

Mayor Patrick L. McCrory

Michael D. Barnes
Nancy Carter
Warren Cooksey
Andy Dulin
Anthony Foxx

Mayor Pro Tem Susan Burgess

Patsy Kinsey
John W. Lassiter
James Mitchell, Jr.
Edwin B. Peacock III
Warren F. Turner

CITY COUNCIL WORKSHOP

Monday, November 3, 2008

Room 280

4:00 p.m. Closed Session, Personnel - City Clerk

Room 267

5:00 p.m. Dinner

**5:15 p.m. Environment: Greenhouse Gas Inventory for Charlotte's
Municipal Operations**

6:00 p.m. Environment: Proposed Green Building Policy Framework

**6:45 p.m. Community Safety: Taxi Operations at Charlotte Douglas
Airport**

**7:15 p.m. Resolution to Endorse Council Member James Mitchell for
Second Vice President of the National League of Cities**

**7:30 p.m. Citizens' Forum
Room 267**

. **Closed Session, Personnel – City Clerk**

Action: Adopt a motion to go into closed session pursuant to NCGS 143-318.11(a)(6) to consider the qualifications, competence, performance, character, fitness, and conditions of appointment for the position of City Clerk.

COUNCIL WORKSHOP AGENDA ITEM SUMMARY

TOPIC: Greenhouse Gas Inventory for
Charlotte's Municipal Operations

COUNCIL FOCUS AREA: Environment

RESOURCES: Gina Shell
David Wolfe

KEY POINTS:

- City Council adopted Resolution 40-647 "Commitment to Greenhouse Gas Emissions Reduction" in May 2007. The resolution states that the City will strive to take additional actions to reduce further GHG emissions as follows:
 - Conduct an inventory of GHG emissions from City operations by June 2008; establish as aggressive and realistic a GHG emissions reduction target as can be met by the year 2012; and create an action plan, prepare a cost-benefit analysis and adopt a budget designed to meet the established GHG emissions reduction target;
- The presentation will summarize the results of an inventory of the greenhouse gas (GHG) emissions from the City of Charlotte municipal operations for the base year of FY2006, including:
 - Inventory Methodology
 - Forecast for Future GHG Emissions
 - Ongoing City efforts toward Energy and Fuel Efficiency and GHG Reductions
- The next steps include obtaining a third party review of the baseline inventory and begin development of an action plan to reduce emissions. Staff desires to contract with UNCC for expertise and assistance with these steps. The estimated cost is \$48,000. Due to the current budget situation, the contract is on hold.

COUNCIL DECISION OR DIRECTION REQUESTED:

None. This presentation is for information only. Proceeding with the contract for action plan development will be assessed in early January as part of our overall budget considerations.

ATTACHMENTS:

Greenhouse Gas Inventory Report – FY2006 Municipal Operations



Preliminary Draft

City of Charlotte Greenhouse Gas Inventory

FY2006 Municipal Operations



CHARLOTTE.

Prepared By:
Engineering and Property Management
October 2008



Preliminary Draft

City of Charlotte Greenhouse Gas Inventory

FY2006 Municipal Operations

Preface

The Charlotte City Council has adopted the Environment as one of five Focus Areas for City government. The adopted Focus Area Plan includes the following principles:

The City of Charlotte recognizes that environmental stewardship both now and in the future is fundamentally important to our quality of life and essential to maintaining a vibrant economy. Protecting our natural resources, promoting conservation on all levels, and improving the environment enhance our City's mission to preserve the quality of life for our citizens. Charlotte's economic vitality presents challenges to maintaining a healthy environment. The City is committed to:

- *promoting environmental best practices and protecting our natural resources: the air we breathe, the water we drink, and the natural ecosystems we cherish, including the tree canopy;*
- *recognizing important interrelationships among air quality, water resources, land preservation, and energy and resource conservation;*
- *making sound land use decisions regarding our future growth and development. The City is aware that to sustain a high level of growth today, we cannot jeopardize our future generations of citizens;*
- *achieving our goals of becoming a national leader in the successful stewardship of our environment by maintaining a cooperative and open agenda with Mecklenburg County, our regional neighbors, and the business community; and*
- *leading by example and promoting sound, cost effective environmental and energy conservation practices in City operations.*

Council Resolution to Conduct Greenhouse Gas (GHG) Inventory

The City Council adopted Resolution 40-647 “Commitment to Greenhouse Gas Emissions Reduction” in May 2007. The resolution states that the City will strive to take additional actions to reduce further GHG emissions as follows:

- Conduct an inventory of GHG emissions from City operations by June 2008; establish as aggressive and realistic a GHG emissions reduction target as can be met by the year 2012; and create an action plan, prepare a cost-benefit analysis and adopt a budget designed to meet the established GHG emissions reduction target;
- Utilize the resources of ICLEI-Local Governments for Sustainability to identify ways in which GHG emissions can be reduced from City operations; and
- Monitor the recommendations and actions of the NC Legislative Commission on Global Climate Change, the NC Climate Action Plan Advisory Group and Federal agencies so as to inform the City’s efforts to reduce GHG emissions.

As a result, in June 2007 the City of Charlotte joined International Council for Local Environmental Initiatives (ICLEI) and began to work with ICLEI staff to inventory GHG emissions from city operations

A copy of the complete resolution is included in Appendix A.

ACKNOWLEDGEMENTS

The Greenhouse Gas Inventory data was compiled by Ms. Martha Rowe, Building Services Intern, and Mr. Rodney Harris, Business Services Intern. Oversight was provided by an advisory committee consisting of:

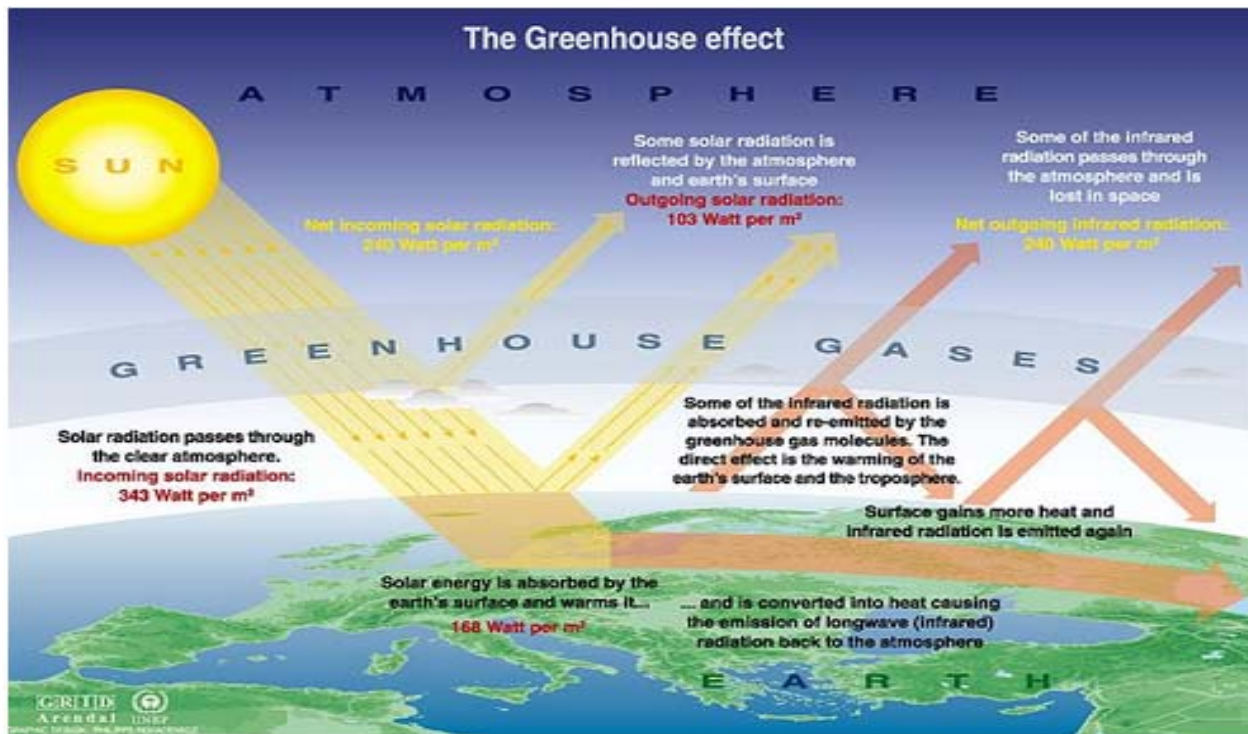
Jeb Blackwell, P.E.	City Engineer
Gina Shell	Deputy City Engineer
Sue Rutledge	Building Services Superintendent
Natasha Warren	Small Business Office Team Leader
David Wolfe, P.E.	Environmental Services Program Manager

We thank all the individuals from the City Departments who assisted in gathering the vast amounts of data essential for this report.

Executive Summary

This report summarizes the results of an audit of the greenhouse gas (GHG) emissions from the City of Charlotte municipal operations for the base year of 2006. Software provided as part of our ICLEI membership benefits was utilized to store, calculate and report GHG emissions for the base year. The year 2006 was selected as the earliest available year for which reliable data could be collected. In addition, staff forecasted estimated future GHG emissions by municipal operations for future years thru 2020.

The Earth's atmosphere is naturally composed of a number of gases that act like the glass panes of a greenhouse, retaining heat to keep the temperature of the Earth stable and hospitable for life. Gases in the atmosphere that reradiate escaping heat back to Earth are called "Greenhouse Gases". This process keeps the Earth's surface warmer than it would be without an atmosphere. Indeed, this phenomenon, known as the "Greenhouse Effect" is a critical component of the many interlocking systems needed to support life on Earth.



Most GHG's are naturally occurring, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and ozone. Human activities such as the combustion of fossil fuel, the production of agricultural commodities, and the harvesting of trees can contribute to increased concentrations of these gases in the atmosphere. In addition, a number of potent GHGs, including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), are created and emitted through industrial processes. Most scientists agree that human activities,

such as fossil fuel utilization, deforestation and industrial activities have resulted in an increase in the concentration of GHGs, thereby enhancing the natural greenhouse effect of warming the atmosphere.

For municipal operations, the ICLEI software aggregates the gases carbon dioxide, methane and nitrous oxide and reports the total as carbon dioxide equivalents (eCO₂), a commonly used unit used to provide the relative contribution of each of the major GHGs.

Municipal operations for the City of Charlotte resulted in the production of approximately 325,000 tons of GHG's (in equivalent tons of CO₂) in 2006. As it can be difficult to visualize what a "ton of Carbon Dioxide" really is, the U.S. EPA offers the following equivalency: Charlotte's 2006 GHG emissions are approximate to 54,000 passenger vehicles operating for one year, or about 1/20th of the GHG emissions of a conventional coal-fired power plant operating for one year. For a comparison to the entire state of North Carolina, Charlotte's 2006 GHG emissions are approximately 0.2% of the entire State's annual GHG emissions¹.

Under a Business-As-Usual emissions forecast scenario, it is estimated that by 2020 local government operations will result in approximately 508,000 tons of GHG emissions.

This report is not intended to be a climate action implementation plan for City operations. Such a plan will come only after City Council members assess this report and other recommendations further. However the data, results and analysis contained in this report provide valuable guidance for the creation of an action plan for our City operations.

As the City's GHG emissions inventory has been prepared by staff, a third-party review is recommended in order to verify accuracy and completeness of the Inventory. This third-party review could also provide support as the City enters the next phase of addressing GHGs, which is to establish as aggressive and realistic a GHG emissions reduction target as can be met for municipal operations, and to prepare a written Climate Action Plan specific to our operations. City Council may then adopt a budget designed to meet the established GHG emissions reduction target.

¹ Comparing Charlotte's Municipal Operations FY 2006 emissions against the State of North Carolina total for year 2005; Source: "Final North Carolina Greenhouse Gas Inventory and Reference Case Projections 1990-2020" by the Center for Climate Strategies, prepared for the North Carolina Climate Action Plan Advisory Group (CAPAG).

1.0 Methodology

ICLEI follows a Five Milestone approach to reducing GHG emissions. The five milestones are:

1. Conduct a baseline emissions inventory and forecast;
2. Adopt an emissions reduction target;
3. Develop a Local Climate Action Plan;
4. Implement policies and measure; and
5. Monitor and verify results.

To address the first milestone, staff used ICLEI's Clean Air and Climate Protection (CACP) software to develop a GHG emission inventory for the City's fiscal year 2006. The CACP software applies fuel and sector-specific GHG emission factors to inputs of energy consumption in order to determine GHG emissions.

Data for the baseline year inventory was collected from individual Key Business Units and encompasses sectors pre-determined by the CACP software. These sectors are:

Buildings
Water/Sewage
Vehicle Fleet
Street Lighting/Traffic Signals
Employee Commute
Waste
Other

The methodology for obtaining the data for each sector is as follows:

Buildings: Staff used invoices for electricity and fossil fuel usage (heating oil and natural gas) to collect the data. Duke Energy invoices and Piedmont Natural Gas invoices were the primary source documents for information. Buildings were segregated into Industrial or Office categories.

Water/Sewage: This sector consists of the energy required to pump and treat the City's municipal water and sewage system. Similar to the Buildings sector, Water and Sewage data was provided primarily by Duke Energy and Piedmont Natural Gas invoices. Staff entered invoices pertaining to lift stations and water/wastewater treatment plants in this sector

Vehicle Fleet: CATS, Aviation, and the Fire Department each manage their KBU's own fuel usage. Each KBU supplied the number of gallons of gasoline or diesel consumed during the baseline year and further separated the gallons by vehicle type as defined by the CACP software. The Equipment Management Division (EMD) of Business Support Services manages the remaining vehicle fleets for other City KBU's. EMD submitted a similar report for the baseline

year which quantified the gallons of fuel used based on vehicle type. Vehicle miles traveled by City employees in their personal vehicles while on City business were also reported by the Finance KBU and included in this sector.

Street Lights / Traffic Signals: Electricity used to power street lights and traffic signals in the baseline year was sourced from Duke Energy invoices. Staff then entered this data in aggregate form based on total kWh for all outdoor lighting.

Employee Commute: To supply an adequate estimate while respecting Human Resources' Employee Privacy Policy, HR supplied data that provided the distance in miles from each employee's residential zip code to the CMGC. The total of each employee's one-way mileage to the CMGC was then doubled and multiplied by 240 to represent the number of days worked in a year.

Waste: Data specific to City operations (such as truck tonnage weights and waste composition) is not available. To estimate GHG emissions for this sector, staff applied a national per-capita average was to the total number of City employees reported by Human Resources. The use of a national average is the recommended technique by ICLEI when absolute values of waste tonnage and composition are not available. The national average used in the inventory is from the 'Facts and Figures of 2006' section of the "MSW Generation, Recycling and Disposal in the U.S." report by the U.S. EPA.

Other: This sector is comprised of significant emissions from various sources not captured by the other pre-determined sectors. City staff elected to include emissions from the former York Road and Statesville Avenue landfills. Staff used the EPA LandGEM model to determine CO₂ and methane emissions to be included in the inventory.

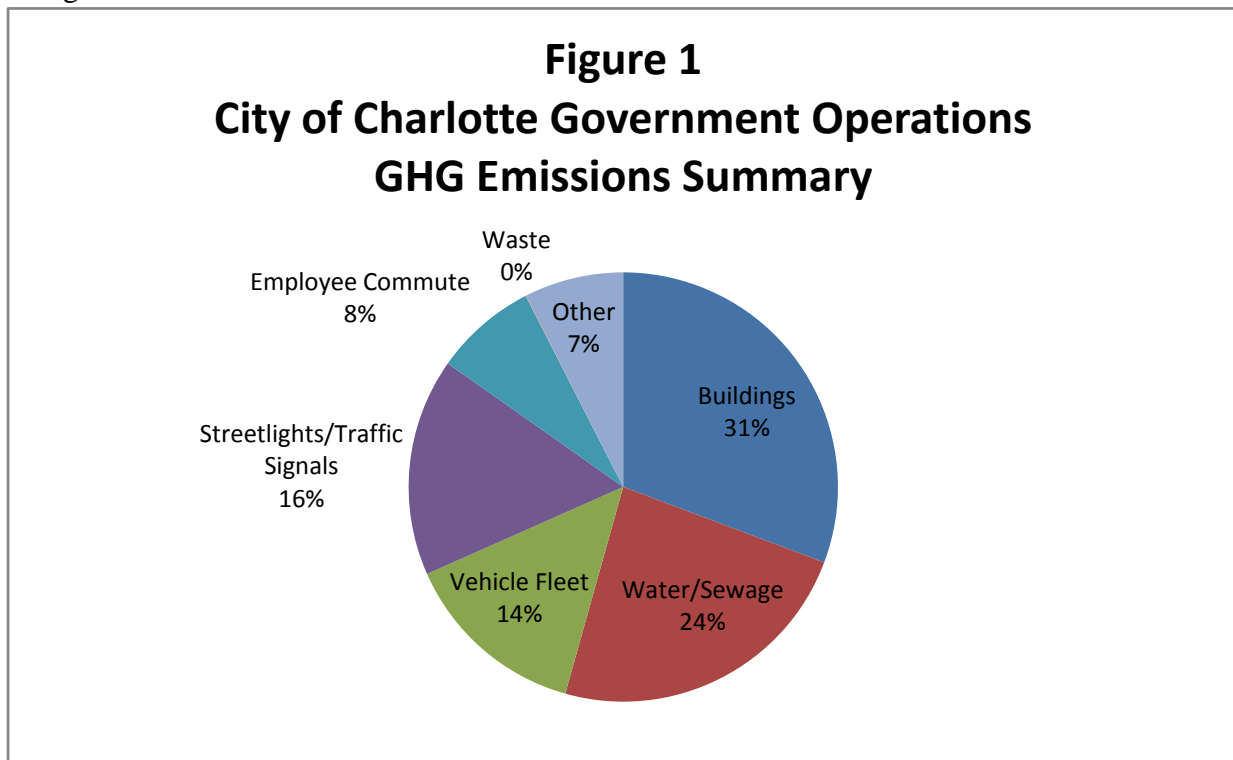
2.0 Municipal Operations Inventory

Local government operations of the City of Charlotte resulted in the production of approximately 325,000 tons of GHGs in fiscal year 2006. Table 1 provides a summary of GHG emissions by sector:

Table 1
City of Charlotte GHG Emissions
Summary

Sector	Equiv CO ₂ (tons)	Equiv CO ₂ (%)
Buildings	99,800	30.7
Water/Sewage	76,800	23.6
Vehicle Fleet ²	45,500	14.0
Streetlights/Traffic Signals	53,300	16.4
Employee Commute	25,100	7.7
Waste	74	0.0
Other	24,400	7.5
Total	325,000	100.0

An illustration of the contribution of each area of operations to total GHG emissions is provided in Figure 1:



² Does not include CATS Public Transit fuel usage, which belongs in a Community Inventory.

Buildings - The City owns and operates numerous buildings and facilities that provide services to the public. Similar to GHG inventories conducted by other entities, the Buildings sector is the largest contributor toward Charlotte's local government GHG emissions at 31%. Energy consumption in buildings and facilities resulted in GHG emissions of **99,800 tons eCO₂** in FY2006, as calculated using the ICLEI CACP software.

Water / Sewage Sector - This sector consists of the energy required to pump and treat the City's municipal water and sewage system. This sector includes CMU's major water and wastewater treatment plants, as well as lift stations. The Water / Sewage sector is Charlotte's second-largest contributor toward our local government GHG emissions at 24%. Building and Plant energy consumption in this sector resulted in GHG emissions of **76,800 tons eCO₂** in FY2006.

Streetlights / Traffic Signals – This sector encompasses the electricity used to power street lights and traffic signals operated by the City of Charlotte. Streetlights, at 15.9%, contribute the majority of GHG emissions, with Traffic Signals at 0.5% - perhaps due to CDOT's ongoing program of upgrading to LED traffic signals. Energy consumption by this sector resulted in GHG emissions of **53,300 tons eCO₂** in FY2006.

City Fleet Vehicles – The City operates a variety of vehicles in its fleets to support day-to-day operations such as street maintenance, facility maintenance, police and fire, and employee business travel. The gasoline and diesel fuel usage of these vehicles resulted in an estimated GHG emissions of **45,500 tons eCO₂**, 14% of the total for FY2006.

Employee Commute – City government employees' commutes to work resulted in an estimated **25,100 tons eCO₂** in FY2006, or 7.7% of the total. The ICLEI software assigned the estimated Vehicle Miles Traveled (VMT) for City employees to a 'passenger vehicle' code, which distributes the VMT among various vehicular classes according to nationwide data from the U.S. Department of Transportation. It is recommended that future GHG inventories incorporate an employee survey to gain additional insight into employee commuting habits.

Waste – Using U.S. EPA per capita estimates, in FY2006 the City of Charlotte government operations landfilled approximately 1,400 tons of waste. The ICLEI software converts the lifetime value of GHG emissions of this waste to the present, and accounts for an estimate of methane capture and flaring by the landfill. The ICLEI model calculates a negligible amount of the City's total, **74 tons eCO₂**, were emitted in FY2006 due to solid waste disposal.

Other – ICLEI provides this optional category to allow for unique items within a City's operations. The most common item included in this category is closed landfills that cities may own. The City of Charlotte owns two closed landfills – the former York Road Landfill and the former Statesville Avenue Landfill. Landfill gas is the natural by-product of the decomposition of solid waste in landfills and is comprised primarily of carbon dioxide and methane, both GHG's. Staff utilized the U.S. EPA's LandGEM model to estimate the carbon dioxide and

methane emissions from each landfill, and this data was input into the ICLEI software, resulting in an estimated GHG emissions of **24,400 tons eCO₂**, or 7.5% of the total, in FY2006.

3.0 Significant Contributing Sources

Table 2 provides a summary of the individual sources of our GHG emissions that contribute greater than 5% to the total. This list can serve as a starting point to address those items that can have a significant influence on a GHG reduction strategy.

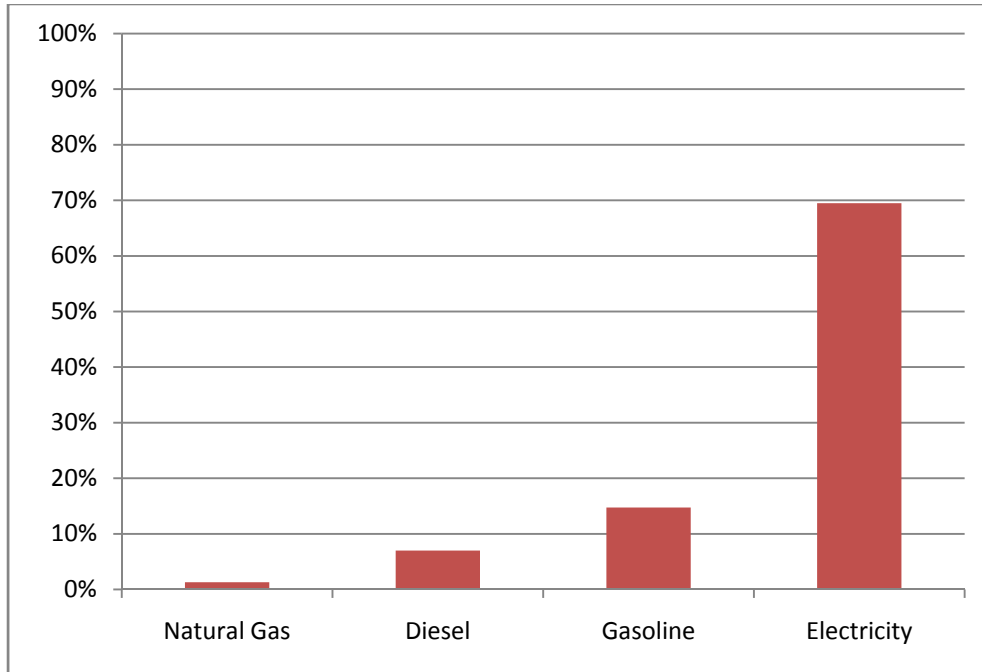
Table 2
Significant Individual Sources

Individual Sources Contributing > 5%	Equiv CO ₂ (tons)	Equiv CO ₂ (%)
Street Lights	51,695	15.9
CMU Water/Sewer Treatment Plants (Total)	51,584	15.9
Vehicle Fleet	45,499	14.0
Charlotte-Douglas International Airport Terminal	37,220	11.5
Employee Commute	25,051	7.7
CMU Lift Stations	24,747	7.6
Other-Former York Road landfill	17,618	5.4
Subtotal for source > 5%	253,414	78.0

The makeup of Table 2 is not unexpected - most of the items are very large installations that serve the public as a whole. Together, these seven (7) sources account for nearly 80% of the City's total GHG emissions. Therefore, any GHG reduction strategies should include further analysis of these sources.

It can also be educational to view the City's GHG emissions by fuel type, as shown in Chart 1.

Chart 1
GHG Summary by Fuel Type³
(%) of Total



Electricity usage within City buildings, facilities, and the City's streetlight system account for nearly 70% of the City's total GHG emissions. GHG reduction efforts that are focused on Building/ Facility energy conservation can, therefore, have a significant impact.

To calculate GHG emissions from electric sources, the ICLEI software takes our data input in the form of kilowatt-hours and converts into GHG emissions (tons eCO₂) using a 10-state regional emissions factor for the Southeastern U.S. This factor is based on the types of energy production by the major utilities (*i.e.* coal, nuclear, hydroelectric, solar, wind, etc.). **Therefore, the City's annual GHG emissions are greatly dependent on the changing mix of energy portfolios supplied by our utilities.**

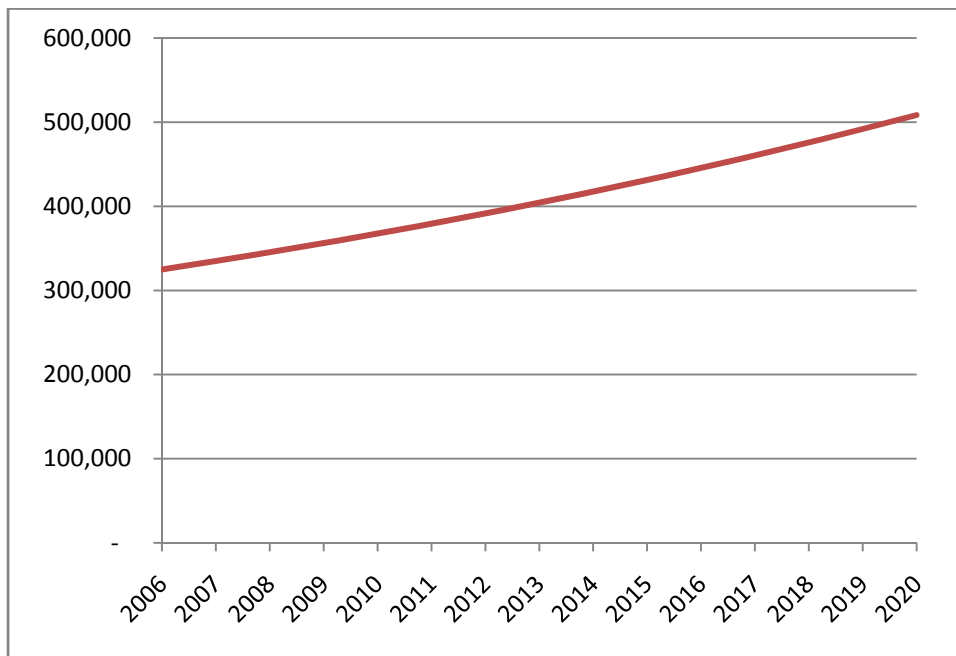
³ Direct emissions from the former landfills not included in Chart 1. These are about 7.5% of total.

It is anticipated that future versions of the ICLEI software will begin accounting for state-by-state energy portfolios such that a more accurate accounting of the City’s GHG emissions can be conducted.

4.0 Forecast for Greenhouse Gas Emissions

Charlotte’s local government GHG emission projections to the year 2020 are presented in Chart 2. Chart 2 presents a ‘Business-as-Usual’ scenario whereby City operations grow in accordance with the projected regional (Mecklenburg County) population growth rate of 3.6%⁴. The Business-as-Usual scenario further assumes 2006 emission factors (*i.e.* for Utility providers, and vehicle mpg) continue into the future.

Chart 2: Forecast GHG Emissions under “Business as Usual” Case



Under a Business-as-Usual scenario, Charlotte’s local government operations will result in the emission of an estimated 508,000 tons eCO₂ in the year 2020.

Using the projected population growth rate is a common method for projecting future GHG emissions. However, it is important to note that the assumed growth rate has a significant effect,

⁴ 3.6% growth rate from Charlotte Chamber population growth estimate for years 2000 – 2018. Exception is the ‘Other’ category, where our Landfills naturally decline in gas production and the EPA LandGEM model was used.

over time, on the Year 2020 projection, thus making the establishment and meeting of GHG reduction targets difficult to estimate.

5.0 Actions by the NC Legislative Commission on Global Climate Change

In 2005, the North Carolina Legislature established the NC Legislative Commission on Global Climate Change (NC LCGCC) in order to focus on the topic of global climate change and whether the state of North Carolina should set goals for reducing GHG emissions.

With the support of the NC LCGCC, in 2006 the North Carolina Climate Action Plan Advisory Group (CAPAG) was established to perform a statewide GHG inventory, and develop recommendations for specific actions to help reduce or prevent climate change. CAPAG works closely with the legislative commission, with frequent updates on its progress and recommendations. The Division of Air Quality, Department of Environment and Natural Resources, manages CAPAG, which includes about 40 members representing a broad range of stakeholders including industry, environmental groups, government agencies, academic institutions, agriculture, forestry, coastal interests, real estate, tourism, banking, insurance and other businesses.

In late 2007, CAPAG released a report '*Final North Carolina Greenhouse Gas Inventory and Reference Case Projections 1990-2020*' to the NC LCGCC. The report quantifies statewide GHG emissions for the base year (1990) and projects North Carolina's emissions forward to the year 2020. In a separate report, CAPAG identifies 56 recommended options for mitigating North Carolina's GHG emissions. These options vary greatly and range from the new Renewable Portfolio Standard for state utilities, to adopting California-level emissions standards for passenger autos. While a number of these options cannot directly be adopted by the City of Charlotte for our operations, many do serve as potential mitigation measures.

As of the date of this writing, the NC LCGCC is still evaluating the recommendations of the CAPAG. In accordance with the Resolution adopted by Council, staff will continue to monitor the activities of NC LCGCC and CAPAG and other appropriate state and federal agencies.

Mecklenburg County and Charlotte-Mecklenburg Schools

City Staff have met with representatives of Mecklenburg County and the Charlotte-Mecklenburg Schools. Mecklenburg County recently completed their GHG inventory, and CMS is nearing completion. The County considers their GHG inventory in a perspective of their broader goal of local health and air quality issues. Both the County and CMS report that their intentions are to re-visit their GHG emission inventory in future years; however, neither has at this time adopted GHG reduction targets.

6.0 Summary and Next Steps

There are many benefits of a City's GHG reduction effort that go beyond environmental concerns. Emission reduction actions can complement other economic and environmental goals of the City. In addition to reducing air pollution and health improvement, these actions can provide cost-effective electric power and natural gas services, decrease reliance on non-renewable resources, reduce energy bills, expand recycling, reduce urban sprawl and traffic congestion, and promote tree planting. All of these efforts benefit the sustainability of a City.

Municipal operations for the City of Charlotte resulted in the production of approximately 325,000 tons of GHG's (in equivalent tons of CO₂) in 2006. Under a Business-As-Usual emissions forecast scenario, it is estimated that by 2020, local government operations will result in approximately 508,000 tons of GHG emissions.

The data, results and analysis contained in this report provide valuable guidance for the creation of an emissions reduction action plan for City operations. As the City's GHG emissions inventory has been prepared by staff, a third-party review is recommended in order to verify accuracy and completeness of the Inventory. This third-party review could also provide support as the City enters the next phase of addressing GHGs, which is to establish as aggressive and realistic a GHG emissions reduction target as can be met for municipal operations, and to prepare a written emissions reduction plan.

It is staff's intent to seek expertise and assistance from UNC-Charlotte for the third-party review and action plan development. Once that work is complete, the draft action plan will be presented to the City Council for review and adoption. In accordance with the adopted Council resolution, staff will also provide cost-benefit analysis and budget implications of possible action steps for Council consideration.



Appendix A

Resolution 40-647

City of Charlotte Commitment to Greenhouse Gas

Emissions Reduction

City of Charlotte Commitment to Greenhouse Gas Emissions Reduction

WHEREAS in accordance with the Clean Smokestacks Act (CSA) passed in June 2002, the North Carolina Division of Air Quality (DAQ) has completed studies and made recommendations to the North Carolina Environmental Management Commission and the North Carolina Environmental Review Commission regarding greenhouse gas (GHG) emissions and steps that can be taken to reduce GHG emissions, especially reducing the use of energy;

WHEREAS, the North Carolina General Assembly passed legislation in the summer of 2005, the NC Global Warming Act (S1134), that established the Legislative Commission on Global Climate Change to study issues related to global warming, the emerging carbon economy and whether it is appropriate and desirable for North Carolina to establish global warming pollutant reductions goals for North Carolina; and

WHEREAS, The North Carolina Climate Action Plan Advisory Group (CAPAG) was formed and charged with developing an inventory and forecast of greenhouse gas emissions in North Carolina and presenting to the Governor, the Legislature, and Environmental Management Commission an action plan with recommendations to reduce the state's greenhouse gas emissions. CAPAG's actions are intended to complement those of the Legislative Commission.

WHEREAS, in October 2005, the North Carolina Department of Environment and Natural Resources published a report entitled *Draft North Carolina Greenhouse Gas Inventory and Reference Case Projections 1990-2020* that identifies electricity use and transportation as the principal sources of GHG emissions in North Carolina; and

WHEREAS, the City of Charlotte has adopted the "Environment" as one of five Focus Areas (priorities) for City government and is committed to safeguarding the environment, balancing environmental health, sound fiscal policy and growth; and

WHEREAS the City has a number of policies and practices in place which already support the following targets of the U.S. Mayors Climate Protection Agreement:

- Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities;
- Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit;
- Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money;

- Purchase only energy efficient equipment and appliances, *e.g.*, Energy Star, for City use;
- Practice and promote sustainable building practices, using the U.S. Green Building Council's LEED program or a similar system to identify existing and emerging sustainable design practices;
- Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of such vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel;
- Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production;
- Increase variety of materials recycled and recycling rates in City operations and in the community; and
- Maintain healthy urban forests; promote tree planting to increase shading, lower urban temperatures and to absorb greenhouse gases.

WHEREAS the City Council of Charlotte, North Carolina is committed to lead by example in matters related to the environment and climate protection,

NOW, THEREFORE, BE IT RESOLVED by the City Council of Charlotte, North Carolina, that the City will continue to support the initiatives outlined above, and

BE IT FURTHER RESOLVED, the City will strive to take additional actions to reduce further GHG emissions as follows:

- Conduct an inventory of GHG emissions from City operations by June 2008; establish as aggressive and realistic a GHG emissions reduction target as can be met by the year 2012; and create an action plan, prepare a cost-benefit analysis and adopt a budget designed to meet the established GHG emissions reduction target;
- Utilize the resources of ICLEI-Local Governments for Sustainability to identify ways in which GHG emissions can be reduced from City operations;
- Monitor the recommendations and actions of the NC Legislative Commission on Global Climate Change, the NC Climate Action Plan Advisory Group and Federal agencies so as to inform the City's efforts to reduce GHG emissions;

AND BE IT FURTHER RESOLVED, the City Council, using the appropriate City Council review process, will consider the feasibility of the City undertaking the following actions to reduce GHG emissions:

- o Support the use of clean, alternative energy, by, for example, the use of renewable energy in City operations and recovering methane for energy production, where practicable;
- o Developing partnerships with the private sector in the greater Charlotte metropolitan community so as to leverage the private sector's expertise and experience on GHG emissions reduction;
- o Collaborating with Mecklenburg County and other neighboring communities to conduct an inventory of GHG emissions for the greater Charlotte metropolitan area. Once this inventory has been completed, continue this regional collaboration in an effort to reduce GHG emissions in the greater Charlotte metropolitan area;
- o Collaborating with Mecklenburg County and other neighboring communities to educate the greater Charlotte metropolitan community about the need for and benefits of reducing GHG emissions; and
- o Other additional actions as the City Council determines to be appropriate.

Adopted this 29 day of May, 2007.

CERTIFICATION

I, Stephanie C. Kelly, Deputy City Clerk of the City of Charlotte, North Carolina, DO HEREBY CERTIFY that the foregoing is a true and exact copy of a Resolution adopted by the City Council of the City of Charlotte, North Carolina, in regular session convened on the 29th day of May, 2007, the reference having been made in Minute Book 124, and recorded in full in Resolution Book 40, Pages (647-649).

WITNESS my hand and the corporate seal of the City of Charlotte, North Carolina, this the 1st day of June, 2007.


Stephanie C. Kelly, CMC, Deputy City Clerk



Appendix B

Summary of Ongoing City Actions to Reduce Energy/Fuel Consumption and Reduce Greenhouse Gas Emissions

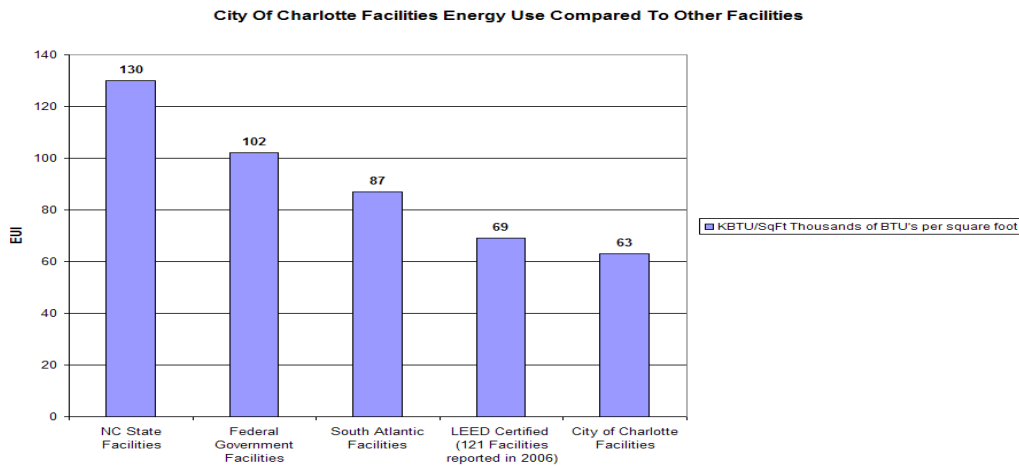
Building Energy Efficiency Measures

The City of Charlotte, through our Building Services Division within Engineering & Property Management, has been in the forefront of energy management since 1991. Building Services employs a full-time Energy Manager. The efforts of the Building Services Division are calculated to save the City of Charlotte over \$500,000 annually. Below are areas in which implementing energy management procedures has produced accumulated savings in excess of \$3,300,000.

- **Electrical Rate Structure Analysis**
 1. Run rate analysis once a year to ensure electric rates are on the proper schedule.
- **Direct Digital Controls**
 1. Web based DDC system connected to 75 facilities throughout the City over the City's Intranet has:
 - Reduced runtime of HVAC equipment by thousands of hours per year.
 - Tightened temperature control and reduced equipment maintenance cost.
 - Sophisticated control algorithms to control multiple chillers and boiler to operate at peak efficiency.
 - Turned lighting off with building occupancy schedules; using motion sensors to control lights in conference rooms.
 - Capabilities to control peak electric demand.
- **HVAC Systems**
 1. Installing variable speed drives on pumps and fans where possible.
 2. Replacing boilers/furnaces with ultra high efficient equipment.
 3. Replacing HVAC equipment when it is at the end of its service life with high efficient equipment reducing the weather responsive energy consumption by 20% to 30%.
 4. Passive solar and geothermal in several facilities.
- **Lighting**
 1. Replace incandescence lights to more efficient compact fluorescence lamps (CFL).
 2. Tie into DDC systems for occupancy scheduling.
 3. Change exit lights from incandescence & CFL to LED lights.
 4. Increase daylight in new facilities to reduce electric lights and give employees a better work environment for increased productivity.
- **Work Management System**
 1. Track all HVAC, Electrical, Plumbing, Roofs and Building Envelope systems to ensure equipment/buildings are maintained at proper intervals so that buildings operate at peak efficiency.
 2. Track equipment service life; determine replacement schedules to avoid increased maintenance cost.

- **New Technologies**
 1. Installed a biomass gasification system to replace the incinerator at Animal Control that operates at a 75% reduction in natural gas, gaining an annual savings of \$55,000. Simple payback was less than one year for this system.
 2. A Methane Re-use study is being conducted at McAlpine WWTP which has the potential for generating and replacing 1 MW of power used by the facility.
- **LEED Building**
 - CMU designed, constructed, and furnished our Environmental Services Facility to LEED standards (Leadership in Energy and Environmental Design). The Environmental Services Facility is expected to be the City’s first LEED certified building.
 1. Quick Facts about the building:
 1. 90% of occupied areas have direct or indirect natural lighting
 2. Based on studies conducted by UNC Charlotte’s Daylighting + Energy Laboratory projects, we expect a 31% overall energy reduction, 29% natural gas reduction, 17% electricity reduction, and 28% water reduction for our facility.

City of Charlotte Building Energy Use Index for our DDC-Controlled Facilities:



Fuel-Efficiency Measures

City departments are implementing a number of measures to increase the fuel efficiency of our fleets, including:

- **Fleet Fuel Efficiency Study**
 - Equipment Management Division of Business Support Services has partnered with the UNC- Charlotte to perform a Fleet Fuel Efficiency Study. Police, Fire, and CATS vehicles are all a part of the study. The goal is to identify and test practices, technologies, and products that result in cost savings to the City of Charlotte. The study is currently underway.

- **Alternative Fueled Vehicles**
 - BSS is working collaboratively with KBUs to spec, purchase, evaluate and maintain hybrid vehicles throughout the City's fleet.
 - Several departments have integrated hybrid vehicles into their fleet, including the Airport's hydrogen-fueled parking shuttle buses.
 - Bio diesel (B20) has been used in some heavy duty vehicles, but cost and availability have restricted its use.
- **Idling Policies**
 - Limited idling policy by CATS, CDOT Street Maintenance, and Solid Waste Services only if necessary to operate equipment.
- **Work Practices**
 - Heavy duty equipment is transported by more efficient vehicles to work locations for a net fuel savings.
 - SWS vehicles are turned off during lunch and breaks. (Procedure implemented during FY08).
 - SWS vehicles are fueled during the morning hours. (Procedure implemented during FY08).
 - CATS Bus Operations Division (BOD) negotiated four ten hour work weeks which allowed the scheduling staff to cut more efficient runs.
 - The CATS BOD scheduling department reported a savings in travel time of 38 hours per weekday, 32 hours per Saturday and 15 hours per Sunday which cut the emissions from 85 hours of bus service.
 - CDOT hosts an annual 1-week contest with other KBUs to see which group of employees can use alternate modes of commuting to work the most (i.e., transit, bike, walk, carpool). CDOT also has its own internal competition between the various divisions which takes place several weeks during the ozone season.
 - CMU has changed operational procedures to decrease the distance field employees travel to perform work in many of our service areas. Several work groups work from the zone approach, meaning employees stay within confined areas of the county rather than traveling throughout the county.
 - CMU has added a business goal to reduce our fuel consumption by 2%.
- **South Corridor Light Rail**
 - CATS South Corridor Light Rail is proving more than 13,500 rides per day using LRV's that do not directly produce GHG emissions.

Green Products

The City KBU's continue to look for alternative products, services, and technologies that support energy efficiency, fuel efficiency, sustainability, and the decrease of and/or elimination of GHG emissions throughout our core business. For example,

- CATS Facilities Section implemented a Going Green initiative which includes using only ENERGY STAR-compliant office equipment; and ENERGY STAR-compliant facilities and offices.

LED Traffic Signal Bulb Upgrade Project

CDOT has been upgrading the City's traffic signals from incandescent bulbs to the Light Emitting Diode (LED) type of bulb. This process is expected to be complete during 2009. Summarized below are the benefits (both environmental and financial) of such an upgrade to the City signalized intersections.

- LED signal indications will reduce the City's electrical consumption for signals from 1,900 megawatts of electricity to an estimated 160 megawatts. An average US home uses 10 megawatts annually.
- Based on the energy savings of the conversion, staff estimates a reduction of 1,400 metric tons of CO². This amount of greenhouse gas is equivalent to 249 cars and light trucks being removed from the road.
- LED signal indications have also been shown to enhance safety at intersections due to the increased visibility and clarity of the indications.

Land Use Policies

Centers, Corridors & Wedges Strategy

The strategy is the cornerstone of the Council-endorsed Transportation Action Plan (TAP). By increasing and intensifying development in centers and corridors, additional employment opportunities and housing choices can make the best use of existing infrastructure and transportation resources. This results in reduced use of fuel for transportation, fewer vehicle miles traveled, and thus an overall improvement in air quality for the city.

COUNCIL WORKSHOP AGENDA ITEM SUMMARY

TOPIC: Proposed Green Building Policy Framework

COUNCIL FOCUS AREA: Environment

RESOURCES: Jeb Blackwell
Gina Shell

KEY POINTS:

- Council's Environment Focus Area Plan calls for the City to "design, construct, and retrofit facilities using sustainable design criteria such as American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE), EPA/Energy Star Standards, and LEED, as appropriate."
- Staff will describe work to date on developing a policy which will further define this Focus Area Plan initiative and provide direction to City staff.
- A "green building" policy would guide City staff decision-making in construction of new City facilities and renovation of existing facilities. Positive impacts on the environment from green buildings include improved air and water quality, reduced greenhouse gas emissions, waste reduction, and preservation of trees and open space.
- During the past several months, Engineering and Property Management staff have been working with other Key Businesses to determine:
 - Factors that should guide decision-making as the City pursues green buildings/sustainable facilities. Factors for consideration include size and function of a facility, analysis of initial costs versus long-term benefits of incorporating "green" elements, and analysis of costs of "green" elements versus other key facility elements.
 - Possible goals and measurement tools for a "green building" policy, including the extent to which Leadership in Energy and Environmental Design (LEED) criteria would be incorporated as a tool for certification or decision-making.
 - Alignment of the policy with other Council priorities and policies related to the environment, such as the adopted Focus Area Plan, the Post-Construction Controls Ordinance, and the Environmental Chapter of the General Development Policies.

- Staff will also describe findings from interviews with other municipalities and local corporations about their “green building” policies.

COUNCIL DECISION OR DIRECTION REQUESTED:

Council is asked to refer development of a “green building” policy to the Environment Committee for further guidance to staff, review of a draft policy and recommendation to Council.

ATTACHMENTS:

None.

COUNCIL WORKSHOP AGENDA ITEM SUMMARY

TOPIC: Taxicab Operations at Charlotte Douglas Airport

COUNCIL FOCUS AREA: Community Safety

RESOURCES: Jerry Orr, Aviation Director
Charlotte Douglas International Airport

KEY POINTS:

- Staff will present to Council:
 - The history and current procedures of taxicab operations at the Airport.
 - Provision and benefits to the City of proposed adjustments at the Airport.
 - Process and timeframe to ensure a smooth transition for the taxicab companies.

COUNCIL DECISION OR DIRECTION REQUESTED:

This presentation is for informational purposes only. No action required.

ATTACHMENTS:

None

Resolution to Endorse Council Member James Mitchell for Second Vice President of the National League of Cities

Action: Approve a resolution endorsing Council Member James E. Mitchell, Jr. for the position of Second Vice President of National League of Cities in 2009.

Explanation:

- During the October 27 Council Business Meeting, Council Member Nancy Carter recognized the candidacy of Council Member James E. Mitchell, Jr. for the position of Second Vice President of the National League of Cities (NLC). Council agreed with placing this resolution on the November 3 agenda.
- The National League of Cities is the largest national organization partnering with and representing municipal governments and their corresponding state municipal leagues throughout the United States. Its mission is to strengthen and promote cities as centers of opportunity, leadership, and governance.
- NLC's Second Vice President will assist and coordinate with NLC officers and executive staff members to encourage active participation for cities and towns, assist in strengthening NLC's effectiveness as the lobbying agent for cities and towns, and facilitate communication with the state league of municipalities.

Attachments:

City of Charlotte Endorsement Resolution

CHARLOTTE CITY COUNCIL ENDORSEMENT OF COUNCIL MEMBER JAMES E. MITCHELL, JR. FOR THE POSITION OF SECOND VICE PRESIDENT OF THE NATIONAL LEAGUE OF CITIES

WHEREAS, James E. Mitchell, Jr. has served the citizens of the City of Charlotte, North Carolina, as a member of the Charlotte City Council since 1999 and now is serving his fifth term as the Charlotte District 2 representative; and

WHEREAS, as a member of the Charlotte City Council, he is chairman of the Restructuring Government Committee, vice chairman of the Economic Development and Planning Committee; and vice chairman of the Housing and Neighborhood Development Committee; and

WHEREAS, James E. Mitchell, Jr. has achieved the highest level in the National League of Cities Leadership Training Institute and recently was accepted into the Program for Senior Executives in State and Local Government at the Kennedy School, Harvard University; and

WHEREAS, Council Member James E. Mitchell, Jr. is active in the North Carolina League of Municipalities (NCLM), currently serving on the NCLM Board of Directors; and

WHEREAS, Council Member Mitchell has also been an instrumental leader in the North Carolina Black Elected Municipal Officials (NCBEMO) and served as president; and

WHEREAS, Council Member Mitchell has represented his city and state in the National Black Caucus of Local Elected Officials (NBC-LEO), a prominent constituency group of the NLC, where he currently serves as president; and

WHEREAS, Council Member Mitchell has held leadership positions within the National League of Cities, including as a member of the NLC Board of Directors, as a board member, vice chairman and chairman of the NLC Institute of Youth Education and Family; member of the NLC Energy, Environment and Natural Resources Policy Committee, member of the NLC Democratic Governance Board and as a member of the NLC Advisory Council; and

WHEREAS, James E. Mitchell, Jr. has the leadership skills and knowledge necessary to be the Second Vice President of the National League of Cities;

NOW, THEREFORE, BE IT RESOLVED by the City of Charlotte, North Carolina, that the City Council enthusiastically endorses and supports the candidacy of James E. Mitchell, Jr. for the position of National League of Cities Second Vice President.

Adopted this _____ day of _____, 2008.