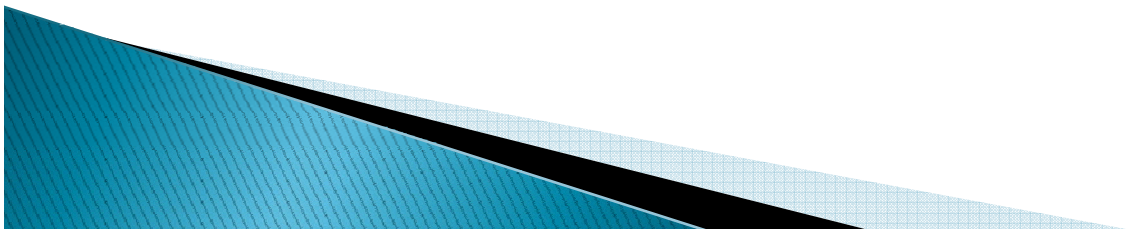
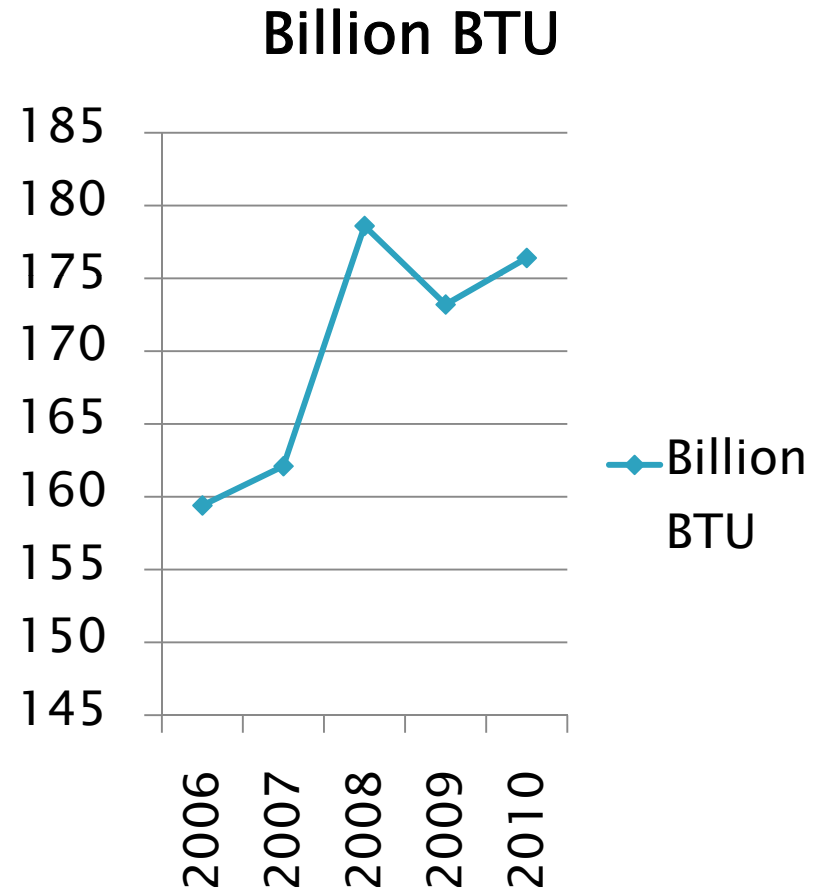
Carbon Emission Trend

- ▶ 2006 - 24,034MT eCO₂
- ▶ 2007 - 24,013MT eCO₂
- ▶ 2008 - 28,372MT eCO₂
- ▶ 2009 - 25,628MT eCO₂
- ▶ 2010 - 26,139MT eCO₂



Total Energy Consumption

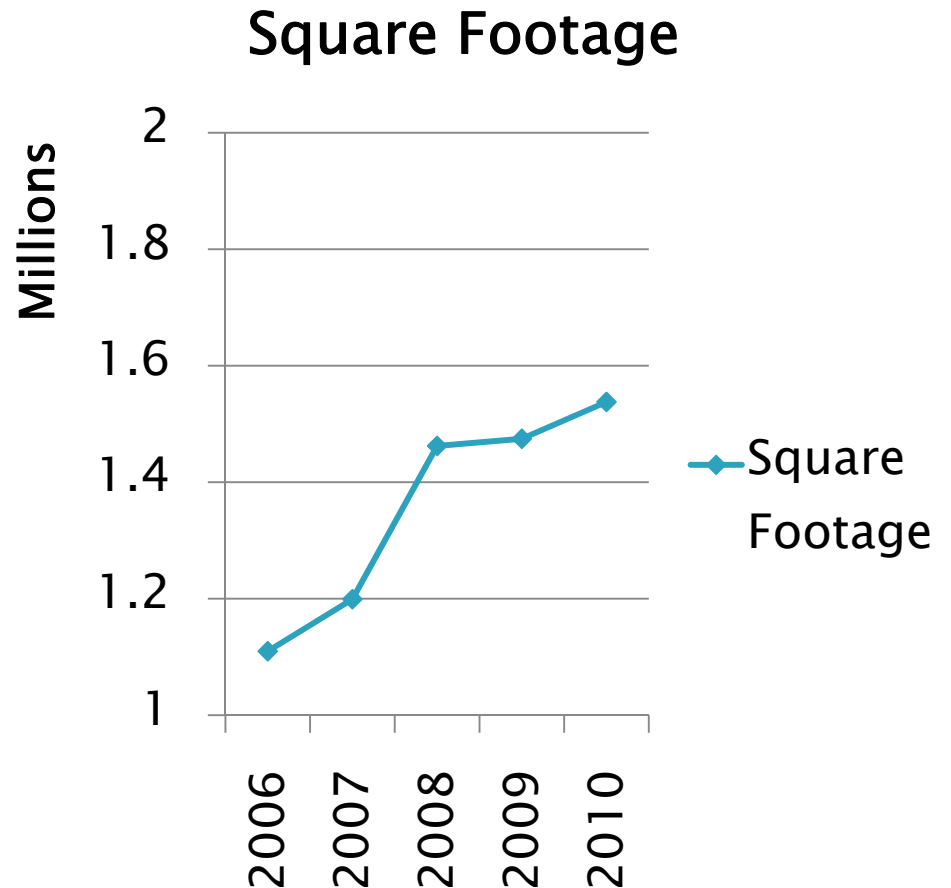
- ▶ 2006 - 159.4 Billion BTU
- ▶ 2007 - 162.1 Billion BTU
- ▶ 2008 - 178.6 Billion BTU
- ▶ 2009 - 173.2 Billion BTU
- ▶ 2010 - 176.4 Billion BTU



Energy Usage Factor

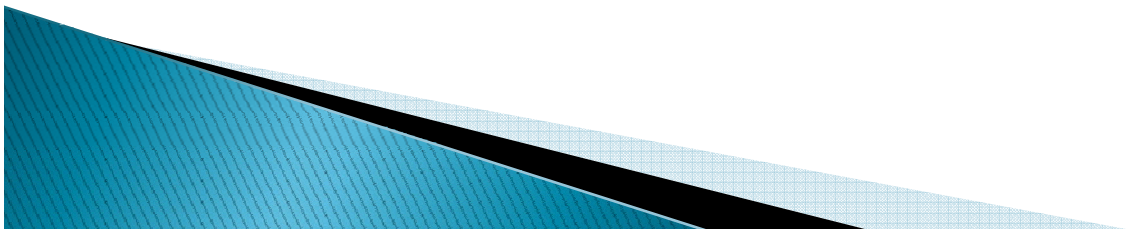
▶ Increased Square Footage

- 1,109,861 square feet at the end of 2006
- 1,537,808 square feet at the end of 2010
 - 200 College Street
54,545 sqft
 - Detention Center
Addition 92,453 sqft
 - College Street Parking
Deck 261,400 sqft



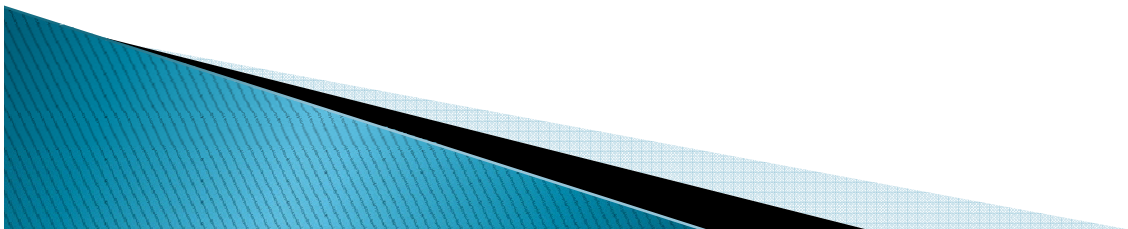
Employee Commute

- ▶ 92.6% of County Employees Drive to Work
- ▶ Average Commuter Round Trip: 27.62 miles
- ▶ In 2010 10,938,088 Commuter Miles Driven
- ▶ Equates to 18.5% of our Annual Carbon Footprint, or 4,815MT eCO₂

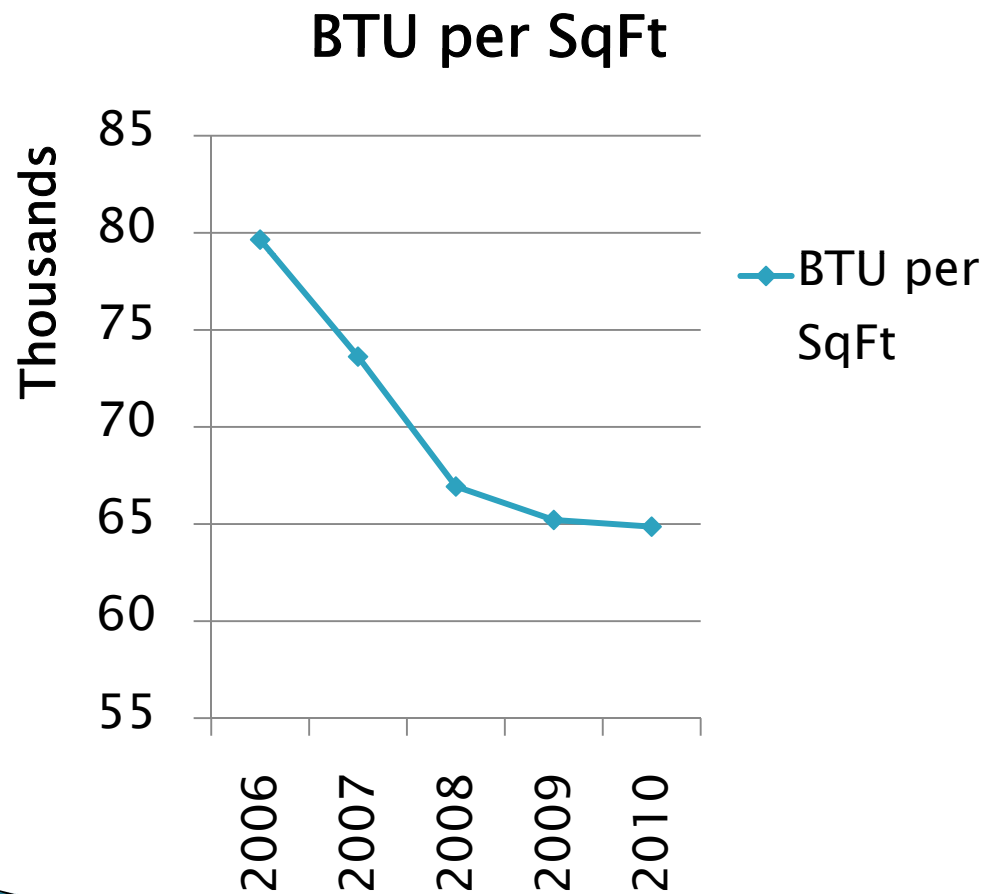


Buildings

- ▶ Over 1.5 Million Square Feet Currently Controlled by Buncombe County
- ▶ 99.7 Billion BTU of Energy Consumed in 2010
- ▶ Buildings are Responsible for 60.7% of Our Carbon Footprint
 - 15,853MT eCO₂
- ▶ Total Energy Cost for 2010: \$1,673,963.72

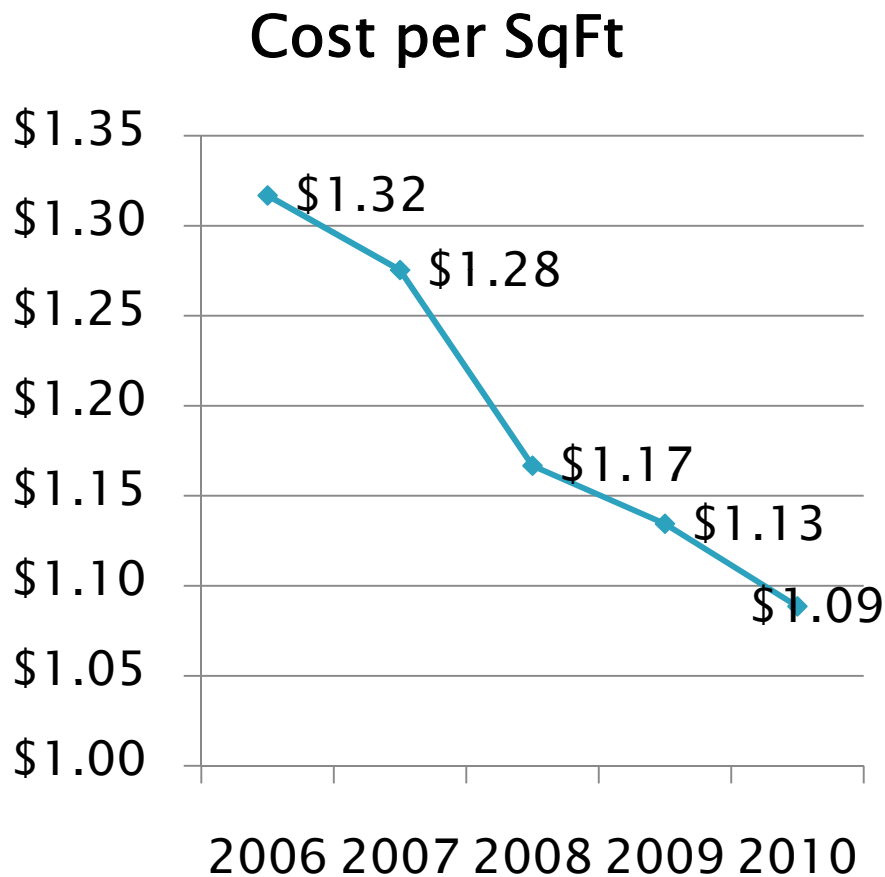


Energy Intensity



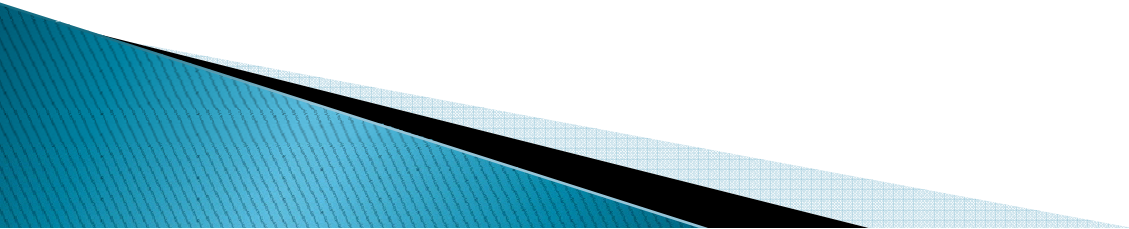
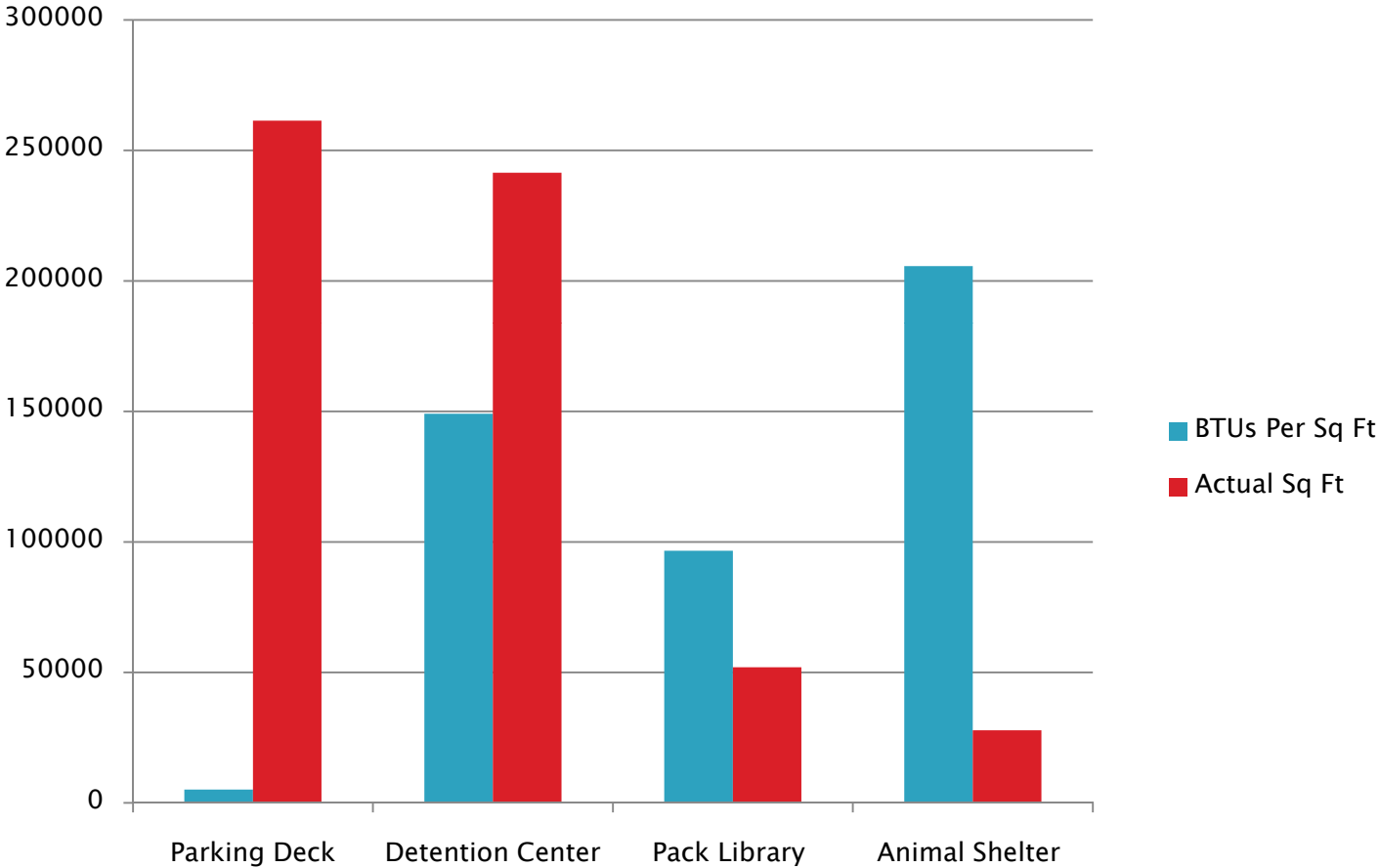
- ▶ Energy Intensity – BTUs consumed per building square foot
- ▶ Steady Decrease in Energy Intensity since 2006

Energy Cost per Square Foot

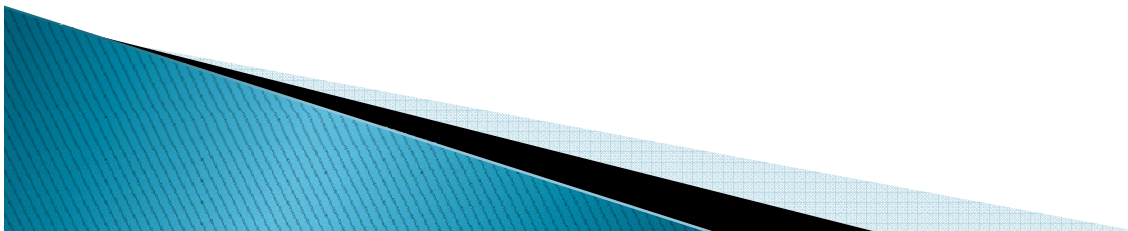
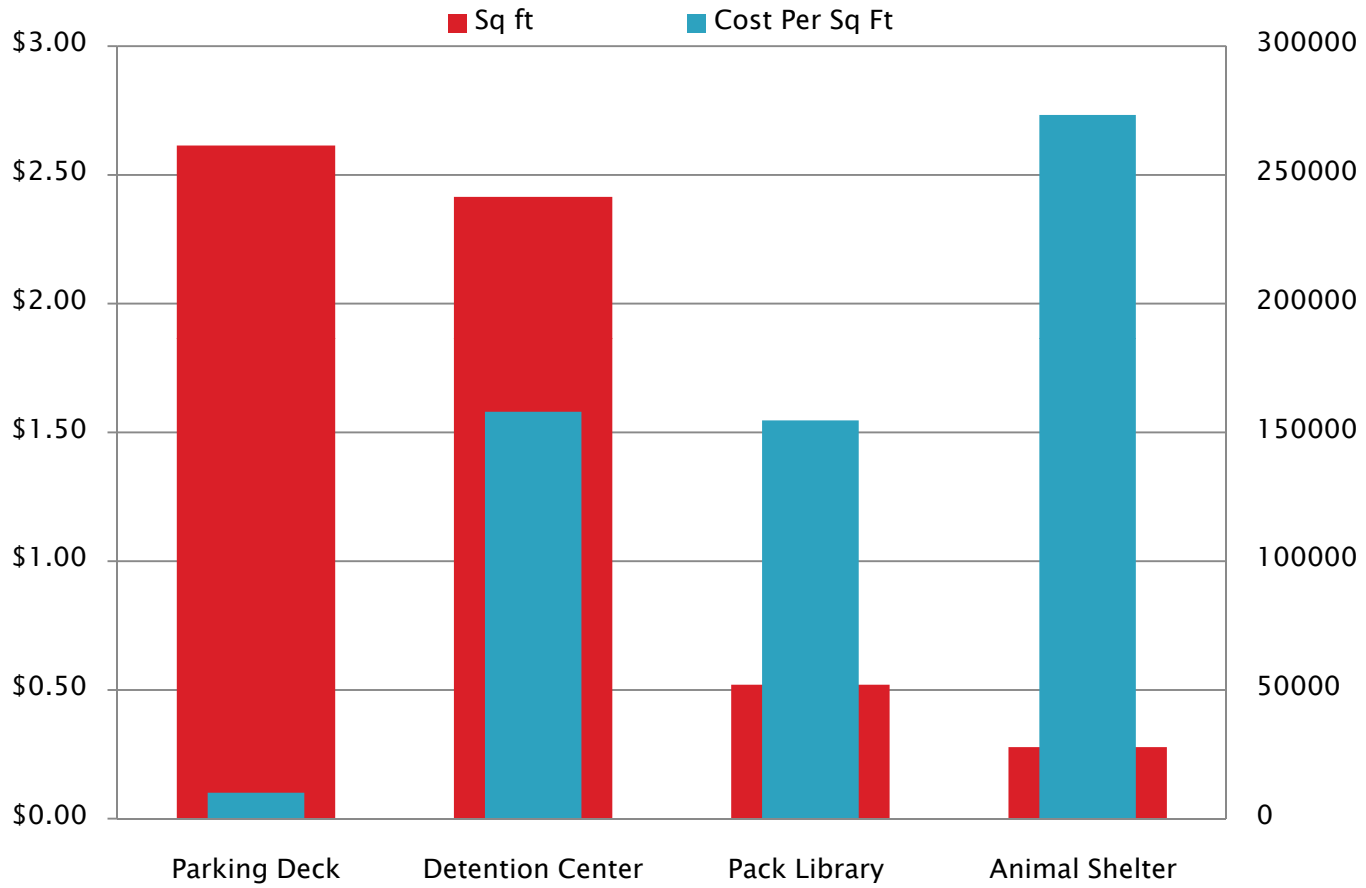


- ▶ Current Building Inventory included 1,537,808 square feet
- ▶ Total utility cost for 2010: \$1,673,963.72
- ▶ Steady Decrease in Cost per Square Foot since 2006

Building Comparison – BTUs Per Sq Ft

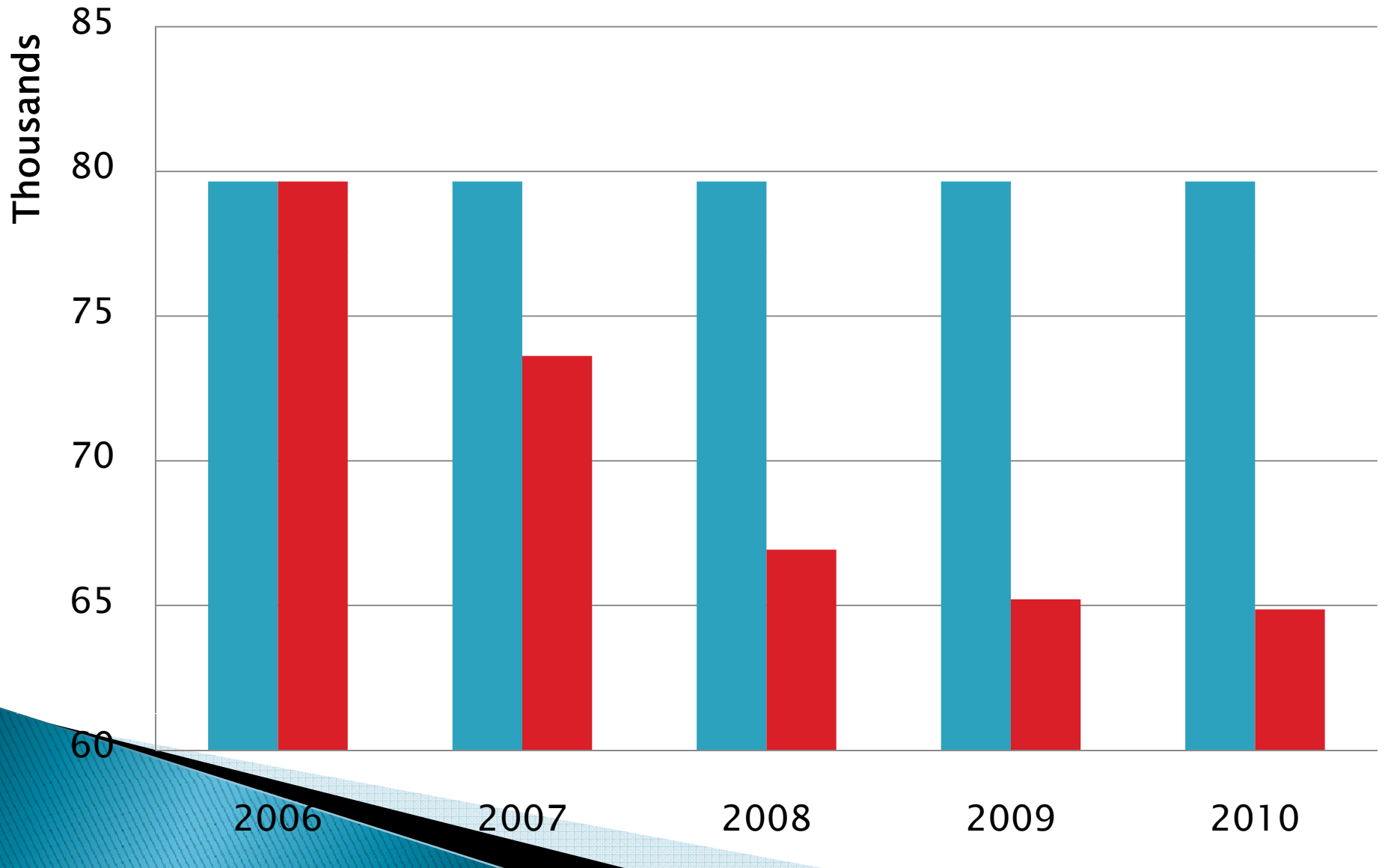


Building Comparison Cost Per Sq Ft

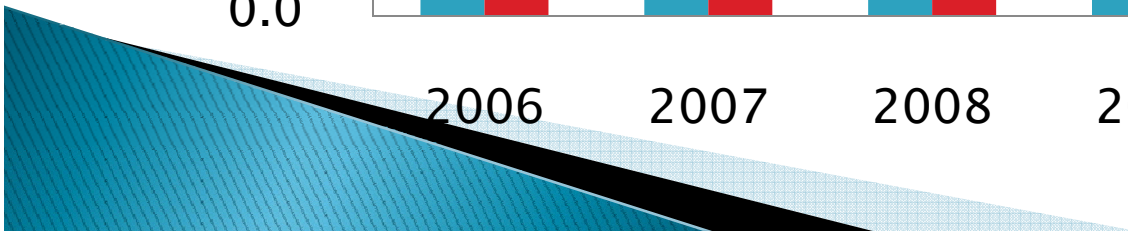
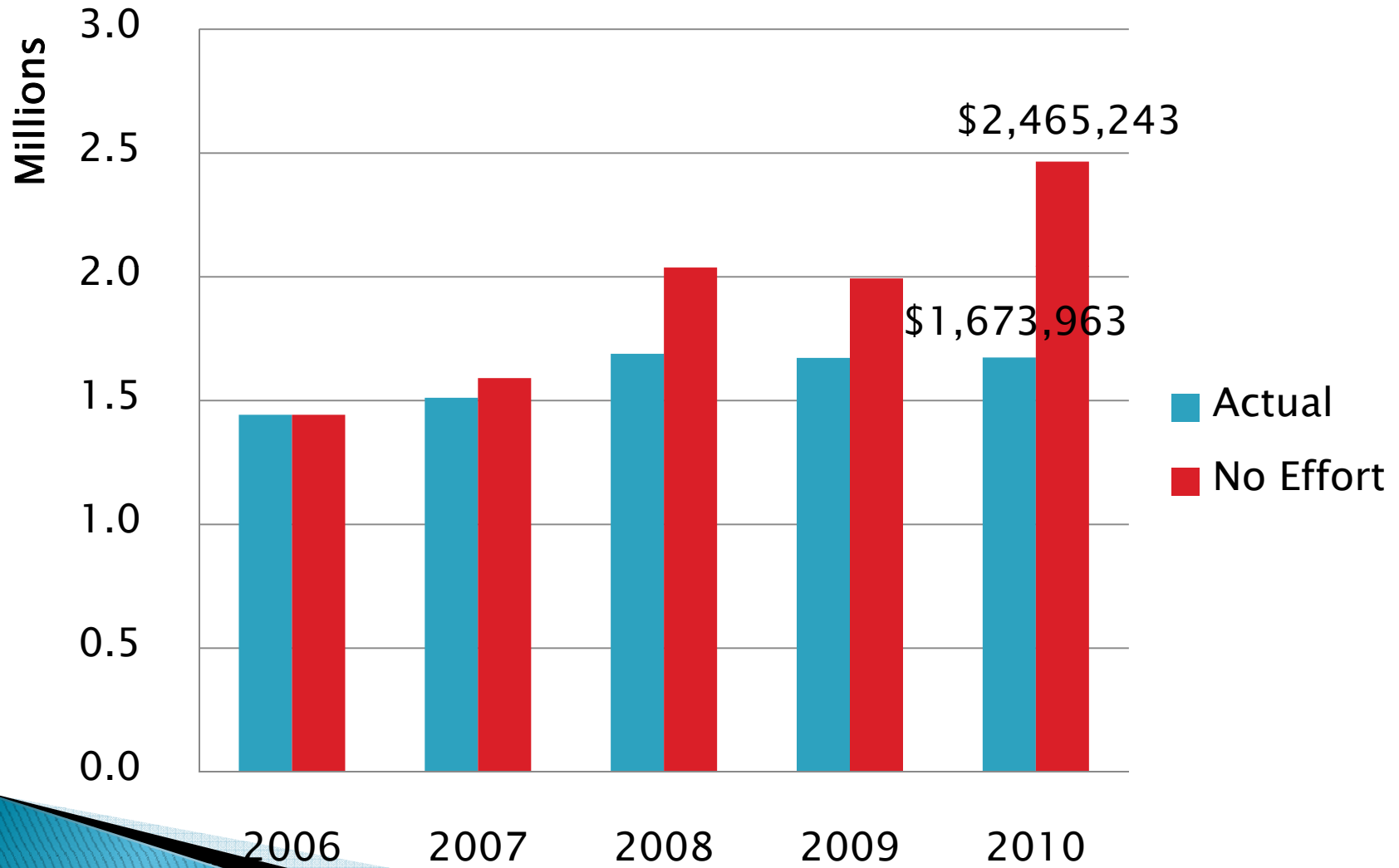


Energy per Square Foot (BTU)

■ Baseline ■ Actual Cost

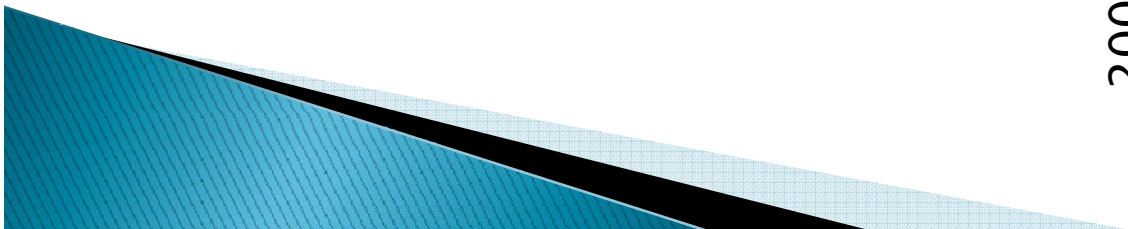
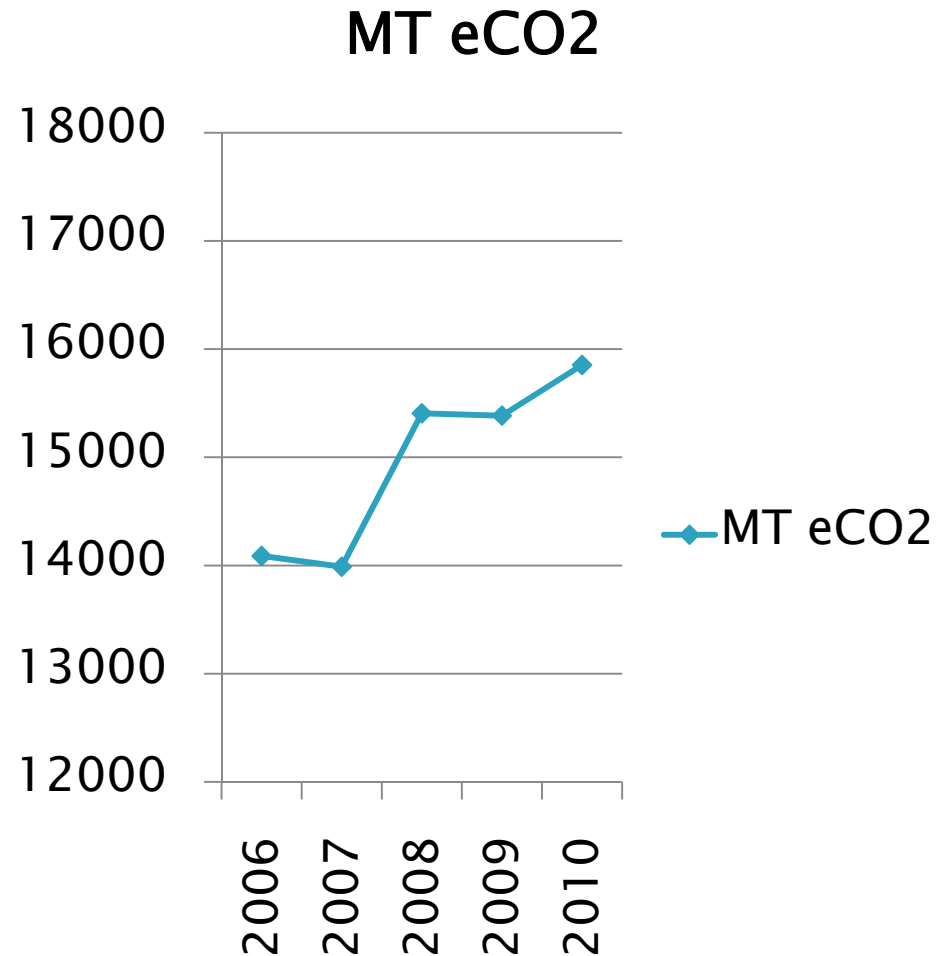


Results of Efficiency Efforts



Building Emissions

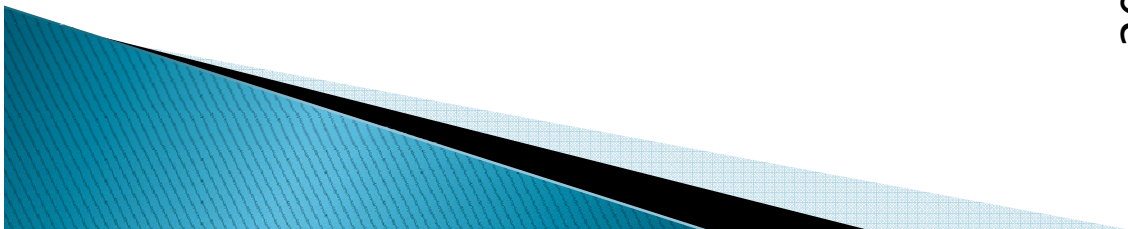
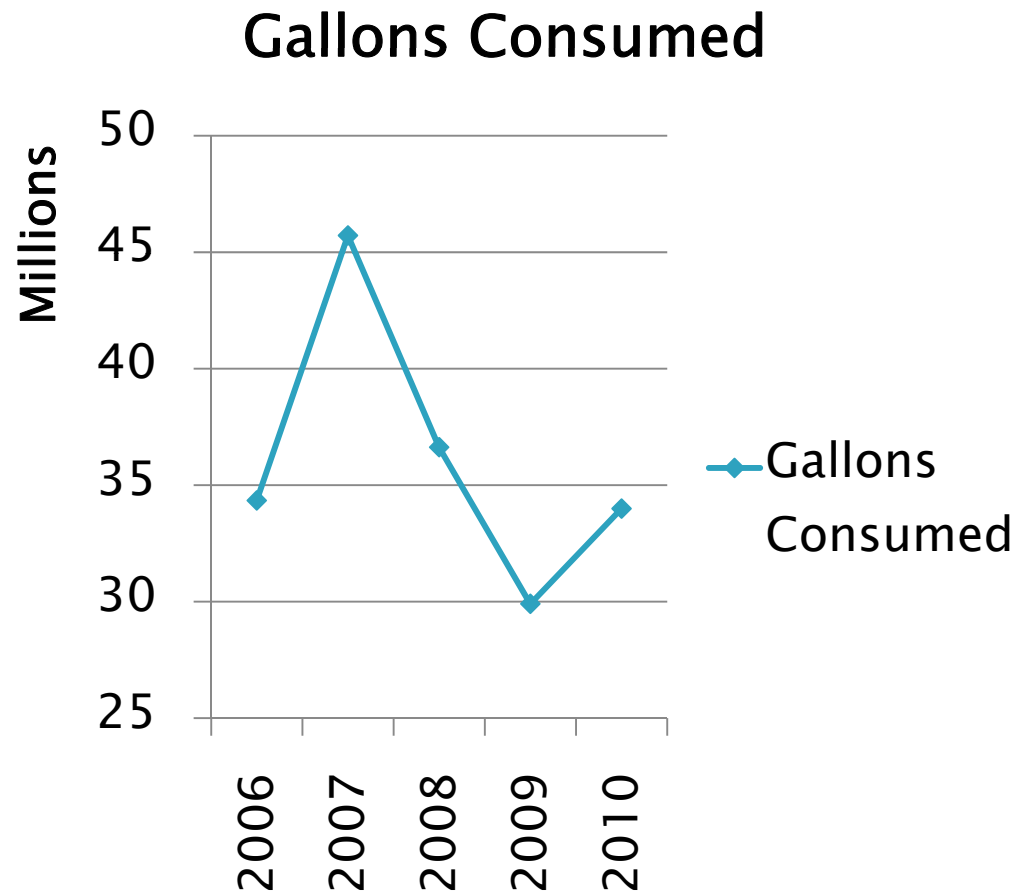
- ▶ 2006–14,088 MT eCO₂
- ▶ 2007–13,988 MT eCO₂
- ▶ 2008–15,406 MT eCO₂
- ▶ 2009–15,385 MT eCO₂
- ▶ 2010–15,853 MT eCO₂



Water Consumption

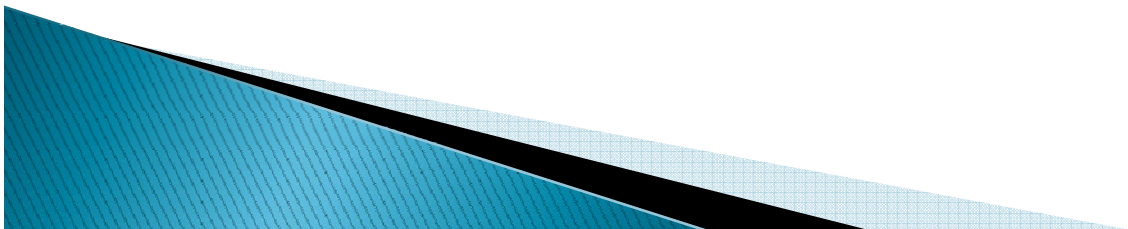
Gallons Consumed

- ▶ 2006 - 34,342,668
- ▶ 2007 - 45,720,992
- ▶ 2008 - 36,629,452
- ▶ 2009 - 29,906,148
- ▶ 2010 - 33,993,644



Fleet Details for 2010

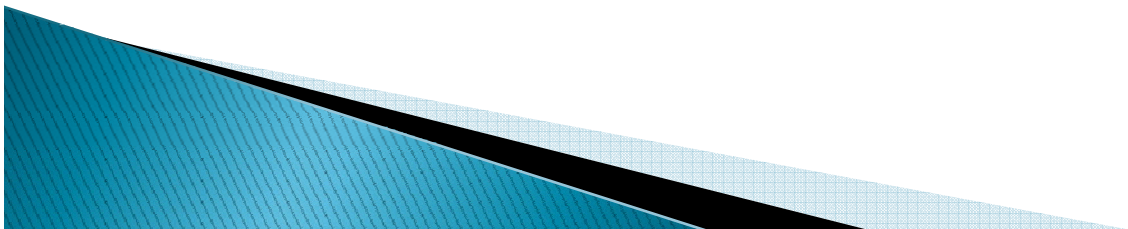
- ▶ Total Miles Traveled: 6,544,613
- ▶ Fuel Consumed: 499,087.8 Gallons
- ▶ Total Fuel Cost: \$1,128,934.30
- ▶ Fleet Contributed 4,529 MT eCO₂ 17.4% of Our Total Annual Carbon Footprint



Vehicle Fleet

▶ Fleet Size

- 2006 - 413
- 2007 - 414
- 2008 - 415
- 2009 - 415
- 2010 - 419



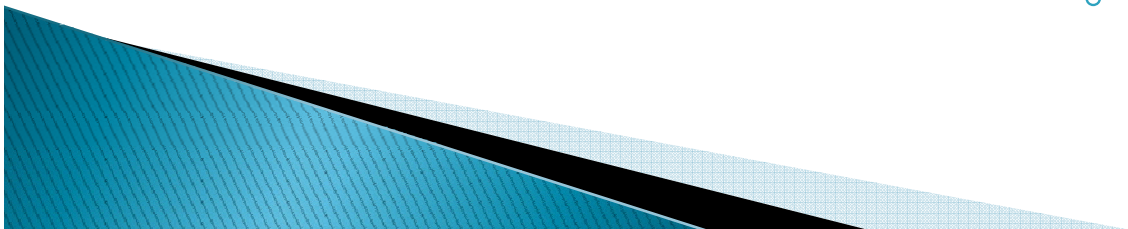
Number of Vehicles by Department

▶ Public Safety

- Sheriff's Department 222
- Emergency Management 30

▶ Operations

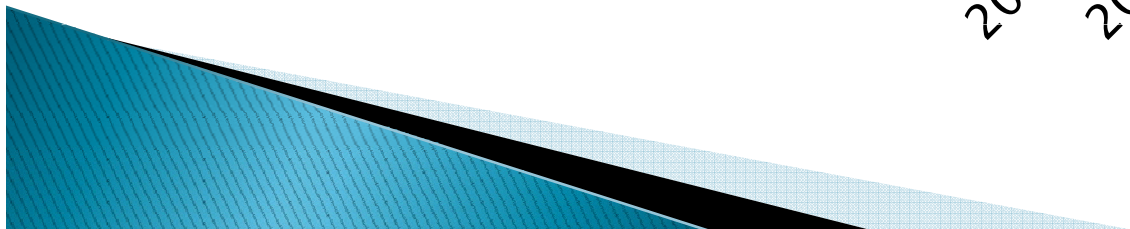
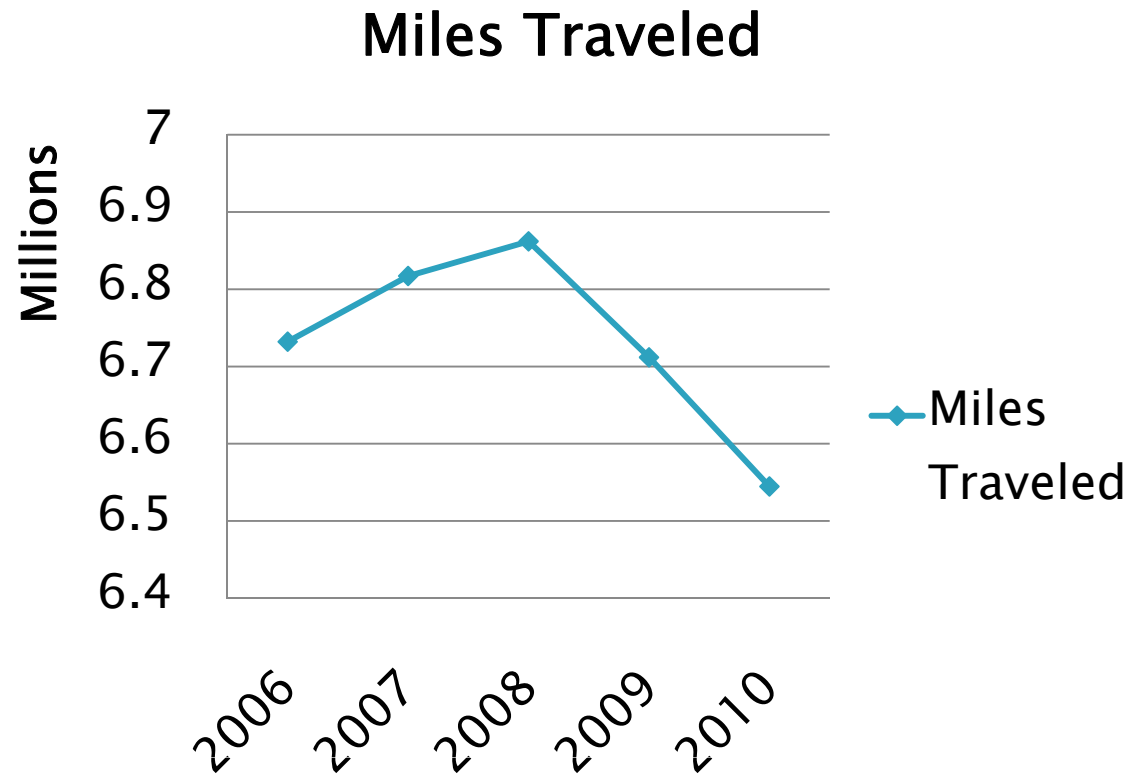
- Mountain Mobility 44
- Solid Waste 27
- Maintenance 21
- Inspections 16
- Tax 15
- Environmental Health 10
- DSS 10
- Planning 6
- Other 18



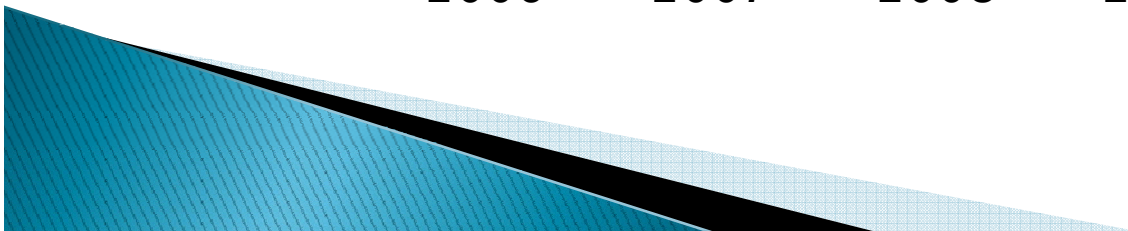
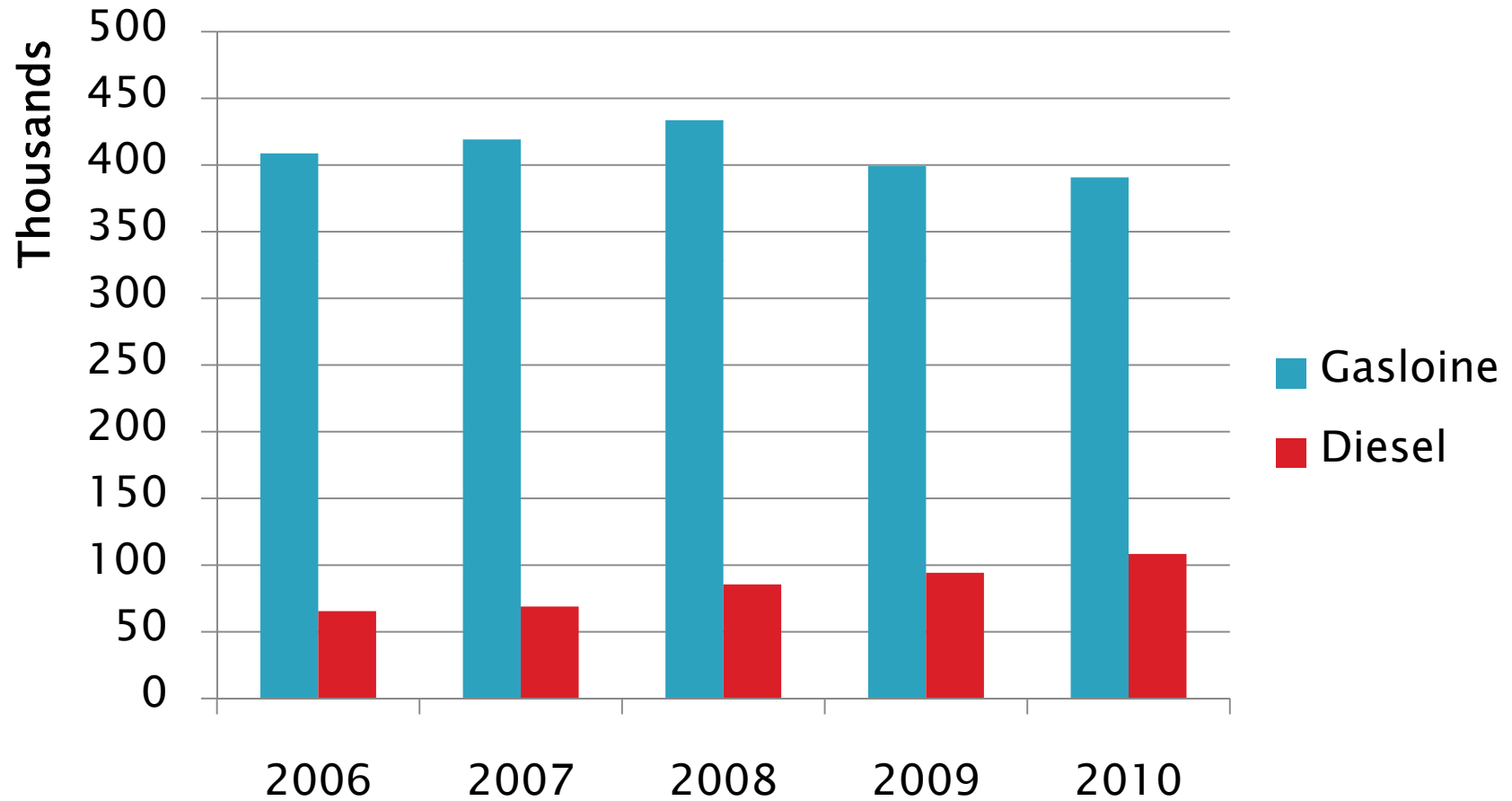
Total Fleet Mileage

▶ Miles Traveled

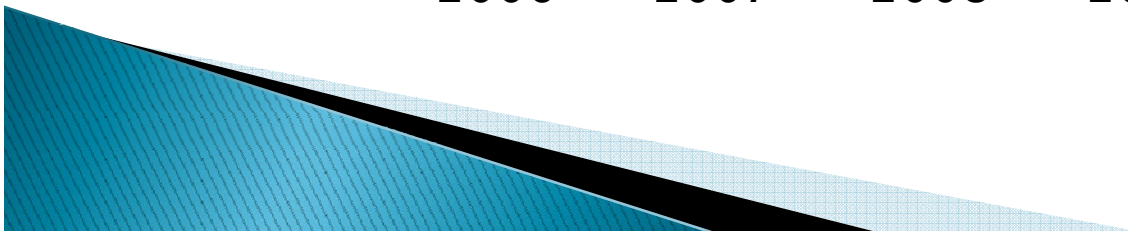
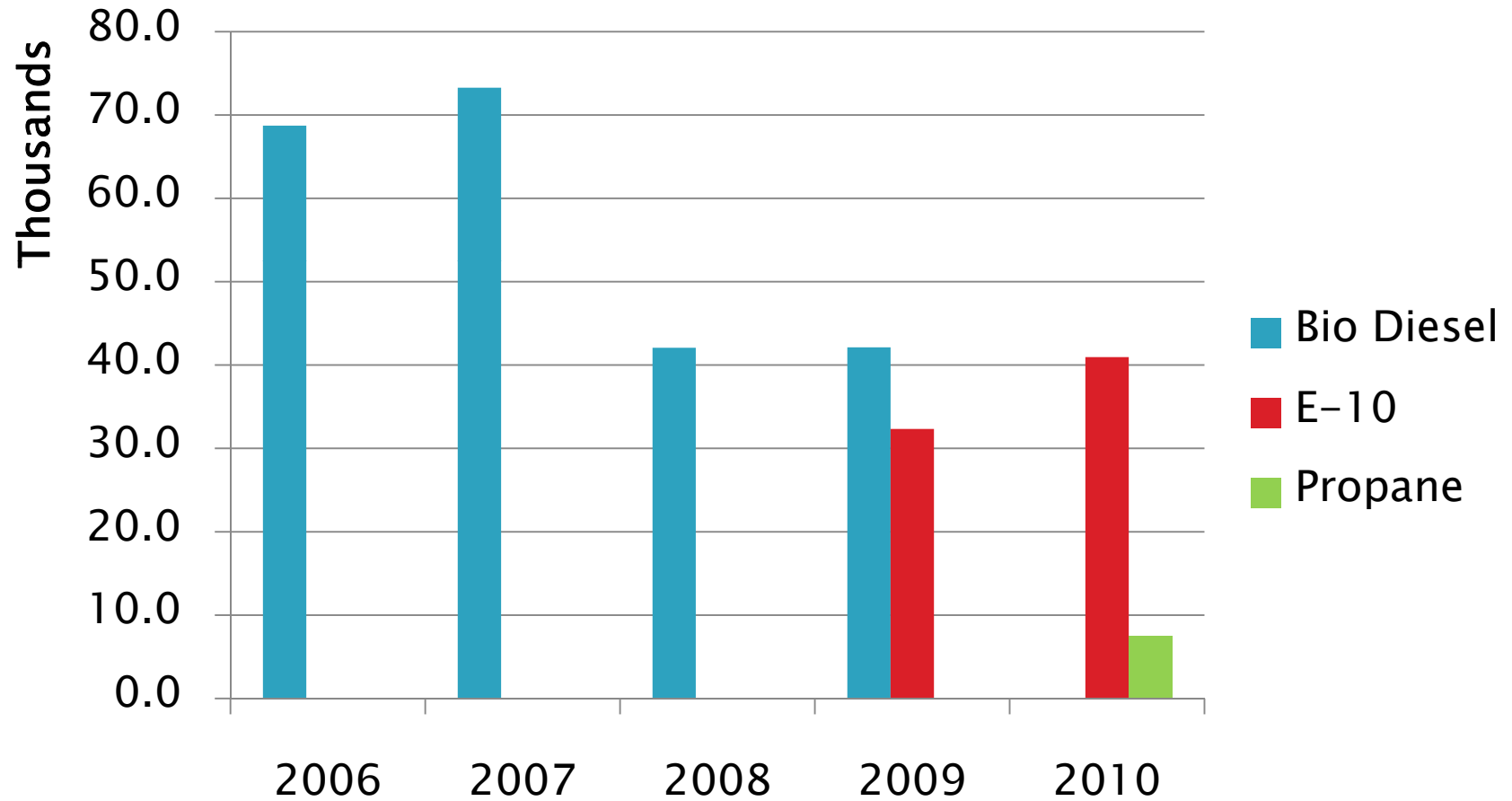
- 2006 - 6,732,051
- 2007 - 6,817,124
- 2008 - 6,862,013
- 2009 - 6,711,816
- 20010 - 6,544,613



Fuel Usage History

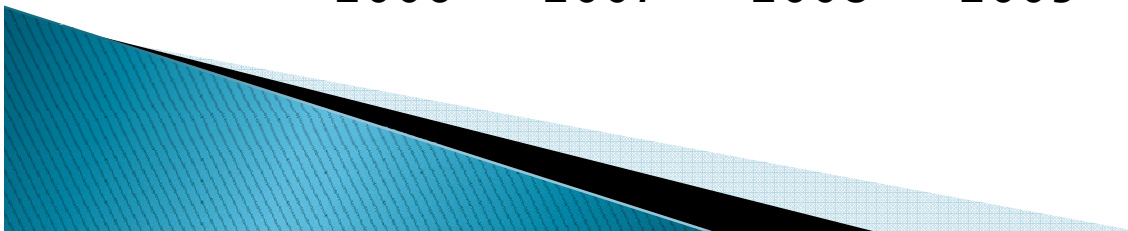
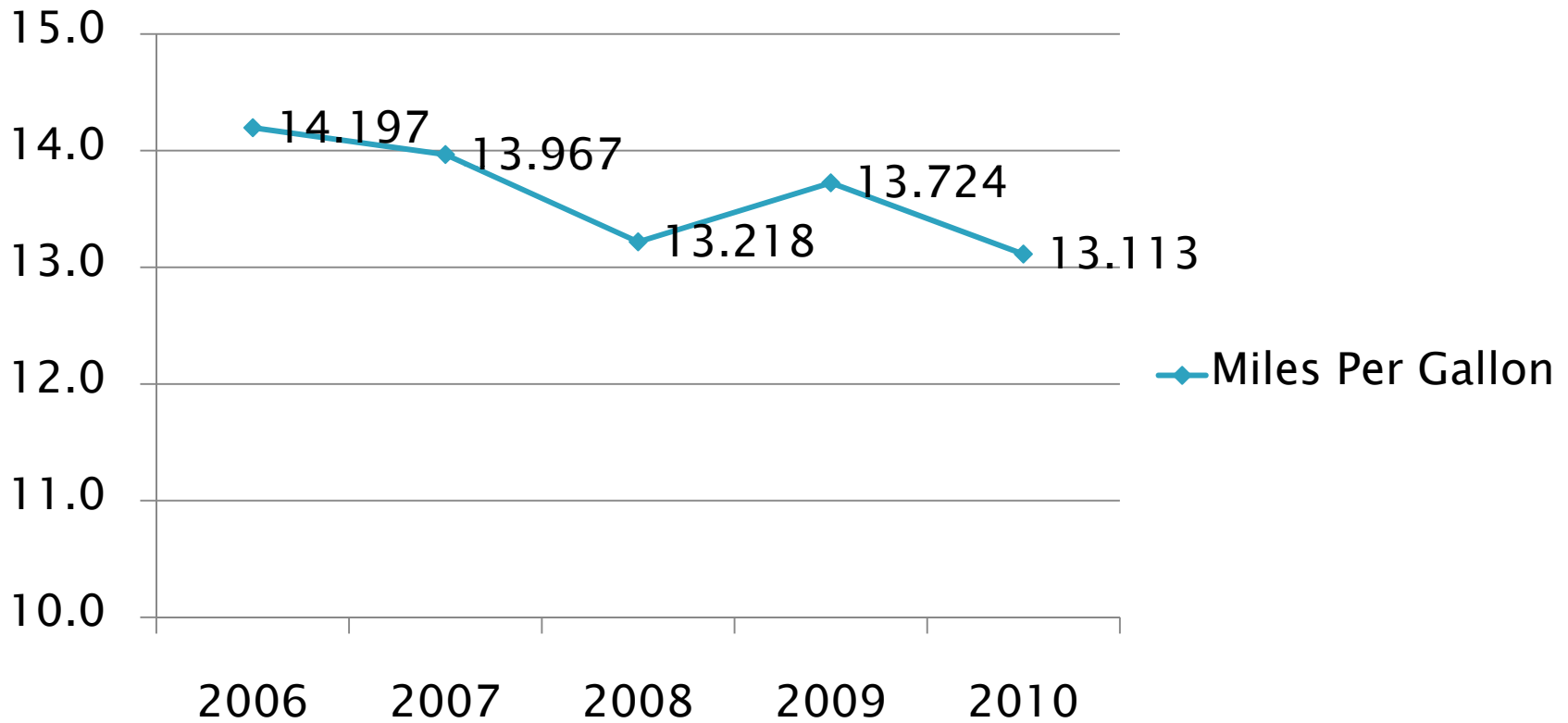


Alternative Fuel Usage



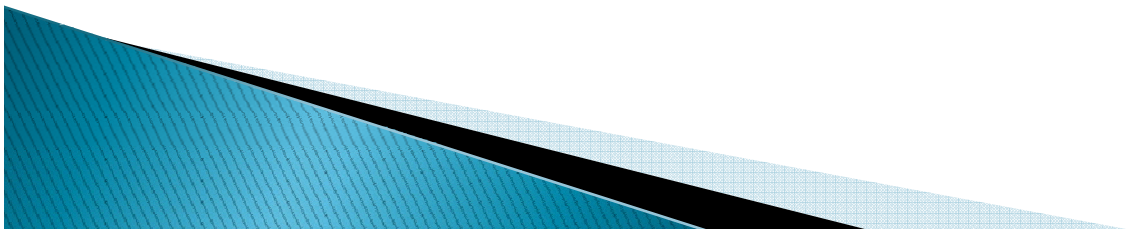
Fleet Fuel Mileage

Miles Per Gallon



Other Direct Emission

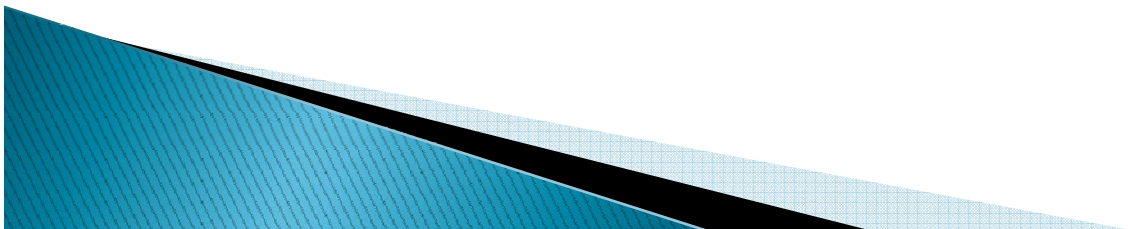
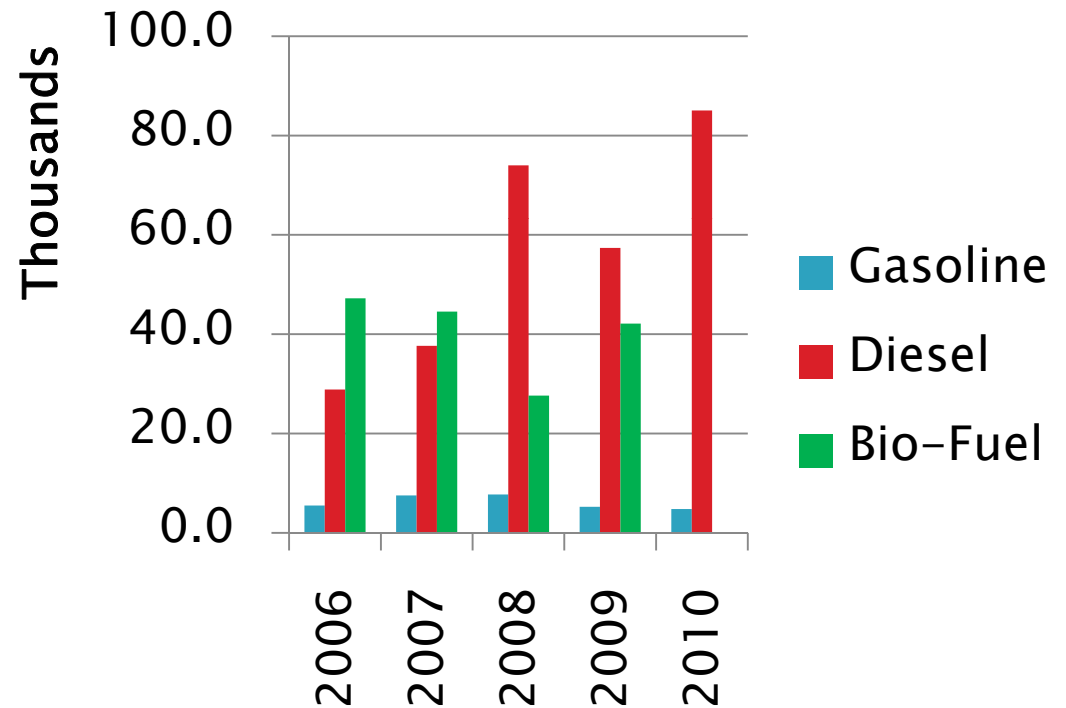
- ▶ Fuel for Off-Road Applications Contributed: 899 MT eCO₂ or 3.4%
- ▶ This Category Includes: Landfill, Grounds Maintenance and Diesel Powered Generators



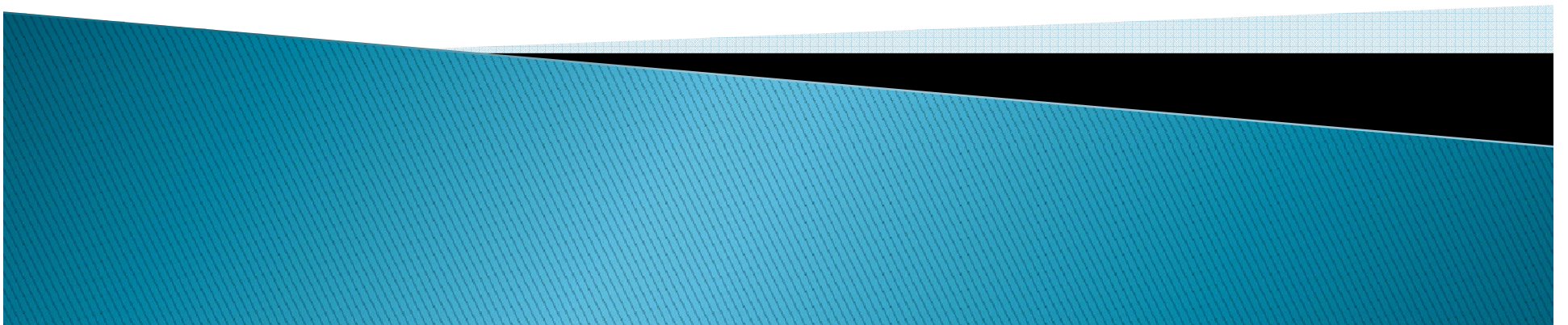
Off Road Fuel Use

▶ Total Gallons

- 2006 - 81,619
- 2007 - 89,710
- 2008 - 109,361
- 2009 - 104,706
- 2010 - 89,849

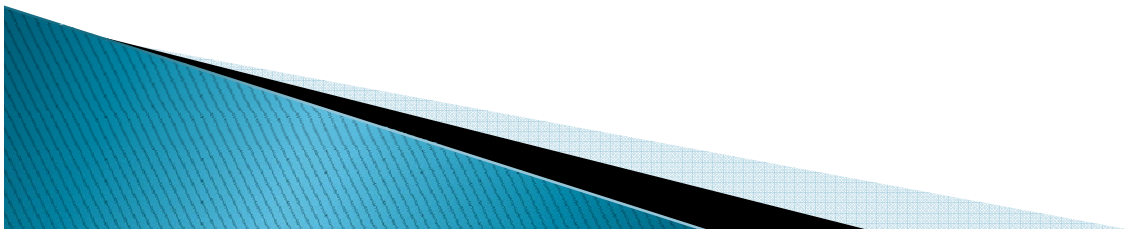


Emission Reduction Projects



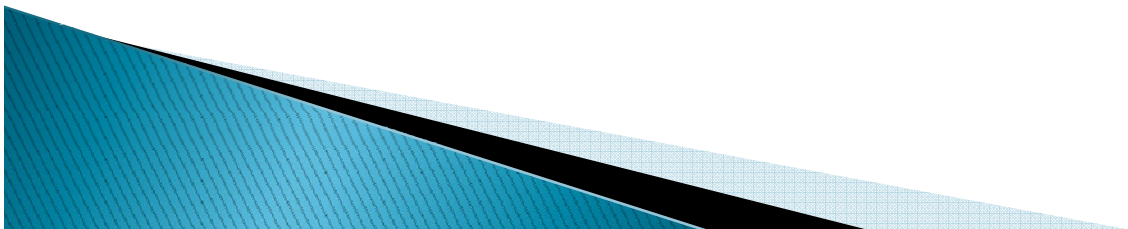
Past Projects

- ▶ Courthouse Windows
 - 16.55% reduction of energy consumption
 - \$32,537 annual cost avoidance
- ▶ 35 Woodfin Renovation
 - 12.28% reduction of energy consumption
 - \$42,297.15 annual cost avoidance
- ▶ HVAC renovation Allport Building
 - 18.39% reduction of energy consumption
 - \$8966.17 annual cost avoidance



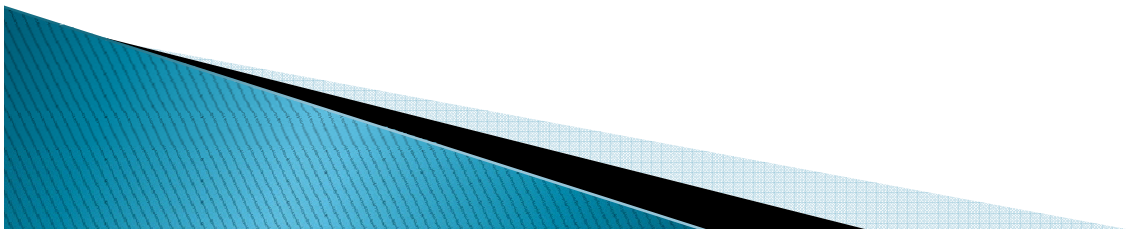
Future Projects

- ▶ 40 Coxe Avenue renovation
 - Total building Renovation
 - Solar Thermal Installation
 - Electric Vehicle Charging Stations
- ▶ Alternative Fuel Vehicles
 - Currently looking to convert 15 vehicles to use Propane Fuel
 - Projected Annual cost savings \$25,000–\$35,000
- ▶ New Courts Building
 - LEED Certified



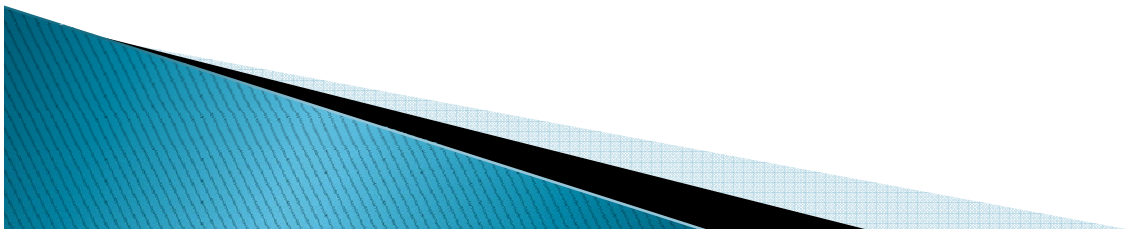
How Do We Compare

- ▶ National Average
 - 90,500 BTU/sqft
- ▶ Buncombe County Buildings
 - 64,862 BTU/sqft
 - 77,050 BTU/sqft without parking deck
 - Reduction of 20.6% from 2005 baseline



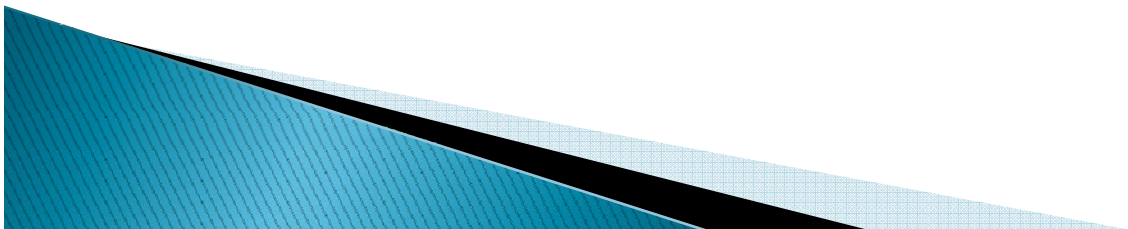
Funding Efficiency

- ▶ Capital Project Budgets
- ▶ General Services Department Budget
- ▶ Energy Savings Reinvestment Fund
 - Consists of Utility Rebate Money
 - Demand Response Money
 - 75% of all utility costs avoided



The Way Forward

- ▶ Continue on the proven course of improving efficiency through routine maintenance
- ▶ Analyze purchases based on total life cycle cost and not only upfront purchase price
- ▶ Design future buildings as efficiently as possible
 - Courts Building LEED certified
- ▶ Leverage all grants and efficiency programs as thoroughly as possible.



For More Information or to review the entire
Energy and Emissions Report

Please visit

www.buncombecounty.org/green

Presented by

Buncombe County General Services

828-250-4233

