

2014

# CHARLOTTE-MECKLENBURG SUSTAINABILITY REPORT CARD: SCORING OUR ECONOMIC, ENVIRONMENTAL, AND SOCIAL HEALTH



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The authors bear responsibility for any factual errors. The views expressed in this report are those of the authors and do not necessarily reflect the views of those who provided data or review.

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# TABLE OF CONTENTS

|   |   |           |
|---|---|-----------|
|   | <b>EXECUTIVE SUMMARY</b>                | <b>I</b>  |
|   | <b>REPORT CARD SUMMARY</b>              | <b>4</b>  |
|   | <b>METHODOLOGY</b>                      | <b>5</b>  |
|    | <b>AIR QUALITY</b>                      | <b>7</b>  |
|    | <b>ENERGY USE</b>                       | <b>11</b> |
|   | <b>EQUITY + EMPOWERMENT</b>             | <b>15</b> |
|  | <b>FOOD</b>                             | <b>21</b> |
|  | <b>JOBS + INCOME</b>                    | <b>25</b> |
|  | <b>LAND USE</b>                         | <b>31</b> |
|  | <b>TRANSPORTATION</b>                   | <b>35</b> |
|  | <b>WASTE</b>                            | <b>41</b> |
|  | <b>WATER USE</b>                        | <b>45</b> |
|   | <b>APPENDIX: METRICS + DATA SOURCES</b> | <b>49</b> |



# EXECUTIVE SUMMARY

Sustainability is not just a measure of how well we are meeting our needs today, but also an indicator of how well those who come after us will be able to meet theirs. The intent of this report is to objectively evaluate progress towards greater sustainability in Charlotte-Mecklenburg, and recommend strategies that will accelerate it. While adoption of these strategies will require the leadership of local government and business leaders, progress also depends on the choices made by every resident across the county. Therefore, this report is written for the community, to enable each of us to better understand and impact our shared future. The information and trends presented here are also intended to provide baseline information to those who are currently working to identify goals and strategies for the Mecklenburg Livable Communities Plan.

After extensive review of sustainability reports written for other metro areas around the nation, we decided to focus on nine key dimensions that together determine the sustainability of a community: Air Quality, Energy Use, Equity + Empowerment, Food, Jobs + Income, Land Use, Transportation, Waste, and Water Use.

None of these dimensions stand alone, however. For example, land use decisions drive our transportation choices and our transportation choices impact our air quality. Land use decisions also impact our water, energy use, and access to food and jobs. Energy use influences water and air quality. And of course the ability to meet our needs depends on jobs and the income they provide – to name just a few examples of how these dimensions influence one another. Given their interdependence, the environmental, social, and economic health of Charlotte-Mecklenburg depends upon excellence in all of these areas. Given our growing population, meeting our current needs without diminishing the ability of future generations to meet their needs requires a fact-based understanding of how well our community is performing in each of these nine dimensions, and what strategies will lead to improvement. Below is a summary of our findings for each.

## Air Quality

Local Trend: B. National Comparison: C.

Mecklenburg County's sprawling land use pattern, heavy reliance on personal vehicles for transportation, and growing population presents significant challenges for maintaining clean air. The county currently exceeds the federal limit for ground-level ozone – primarily due to tailpipe emissions. Although fine particulate matter levels are within federal limits, levels of this pollutant are higher than the national average. Providing more safe, affordable, and convenient alternatives to driving, and replacing suburban sprawl with more compact, walkable, and transit-oriented development are critical steps we must take to improve our air quality. Improving our air quality will require a comprehensive approach in which we quantify current emissions levels of local air pollutants and greenhouse gases, set reduction goals, identify policies/actions needed to achieve them, integrate into budgets, engage the public to assist in achieving goals, measure progress, and share results to maintain transparency and continued public engagement. See the Air Quality chapter for more recommendations.

## Energy Use

Local Trend: A. National Comparison: C.

Residential electricity consumption in Mecklenburg County is 21.2 percent higher than the national average, while residential natural gas consumption is 4.4 percent lower than the national average, due in part to a warm climate that leads to more air conditioning usage and less need for heat than much of the country. Mecklenburg has done well in recent years to increase the number of LEED and Energy Star certified buildings, although we still have far fewer LEED buildings than the national average. Residential energy use can be reduced by support from countywide and neighborhood-level initiatives to provide residents with energy efficiency educational materials. To sustainably meet our long-term energy needs, it will be important to set ambitious and achievable goals for increasing local renewable energy use and provide information to citizens and businesses to help meet those goals, as well as work with federal and state governments to ensure that tax credits for renewable energy and energy efficiency are



*Sustainability is not just a measure of how well we are meeting our needs today, but also an indicator of how well those who come after us will be able to meet theirs.*

continued and that they provide support and technical assistance to both municipalities and rural residents of Mecklenburg County. See the Energy Use chapter for more recommendations.

## Equity + Empowerment

Local Trend: C. National Comparison: C.

This dimension includes a variety of social and economic indicators. One troubling trend is the growing cost of transportation as a percentage of income compared to the national average. Housing affordability is similar to the national average, but the local trend shows an increasing number of residents are spending more than 30 percent of their income on housing. High points in this dimension are the very high average level of educational attainment of Mecklenburg residents and the decreasing crime index. Increasing mixed-income housing throughout the county where access to transportation and jobs is available will provide greater economic opportunities to residents who are struggling to make ends meet. A key step towards increasing social equity in a sprawling metro area is to give existing communities priority for economic development dollars to encourage infill development, reuse or improvement of existing structures, and compact mixed use development that offers opportunities for pedestrian-friendly economic growth supportive of affordable housing and commuting options. Government and local nonprofit organizations should seek increased opportunities for consultation and dialogue with low-income and minority residents. See the Equity + Empowerment chapter for more recommendations.

## Food

Local Trend: D. National Comparison: C.

Access to healthy food is shaped by income, but also by land use decisions. In Mecklenburg, the growing percentage of residents needing Supplemental Nutritional Assistance Program (SNAP) benefits and increasing percentage of households unable to consistently put food on the table is of great concern. Although a lower percentage of Mecklenburg residents live in food deserts than the national average, past land development decisions and our low population

density have created sixty local food deserts. The number of farmers' markets per resident is increasing, but is still well below the national average. Incentives such as reduced permitting fees to reduce the up front construction cost of full-service grocery stores as infill development in "food deserts", and zoning for the use of city and county properties for temporary farmers' markets would increase access to nutritious foods. Educational outreach to parents and young children is a critical step towards good nutrition, as healthy eating habits are largely determined during the early childhood years. See the Food chapter for more recommendations.

## Jobs + Income

Local Trend: C. National Comparison: C.

When the recession began in late 2007, Mecklenburg's economy deteriorated, mirroring a pattern seen in most of the country. While unemployment figures have improved consistently since 2009, local unemployment is still three times higher than before the recession. The underemployment rate has also increased locally as employers have cut back on work hours. The most alarming trend in this category is the doubling between 2000 and 2011 of the number of families and children living in poverty. Wages and employment rates could be improved locally by identifying the existing skills mismatch between the pool of unfilled jobs and unemployed workers, then working with local businesses and educational organizations to develop workforce training for unemployed workers in order to meet employer needs, while continuing to build partnerships between businesses, local governments, and secondary education institutions (trade schools, community colleges, four-year universities) to develop educational programs whose graduates possess skills that are in local demand. A career ladder approach, with clear progression from entry-level positions, should be emphasized during workforce training programs in clean energy fields, a rapidly expanding sector of North Carolina's economy. See the Jobs + Income chapter for more recommendations.





## Land Use

Local Trend: D. National Comparison: D.

The Charlotte metro area was recently identified as the fifth most sprawling large metro in the US. This pattern of development negatively impacts many other aspects of local sustainability outlined in this report. Mecklenburg has more developed acreage per capita than the national average, and the local trend is worsening. Although our population density is increasing, we have continued to sprawl into the few remaining undeveloped areas of the county. Mecklenburg Park & Recreation continues to face funding challenges to secure sufficient land to meet the need for natural and recreational areas of our growing population. Although the amount of land set aside for preservation has increased since 2007 on a per capita basis, the amount of land used for parks has decreased, per capita. Planning future land use strategically by developing policy documents that set specific measurable goals rather than vague aspirations -- and adhering to them -- will be critical to improving land use. Promoting brownfield and infill redevelopment by considering smart growth alternatives to zoning regulations that encourage sprawl (such as minimum parking requirements) and supporting redevelopment of vacant and abandoned properties by removing barriers that hinder redevelopment will also go far to improve our performance in this area. See the Land Use chapter for more recommendations.

## Transportation

Local Trend: B. National Comparison: D.

Charlotte-Mecklenburg's transportation system lags far behind other large metro areas due to our inadequate transit, bike, and pedestrian infrastructure and sprawling development. Together these factors encourage dependence on personal autos for our mobility. The percent of residents commuting to work on CATS buses has increased from 2.5 percent in 2000 to 3.8 percent in 2011, while ridership on the light rail (LYNX Blue Line) has exceeded projections by 60 percent. While more workers are commuting by biking, walking, or taking public transit than in the past, we still lag far behind the national average for these modes, and the majority of workers (83.4 percent in 2011) commute in single occupancy vehicles. In the Charlotte-Mecklenburg area, securing additional funding to execute the remainder of the 2030 Transit System Plan will be critical to reducing sprawl, air pollution, congestion, and traffic fatalities. We recommend increasing the level of current transportation spending for transit, bike, and pedestrian infrastructure by decreasing spending for expanding road capacity in outlying areas, as the latter encourages

further sprawl and induces more driving. Converting more existing streets to "complete streets" that streamline safe vehicular traffic flow while incorporating infrastructure for walking and biking will also help to address Charlotte-Mecklenburg's transportation challenges. See the Transportation chapter for more recommendations.

## Waste

Local Trend: B. National Comparison: NA

Mecklenburg County's increased collection of yard waste, dramatic decline in construction and demolition debris, and significant decline in commercial waste have led to a decrease in the overall amount of waste being sent to local landfills. However, our per person rate of recycling processed by the county and the amount of residential waste landfilled per person have not significantly improved since 1999. Enacting a "pay as you throw" pricing system for residential waste pickup is recommended to discourage waste generation and incentivize waste reduction strategies such as recycling and composting. A comprehensive recycling law is needed with minimum requirements for residential, commercial and industrial facilities. We recommend that Charlotte-Mecklenburg set a goal and plan to work towards "zero waste", as has been done in hundreds of municipalities around the country and world. See the Waste chapter for more recommendations.

## Water Use

Local Trend: B. National Comparison: B.

The population size of Mecklenburg County is growing rapidly, yet our water resources are limited. The good news is that average residential water consumption in Mecklenburg County is decreasing and we use less water per household than the national average. However, in light of recent water pollution incidents both within our county and other parts of the state, as well as our reliance on the Catawba River for nearly all of our water needs, we identified a strong need to better understand patterns of water usage and to increase the security of our waterways. Charlotte-Mecklenburg Utility Department should continue comprehensive water audits, benchmarking, and incorporating the projected impacts of climate change into long-term plans to target consumption reductions and meet the water needs of a growing population. Smart growth and watershed-based management should be incorporated as key elements in flood management and prevention, and stormwater management programs. See the Water chapter for more recommendations.



# REPORT CARD SUMMARY

|   |                         | LOCAL<br>TREND | NATIONAL<br>COMPARISON |
|---|-------------------------|----------------|------------------------|
|    | AIR QUALITY             | B              | C                      |
|    | ENERGY USE              | A              | C                      |
|    | EQUITY +<br>EMPOWERMENT | C              | C                      |
|  | FOOD                    | D              | C                      |
|  | JOBS + INCOME           | C              | C                      |
|  | LAND USE                | D              | D                      |
|  | TRANSPORTATION          | B              | D                      |
|  | WASTE                   | B              | -                      |
|  | WATER USE               | B              | B                      |



# METHODOLOGY

For each dimension, we collected data on several metrics in order to analyze local trends and compare to national averages, when appropriate. The number of metrics used to evaluate performance in each dimension varies based on a number of factors, primarily the availability of local data. For some metrics, the data could not be readily compared to a national average due to different geographic boundaries, mismatch in duration and frequency of data collection, and the fact that some metrics simply do not make sense to compare to national averages (particularly Land Use due to differences between rural and urban areas). The metrics that were chosen for analysis are neither a perfect nor complete list of sustainability indicators that need to be addressed within each dimension, but represent our best attempt at measuring sustainability based on current data availability.

Each metric was assigned two numeric scores (except when data limitations prevented this): one score for the local trend and one score based on a national comparison. Each dimension was then given an overall letter grade for both local trend and national comparison based on an average of the individual metric scores.

The local trend grade is a measure of whether we are improving, staying the same, or getting worse over time. The time period over which each trend was analyzed depended upon data availability. We aimed to analyze at least ten years of data for each metric. However, this was not always possible due to lack of data. Also, for some metrics annual data was available while others had been collected at less frequent intervals. The local trend score for each metric was calculated using the average annual percent change over the time period for which data was available.

Next, each score was assigned a letter grade. For the local trend, metrics that improved or worsened less than 1 percent per year on average received a C, indicating that those metrics have stayed the same over the time period. Scores that improved by 1 to 5 percent received a B, while those that worsened 1 to 5 percent received

a D. Metrics that improved by more than 5 percent received an A, and those that worsened by more than 5 percent received an F.

| Score/<br>Grade | Local Trend             | Average<br>Annual<br>Percent<br>Change |
|-----------------|-------------------------|--|
| 0/F             | Getting much worse      | +/- 5+%                                |
| 1/D             | Getting slightly worse  | +/- 1 to 5%                            |
| 2/C             | Staying the same        | +/- 1%                                 |
| 3/B             | Improving slightly      | +/- 1 to 5%                            |
| 4/A             | Improving significantly | +/- 5+%                                |

The national comparison grade is a measure of how well our performance compares to a national average, or when appropriate, an average of other metro areas. In most cases, it was calculated as the percent difference between the most recent local and national data available for the same year.

A C was given for metrics within 5 percent of the national average. Metrics performing 6 to 29 percent better than the national average received a B, 6 to 29 percent worse received a D, and metrics that were more than 30 percent better than the national average received an A while those more than 30 percent worse received an F.

| Score/<br>Grade | National<br>Comparison         | Percent<br>Difference |
|-----------------|--------------------------------|-----------------------|
| 0/F             | Well below national<br>average | +/- 30+ %             |
| 1/D             | Below national average         | +/- 6 to 29%          |
| 2/C             | At national average            | +/- 5%                |
| 3/B             | Above national average         | +/- 6 to 29%          |
| 4/A             | Well above national<br>average | +/- 30+ %             |





Finally, each dimension was assigned an overall letter grade for both the local trend and national comparison. To calculate this, a number of points was assigned to each metric based on the grade it received in the earlier stage of analysis (A = 4, B = 3, C = 2, D = 1, F = 0). Excluding “no data” metrics from the analysis, the letter grades of the metrics were averaged to arrive at an overall dimension grade for local trend and national comparison separately.

## Data Limitations

The ease of collecting national and local data varied between dimensions, as well as between metrics within each dimension.

Available energy data is currently limited to metrics that measure the amount used and the number of buildings that are certified to use less energy during operation. We were not able to find county specific data pertaining to the sources of our energy, and its carbon footprint. We would like to be able to track the percentage of energy consumed countywide that is generated from sustainable sources as we strive to reduce our dependence on unsustainable energy sources.

Land use is a particularly difficult dimension for drawing valid comparisons to national averages due to differences in how green spaces are defined and measured, as well as how park systems are managed (city- or county-based), and spatial scale issues (larger park size does not necessarily equate to greater usage or accessibility). These data limitations are explored further in the Land Use section.

We used different data sources for local trend and national comparison for the Vehicle Miles per Capita metric of the transportation dimension. This was done because only one year of national data was available from the Brookings Institute to compare the Charlotte metro area to other large US metro areas. The Charlotte-Concord-Gastonia Metropolitan Statistical

Area (MSA) is the metro area for which data were provided in the Brookings Institute study. This MSA now includes 7 NC counties and 3 SC counties. The MSA boundaries were re-drawn in 2013: Lincoln, Iredell, Rowan, Chester, and Lancaster were added, while Anson was removed. Therefore, the 2005 study that the Brookings data is based on included the original five counties in the MSA: Mecklenburg, Gaston, Cabarrus, Union, and York. It also included Anson County, which was later removed from the MSA.

The Charlotte-Mecklenburg Utilities Department (CMUD) measures water use differently than the US Geological Service, which prevented us from comparing Mecklenburg’s per capita water use consumption to the national average. Further complicating the national comparison, the USGS calculates national per capita water consumption every five years, and their publication of data collected in 2010 has been delayed until late 2014. We are exploring additional water use and quality metrics for inclusion in future reports.

For the waste dimension, we were unable to identify directly comparable national data for any of the metrics due to the fact that municipalities in the US define and measure waste and recycling performance in different ways and there is no industry standard followed by each. In addition, solid waste, recycling and composting services in Mecklenburg County are provided by both local governments and private companies. Private companies who provide these services are not required to report the amount of material that they process, as they are in some states, which makes it impossible to know the total amount of waste generation, recycling and composting that is taking place in Mecklenburg County. Therefore our data includes only the amount reported by Mecklenburg County.



# AIR QUALITY



| METRIC                    | LOCAL TREND | NATIONAL COMPARISON |
|---------------------------|-------------|---------------------|
| Air Quality Index         | B           | -                   |
| Ground-Level Ozone        | C           | D                   |
| Sulfur Dioxide Emissions  | A           | B                   |
| Nitrogen Oxides Emissions | B           | B                   |
| PM2.5 Emissions           | B           | D                   |
| OVERALL                   | B           | C                   |





## *Mecklenburg's ozone emissions exceed current federal law; ozone causes smog.*

In Mecklenburg County, our air pollution is due to exhaust from car and truck tailpipes, emissions from fossil fuel-burning power plants and industrial smokestacks. Exposure to air pollution contributes to a number of health problems including asthma, heart disease and lung disease.

The US Environmental Protection Agency (EPA) has set National Ambient Air Quality Standards (NAAQS) for air pollutants. If levels exceed the federal attainment values, adverse effects on human health may occur.

The Air Quality Index (AQI) is an index for reporting daily air quality that characterizes air pollution levels and associated health effects. Mecklenburg County Air Quality is responsible for compiling and reporting the AQI for Mecklenburg County. The AQI provides information on pollutant concentrations for five air pollutants: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide and nitrogen oxide.

The number of days Mecklenburg County's AQI was "Unhealthy for Sensitive Groups," "Unhealthy," or "Very Unhealthy" has dropped from 45 days in 2000 to 9 days in 2012. This number has fluctuated, but the overall trend shows an average annual reduction of 3 percent.

Ground-level ozone, the pre-cursor to smog, can inflame and damage the lungs and airways, aggravate asthma and existing breathing problems, and cause pain or coughing when breathing deeply. While the AQI has improved over the last 12 years, Mecklenburg County continues to suffer from high levels of smog and ground-level ozone. In April 2013, the American Lung Association ranked Charlotte the 19th smoggiest city in the country.

In Mecklenburg County, most of the smog-forming emissions (87% of nitrogen oxide emissions and 51% of volatile organic compounds) come from mobile sources. In 1997, the national limit, or "attainment level," for ground-level ozone was 0.085 parts per million

(ppm), which put the county in "non-attainment" for this pollutant. In 2008, the national standard was strengthened to 0.075 ppm. In 2011, Mecklenburg was finally in compliance with the 1997 limit, but has not reduced ground-level ozone enough to be in compliance with the 2008 limit. As a result, Mecklenburg continues to be designated a "non-attainment area" by the EPA. The national ground-level ozone standard is likely to become stricter in the future.

Particulate matter (PM2.5) includes fine particles of dust, dirt, soot, and smoke produced by industrial combustion, power plants, vehicle emissions, construction activity, fires, and windblown dust. The current federal annual standard for PM2.5 is 12 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). At  $9.6 \mu\text{g}/\text{m}^3$ , Mecklenburg County is in compliance for this pollutant. Ninety-one percent of Mecklenburg's PM2.5 emissions come from highway and off-road mobile sources. While there has been a steady decline in the concentration of PM2.5 since 2000, we are still 7% higher than the national average concentration of  $9 \mu\text{g}/\text{m}^3$ .

Nitrogen oxides are formed during combustion processes. For nitrogen oxides, the current federal standard is 100 parts per billion (ppb). Mecklenburg County is in attainment at 42 ppb. We have seen a steady decline since 2000. Mecklenburg's average annual concentration of PM2.5 from 2000 to 2012 was 17 percent higher than the national average during the same period.

Sulfur dioxide is released during combustion of sulfur-containing fuels such as coal, oil, and diesel. It is a primary contributor to acid rain, and aggravates respiratory and cardiovascular conditions. For sulfur dioxide, the current federal standard is 75 ppb. Mecklenburg County is in attainment at 8 ppb, and we have seen a significant decline since 2000. We are well below the national average of 33 ppb.

## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ For each source of local air pollutants and greenhouse gas emissions, quantify current emission levels, set reduction goals, identify policies/actions needed to achieve them, integrate into budget process, engage the public to assist in achieving goals, measure progress, and share results to maintain transparency and continued public engagement.
- ◆ Replace diesel-powered construction equipment with newer, cleaner technology and require contractors working on city and county construction projects to demonstrate their commitment to reducing air pollution by investing in more efficient equipment.
- ◆ Create programs and policies that reduce fleet emissions such as fleet/vehicle maintenance programs to optimize fuel efficiency, increased use of alternative fuel vehicles, implementation of anti-idling guidelines, and increased use of alternative transportation modes when possible.
- ◆ Seek grants available for alternative-fuel vehicle fleet and fueling station projects.
- ◆ Support clean energy production to reduce air pollution generated by burning coal.
- ◆ Promote alternative transportation modes (walking, biking, car/van pool, transit) through public service campaigns and contests, particularly in summer months when ground-level ozone levels are highest.
- ◆ Use EPA's Community-Based Air Pollution Projects program to work with citizens to address health and environmental issues at the local level.
- ◆ See our transportation and land use recommendations in this report for more strategies as both have a direct impact on local air quality.

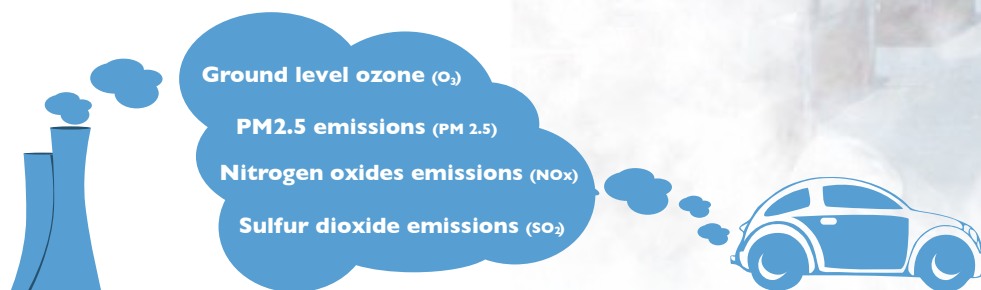
We also agree with the following recommendations from Mecklenburg County's 2014 State of the Environment Report:

- ◆ Reduce vehicle miles traveled by promoting transportation-friendly land development and continuing to support all alternative forms of transportation, including mass transit. The most significant sources of air pollution in Mecklenburg County are mobile sources. Many new pollution reduction efforts at the federal, state, and local levels are focused on highway and off road vehicles. Recent estimates indicate that mobile sources account for considerable amounts of ozone precursor emissions: 51 percent of the volatile organic compounds and 87 percent of the nitrogen oxide emissions in Mecklenburg County.
- ◆ Continue to comply with the federally mandated, health based ambient ozone standard. Locally generated air emissions, particularly on-road and non-road mobile source emissions, need to be reduced. Federal and state regulations will yield the needed reductions over time; however, local action is needed now if attainment of the ozone and annual particulate matter standards are to be ensured. Actions by business, industry, government and individuals relative to reducing per capita vehicle miles traveled, managing energy demand and making "greener" purchasing decisions must be a part of the local solution to improving Mecklenburg County air quality.
- ◆ Develop and implement new initiatives and new funding sources for regulatory, incentive-based and voluntary programs to reduce the emissions of ozone-forming pollutants from mobile sources. In order to identify and promote programs that will achieve local and regional emission reductions, state legislation is needed to provide dedicated funding to counties for clean air programs targeting mobile sources.

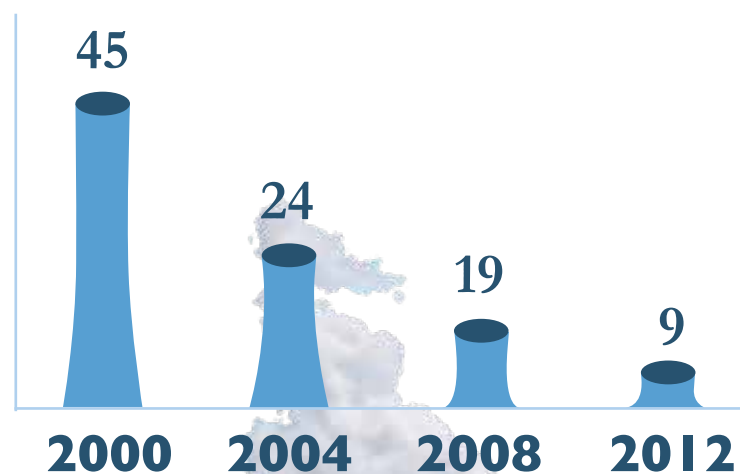




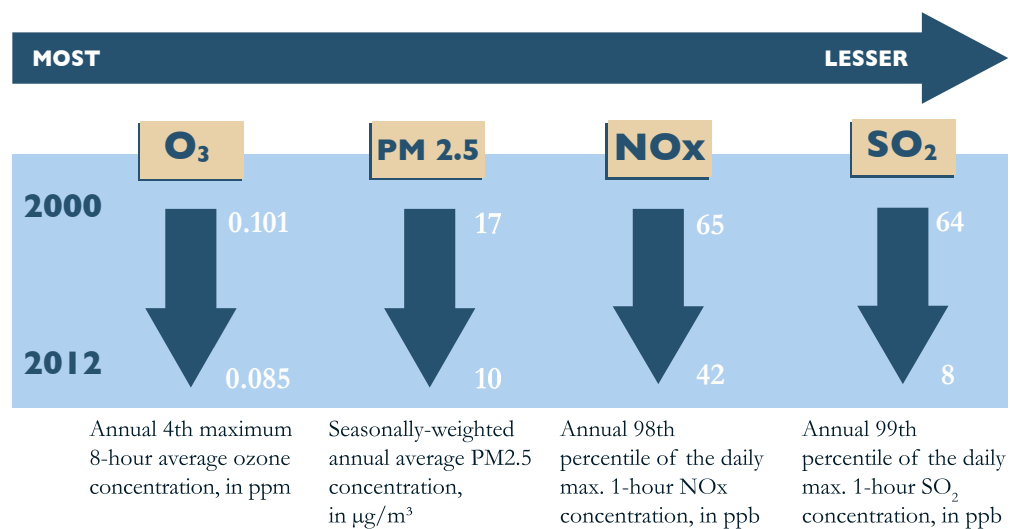
## What affects air quality?



## DAYS PER YEAR AIR QUALITY INDEX (AQI) WAS IN UNHEALTHY RANGE



## WHICH POLLUTANTS CAUSE THE MOST CONCERN FOR MECKLENBURG?





# ENERGY USE



| METRIC  | LOCAL TREND | NATIONAL COMPARISON |
|---|-------------|---------------------|
| Average Monthly Residential Electricity Consumption | -           | D                   |
| Average Monthly Residential Natural Gas Consumption | -           | C                   |
| Number of LEED Certified Buildings                  | A           | F                   |
| Number of Energy Star Certified Buildings           | A           | A                   |
| Carbon Emissions from Electricity Generation        | B           | B                   |
| OVERALL   | A           | C                   |



# *Mecklenburg residents use 21% more electricity than the average American.*

Energy is vital to our way of life, yet how we generate, distribute, and consume energy must be carried out in sustainable ways. Meeting today's energy needs while protecting the vitality of our region's future requires awareness of our consumption patterns and moving from non-renewable energy sources towards renewable sources, such as the sun and wind.

The scope of this report is limited to energy use metrics. At this time, there is not sufficient local data readily available to assess the change in carbon emissions that result from our energy production and consumption. However, it is important to measure not only how much energy is consumed, but also its impact on climate change. In future reports we hope to assess these aspects of energy as well.

In lieu of data for Mecklenburg County, carbon dioxide emissions per megawatt-hour (MWh) of electricity generated for the bi-state region in which Mecklenburg County is located, based on the Emissions & Generation Resource Integrated Database (e-GRID) for the Virginia/Carolinas region (SRVC), decreased roughly 2 percent annually from 2006 to 2012, showing a similar trend to the national average emissions for electricity generation. Emissions for our e-GRID region are currently 15 percent lower than the national average due to our higher use of nuclear power.

Mecklenburg's average monthly electricity use per household is 21.2 percent higher than the national average, while its average monthly natural gas use per

household is 4.4 percent lower. Electricity and natural gas consumption rates are strongly influenced by climate. As a warm southern region, we have lower heating requirements and higher air conditioning demands than the average US metro area. Because only one year of data was available for both average daily residential electricity and natural gas consumption, we were unable to analyze a local trend. However, we will be able to track the local trend in future reports if data continues to be collected for these metrics.

LEED (Leadership in Energy and Environmental Design) is a rating and certification system created by the US Green Building Council (USGBC) for the design, construction, operation, and maintenance of environmentally sustainable buildings. Energy was one of the higher scoring dimensions in this report, primarily due to the city's increasing number of LEED and Energy Star certified buildings. While our number of LEED certified buildings per 100,000 people in Mecklenburg County has nearly doubled each year since 2006, we are still 46 percent below the national average. 2013 legislative efforts in NC to ban LEED certification for new public construction raise serious concern for the future of energy- and resource-efficient building construction throughout our state.

Energy Star building certification is a program of the US Environmental Protection Agency (EPA) and the Department of Energy. An Energy Star building must perform better than 75 percent of similar buildings nationwide in meeting strict energy certification standards. Charlotte has increased its number of Energy Star certified buildings per 100,000 people 39 percent per year, on average, from 2005 to 2012. In 2012, Charlotte had more than twice as many Energy Star certified buildings per 100,000 people as the national average. The EPA ranked Charlotte as the US city with the 11th highest number of Energy Star buildings in 2013.

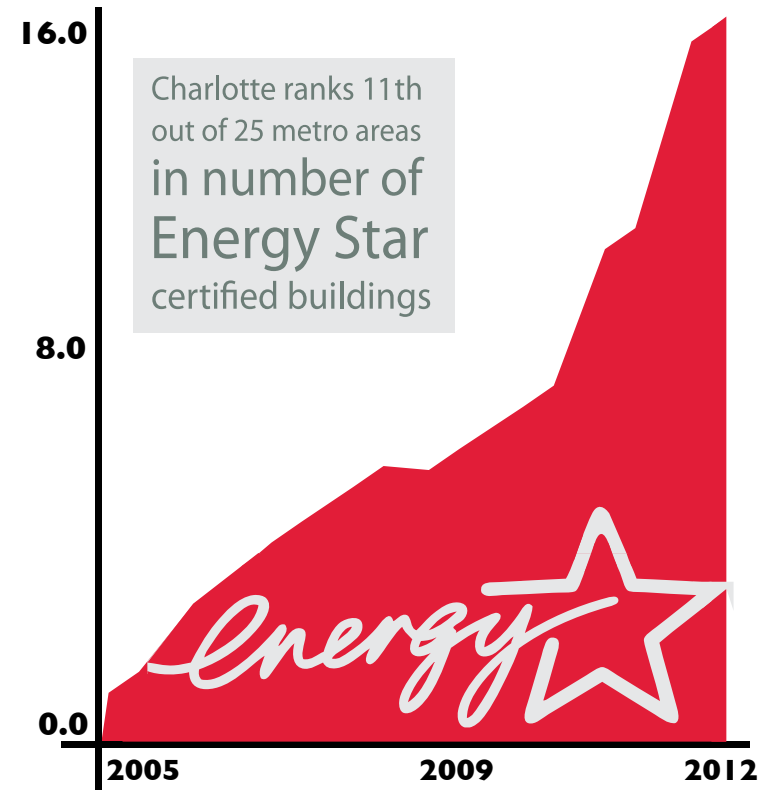


## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

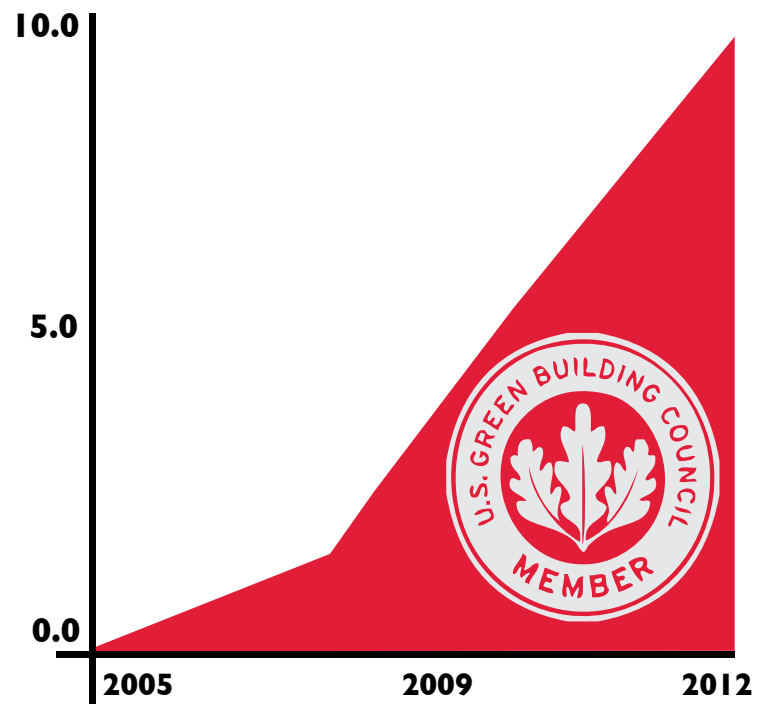
- ◆ Set ambitious and achievable goals for increasing local renewable energy use and provide information to citizens and businesses to help meet those goals.
- ◆ Support countywide and neighborhood-level initiatives to reduce residential energy use by providing residents with energy efficiency educational materials.
- ◆ Work with federal and state governments to ensure that tax credits for renewable energy and energy efficiency are continued as well as programs that provide support and technical assistance to both municipalities and rural residents of Mecklenburg County.
- ◆ Municipalities should continue to lead by example, such as the recent installation of solar panels at the CATS bus facility on South Tryon.
- ◆ Adopt local policies to advance renewable energy, including tax incentives, low interest loan programs and solar-friendly zoning and building codes.
- ◆ Integrate energy use, and other sustainability measures, into the performance metrics of individual departments and buildings.
- ◆ Hire appropriate energy management staff to coordinate energy projects, benchmark and monitor energy use, and achieve targeted energy reduction goals.
- ◆ Benchmark buildings to identify energy consumption anomalies and document results of efficiency efforts.
- ◆ Prioritize LEED and Energy Star construction over traditional construction.
- ◆ Design programs and policies that provide equal access to energy efficiency and renewable energy opportunities for all Mecklenburg County residents, regardless of socioeconomic status.
- ◆ Encourage purchasing Energy Star home and office appliances and provide education about long-term cost savings and environmental benefits.
- ◆ Work with state government, utility providers and the NC Utilities Commission to ensure the preservation of NC's Renewable Energy and Energy Efficiency Portfolio Standard (REPS), net metering rules and state energy conservation code as well as the adoption of 3rd party power purchase agreement and other incentives that encourage the further adoption of renewable energy and energy efficiency.

## ENERGY STAR CERTIFIED BUILDINGS Per 100,000 People

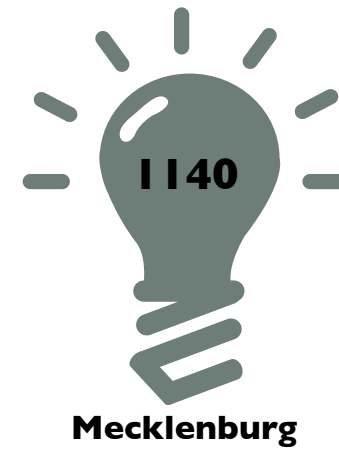




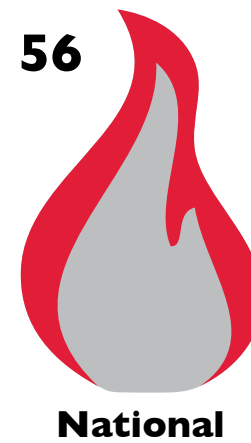
# LEED CERTIFIED BUILDINGS Per 100,000 People



# AVG. MONTHLY ELECTRICITY USE PER HOUSEHOLD (Kw-Hrs) | 2010 - 2011



# AVG. MONTHLY NATURAL GAS USE PER HOUSEHOLD (Therms) | 2010 - 2011





## EQUITY + EMPOWERMENT



| METRIC  | LOCAL<br>TREND | NATIONAL<br>COMPARISON |
|---|----------------|------------------------|
| Housing Affordability   | D              | C                      |
| Transportation Costs as<br>a Percentage of Income                 | -              | F                      |
| Per Capita Giving to<br>Private Foundations &<br>Public Charities | A              | -                      |
| Health Care Coverage  | C              | C                      |
| Educational Attainment  | C              | A                      |
| Students At or Above Grade<br>Level in Reading/Math               | C              | -                      |
| High School Graduation<br>Rate (4 Year Cohort)                    | C              | -                      |
| Crime Index   | B              | -                      |
| OVERALL   | C              | C                      |



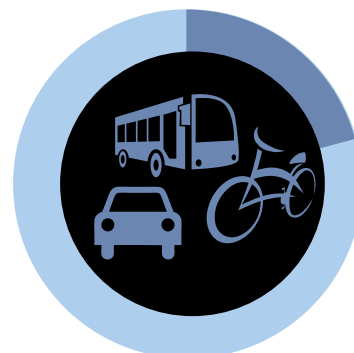


*The average household spends 26% of their income on transportation.*

### TRANSPORTATION COSTS AS % OF INCOME (2009)



**26% Mecklenburg**



**19% National**

A sustainable community provides all residents with fair access to livelihood, education, and resources; full participation in the political and cultural life of the community; and self-determination in meeting their basic needs. Sustainable communities also ensure just and equitable distribution of public services and implementation of public policy, and a commitment to promote fairness, justice, and equity in the formation of public policy.

Average transportation costs as a percent of income for Mecklenburg County residents was 26 percent in 2009 compared to the national average of 19 percent in the same year. The percentage of Mecklenburg County households spending more than 30 percent of their income on housing each month has increased 2.4 percent annually for owners and 2.9 percent annually for renters on average from 2005 to 2011, which is approaching the national average for these measures. In 2011, 30 percent of Mecklenburg County homeowners and 53 percent of renters spent over 30 percent of their income on housing. When residents spend a large percentage of their income meeting their needs for housing and transportation, their ability to meet other needs declines, making this a troubling trend. For those with lower incomes, this trend is particularly disconcerting.

High school graduation rates for Charlotte-Mecklenburg Schools have varied slightly over the past seven years, but on average shown no significant change. In 2012, 75 percent of students who entered 9th grade graduated within four years. Mecklenburg County has a 33 percent higher attainment rate of college degrees than the national average.

Overall, the percentage of third to eighth grade students performing at or above grade level in reading and math has remained roughly the same since 2003, on average. When averaged across grades, the percentage of students reading at or above grade level decreased from 80 percent in 2003 to 70 percent in 2012, while the percentage performing at or above grade level in math increased slightly from 82 to 84 percent.

The crime index, or number of crimes committed per 10,000 people, has decreased an average of 3.5 percent annually since 2001.

The percentage of Mecklenburg County's population with health care coverage has remained relatively stable over the past six years and was 81.6 percent in 2010 compared to the national average of 82.6 percent.

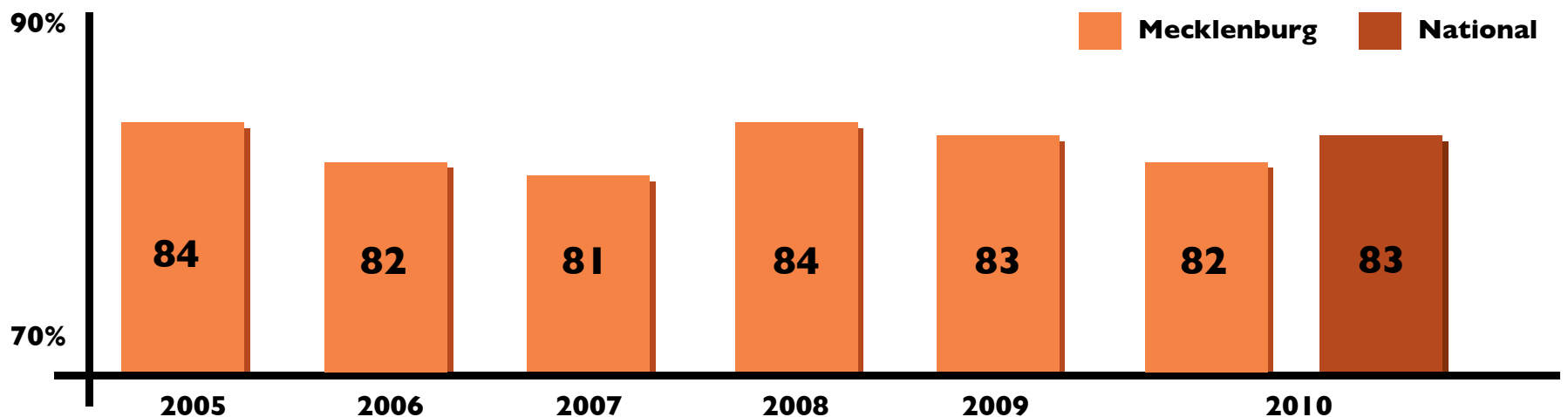


## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ Increase mixed-income housing throughout the county to ensure lower-income residents can live nearer to their jobs, reducing their transportation and housing costs.
- ◆ Provide increased opportunities for consultation and dialogue between government and local nonprofit organizations who work with low-income and minority residents.
- ◆ Give existing communities priority for economic development dollars to encourage infill development, reuse or improvement of existing structures, and compact mixed use development that offers opportunities for pedestrian-friendly economic growth supportive of affordable housing and commuting options.
- ◆ Work with state government to modify allocation of the Low-Income Housing Tax Credit to encourage affordable new housing to be built near employment and transit.
- ◆ Reduce geographic disparity in educational attainment levels through the county by benchmarking programs that have worked in other metro areas.
- ◆ Encourage the sharing of school facilities for community use, as current policies limit the joint use of schools, making it difficult to realize the cost savings that could come from sharing facilities for other activities.
- ◆ Develop a land-use and development curriculum for K-12 students so they understand how these issues affect equity.
- ◆ Support initiatives to reduce the crime rate, which will increase property values, enhance overall quality of life, and allow all residents to safely participate in neighborhood activities.

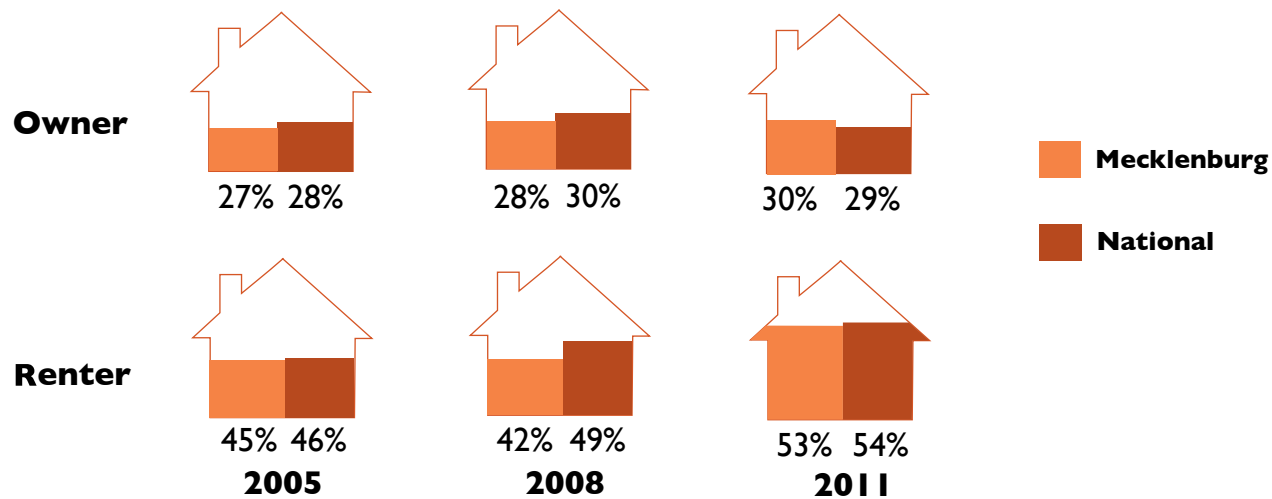
## % POPULATION WITH HEALTH CARE COVERAGE



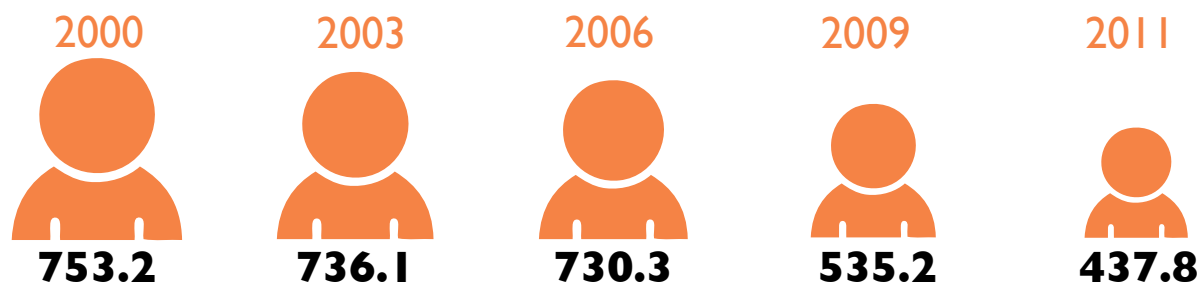


## HOUSING AFFORDABILITY

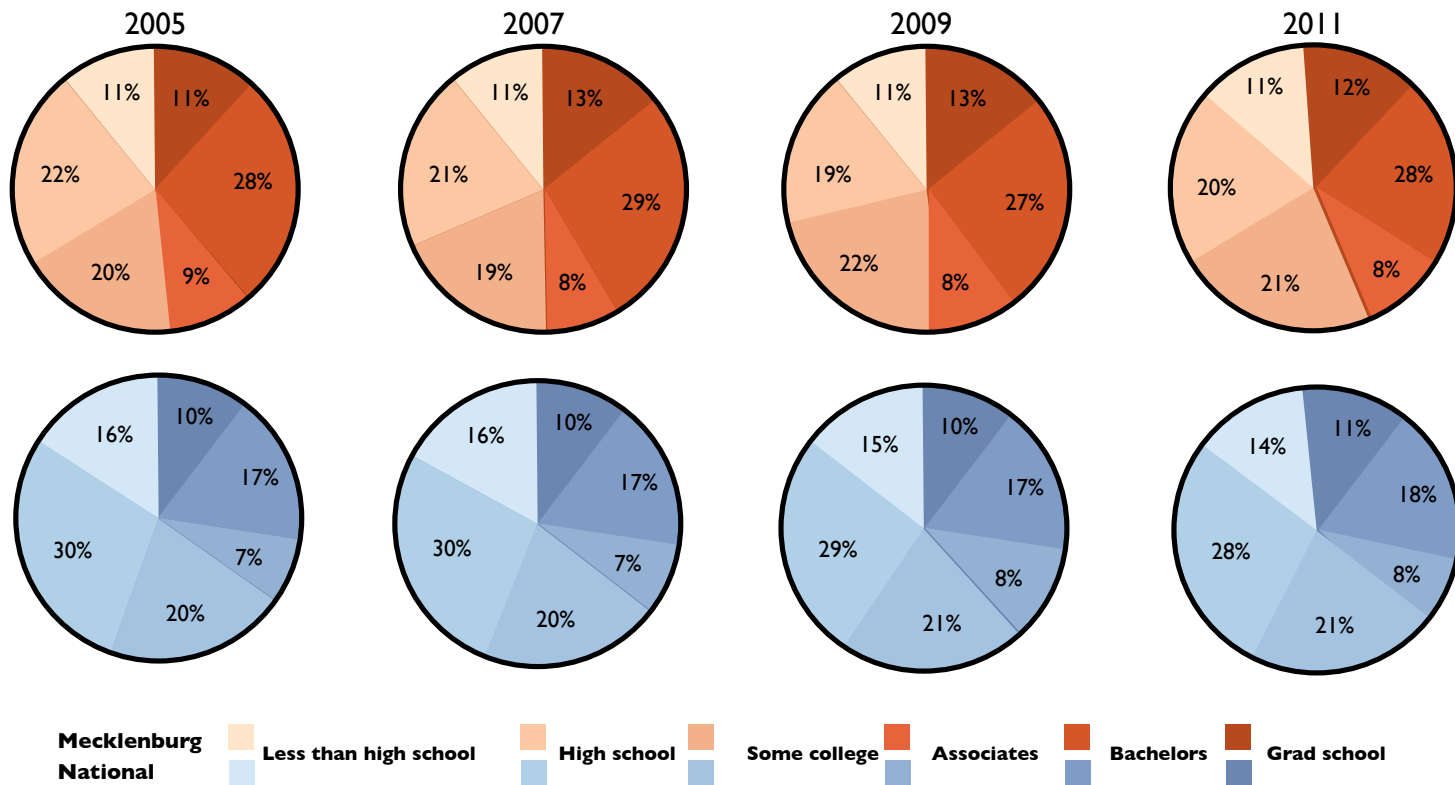
Percent of households spending over 30% of income on housing



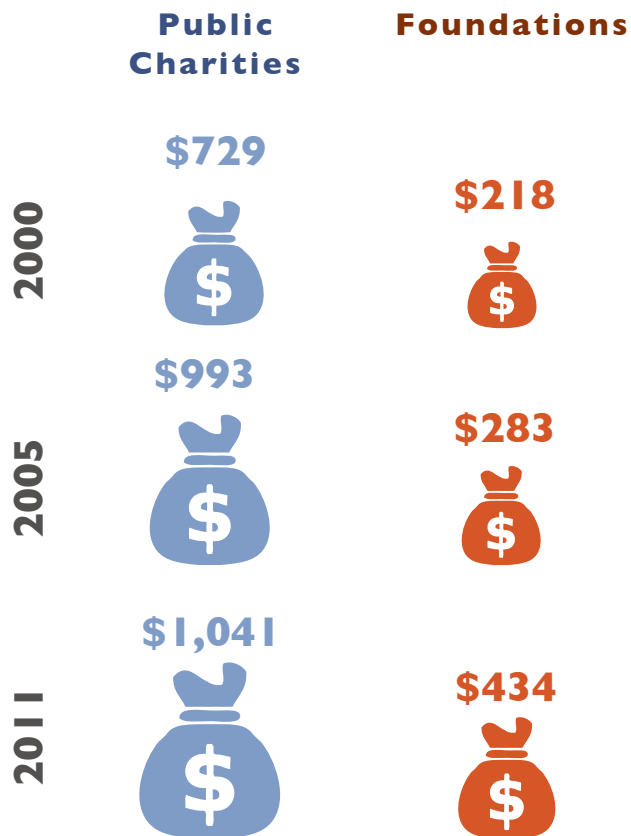
## CRIME INDEX (per 10,000 people)



## HIGHEST LEVEL OF EDUCATIONAL ATTAINMENT



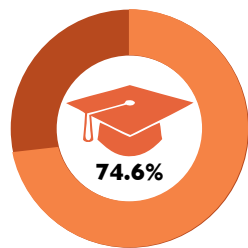
## GIVING TO PUBLIC CHARITIES & PRIVATE FOUNDATIONS PER CAPITA IN MECKLENBURG



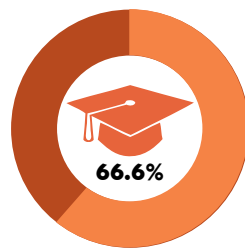




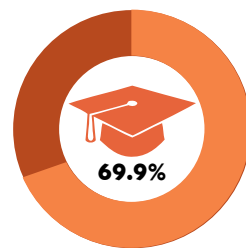
## High School Graduation Rate - MECKLENBURG



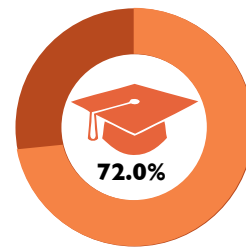
2006



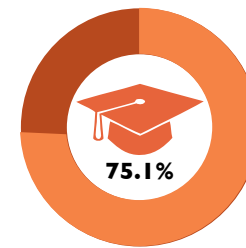
2008



2010

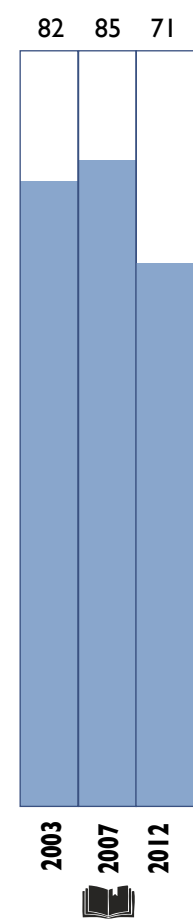
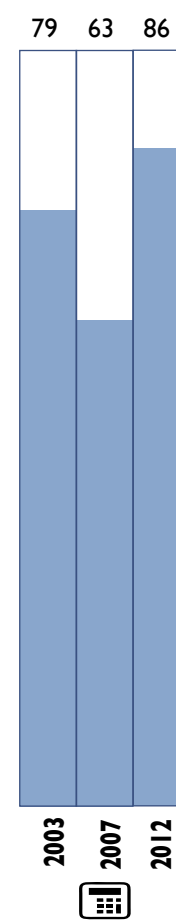
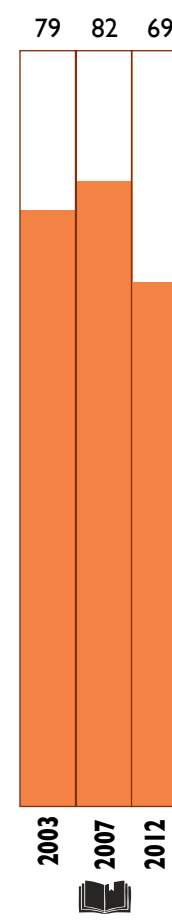
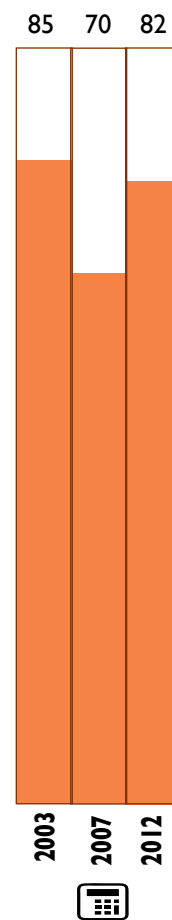


2011




2012


## % OF STUDENTS AT OR ABOVE GRADE LEVEL IN MATH/READING



3rd grade 

8th grade 

Math 

English 





# Food



| METRIC                                       | LOCAL<br>TREND | NATIONAL<br>COMPARISON |
|--|----------------|------------------------|
| Percent of residents receiving SNAP benefits | <b>F</b>       | <b>B</b>               |
| Percent of residents living in food deserts  | -              | <b>B</b>               |
| Households with Food Insecurity              | <b>F</b>       | <b>D</b>               |
| Residents per farmers market                 | <b>A</b>       | <b>D</b>               |
| <b>OVERALL</b>                               | <b>D</b>       | <b>C</b>               |





*Local food insecurity increased an average of 6% annually between 1999 & 2011.*



Part of having a sustainable food supply is making sure all residents have access to healthy, affordable food options. Malnutrition can cause or worsen costly and devastating medical conditions. Children who lack proper nutrition experience higher average rates of cognitive and behavioral problems at school, which further reinforces patterns of poverty.

Compared to the national average, Mecklenburg County consistently ranks poorly for food insecurity, or the percentage of households that were unable, at times during the year, to provide adequate food for one or more household members because the household lacked money and other resources for food. In 2009 - 2011, 17.1 percent of Mecklenburg households experienced food insecurity, compared to a national average of 14.7 percent. Nationally, households with children are almost twice as likely to experience food insecurity than households without children.

The local trend for food insecurity has grown, on average, 6 percent per year from 1999 to 2011. The percentage of households in the Supplemental Nutritional Assistance Program (SNAP) more than doubled between 2005 and 2012, from 6 percent to 12.3 percent.

Food deserts are areas with no full-service grocery stores selling fresh fruit, vegetables and other healthy foods -- in 2010, there were 60 in Mecklenburg County. The percent of the population residing in low income census tracts that reside more than one mile from a supermarket or large grocery store (or greater than 10 miles in rural areas) was 6.6 percent, compared to a national average of 8.4 percent in 2010.

Farmers markets support the local economy and make it easier to provide healthy options at a lower cost. They provide access to fresh, locally grown food, resulting in less negative environmental impacts from transporting food over long distances. The accessibility of farmers markets is increasing locally, because more farmers markets in 2012 were available in Mecklenburg County compared to 2009 on a per capita basis.

The lowest scoring metrics in the food dimension are intertwined with the Jobs + Income dimension, as well as the Equity + Empowerment dimension. Although poverty and hunger/malnutrition are closely linked, every family should have access to nutritious food, regardless of income level.

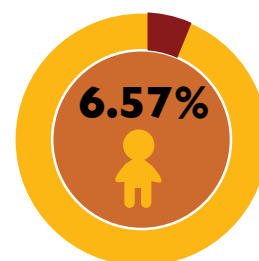


## RECOMMENDATIONS

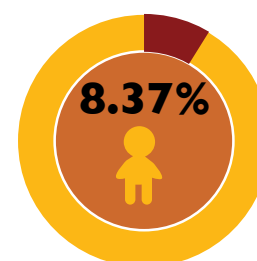
Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ Provide incentives such as reduced permitting fees to reduce the up front construction cost of full-service grocery stores as infill development in “food deserts” to increase access to nutritious foods.
- ◆ Support direct marketing of local farm products by allowing and zoning for the use of city and county properties for temporary farmers markets.
- ◆ Promote educational outreach to parents and young children, as healthy eating habits are largely determined during the early childhood years.
- ◆ Encourage entrepreneurial efforts to reach residents in food deserts, such as mobile farmers markets and convenience stores that stock nutritious foods.
- ◆ Financially support construction of neighborhood community gardens in low to moderate income areas through matching grant programs and partnerships with gardening mentors.
- ◆ Streamline aid for families/individuals needing short-term emergency access to food by partnering with local food banks and the Emergency Food Assistance Program (TEFAP).
- ◆ At the school district level, invest in comprehensive nutritional wellness and quality foods for school meals.
- ◆ Connect residents to programs that help individuals struggling with hunger.

## % LOW INCOME RESIDENTS LIVING IN FOOD DESERTS (2010)

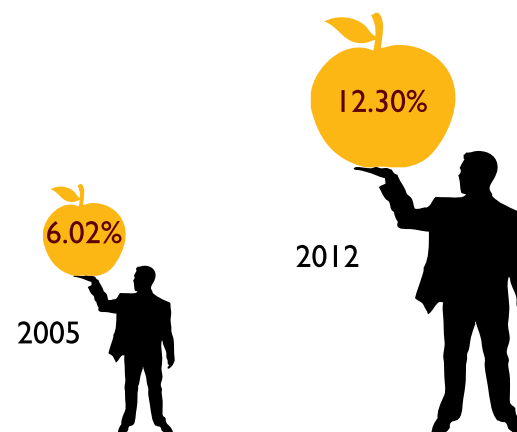


**Mecklenburg**

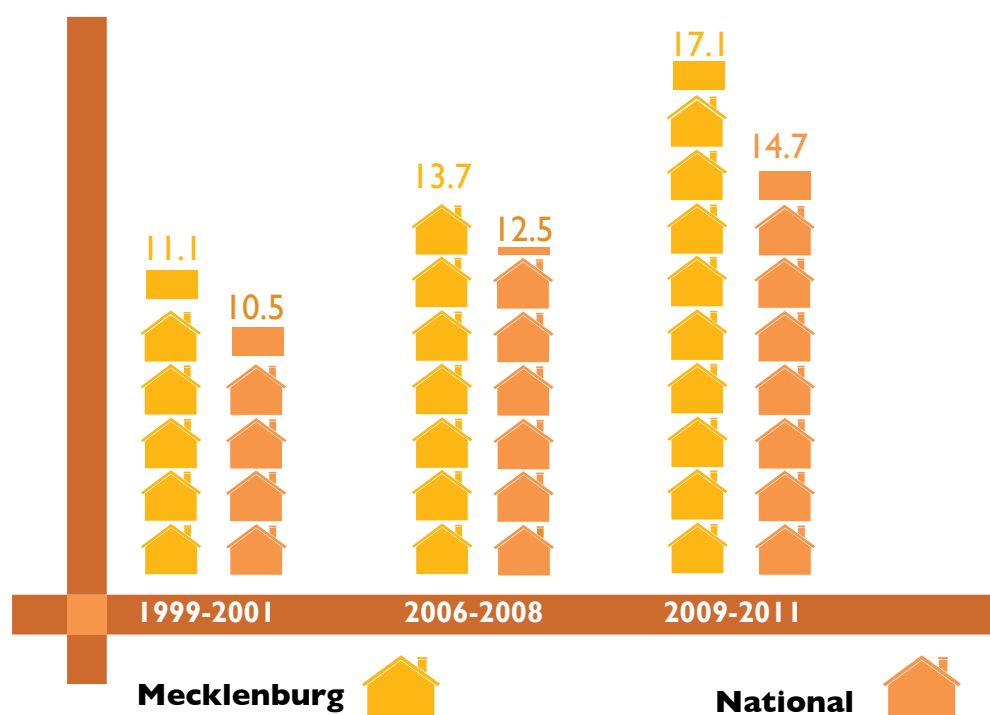


**National**

## % OF RESIDENTS IN SNAP (Supplemental Nutritional Assistance Program)



## % OF FOOD INSECURE HOUSEHOLDS





## FARMERS MARKETS

## Mecklenburg

**6 farmers  
markets in 2009**

**9 farmers  
markets in 2012**



## National

**5,240 farmers  
markets in 2009**

**7,864 farmers  
markets in 2012**

## Mecklenburg

**2009**




There are 151,451 people for  
every one farmers market

**2012**



There are 106,670 people for  
every one farmers market

 = 10,000 people

## National

**2009**

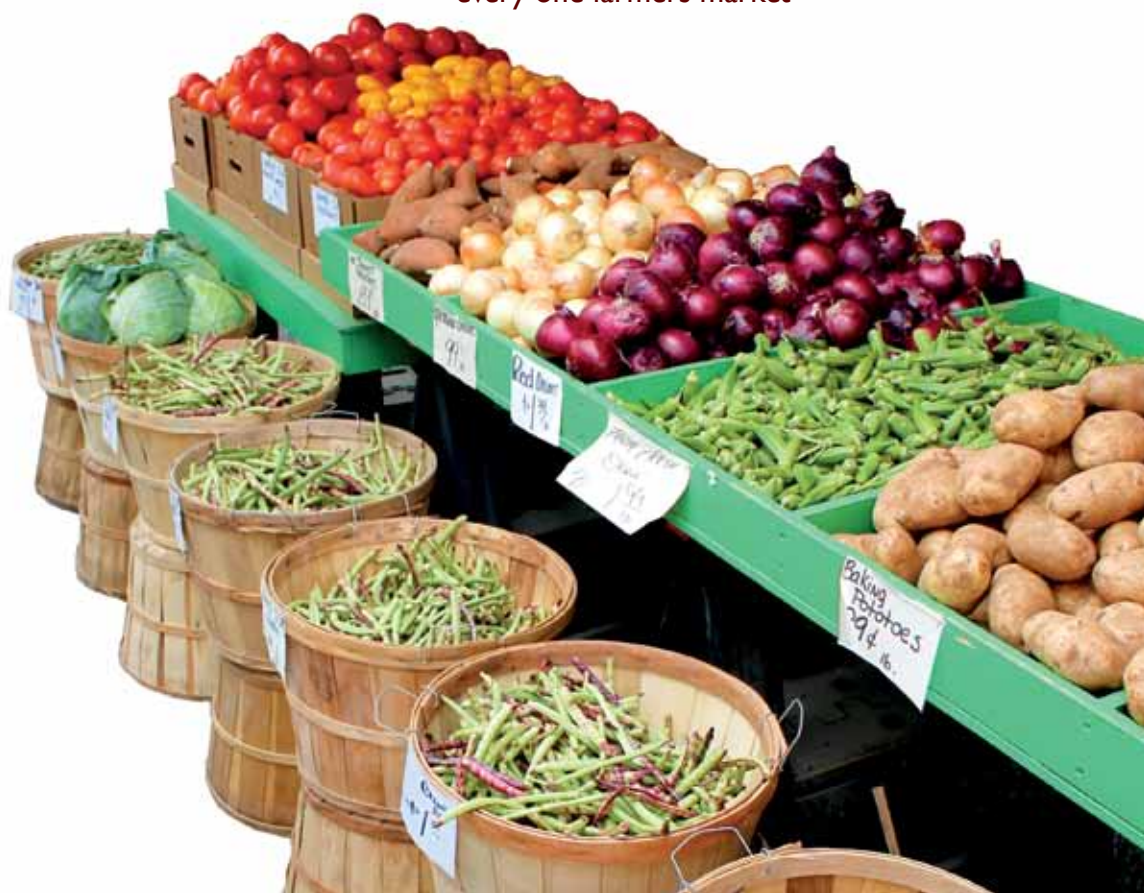


There are 58,589 people for  
every one farmers market

**2012**



There are 39,918 people for  
every one farmers market





# JOBS + INCOME



| METRIC              | LOCAL<br>TREND | NATIONAL<br>COMPARISON |
|---------------------|----------------|------------------------|
| Household Income    | <b>B</b>       | <b>B</b>               |
| Families in Poverty | <b>F</b>       | <b>C</b>               |
| Children in Poverty | <b>F</b>       | <b>C</b>               |
| Unemployment        | <b>B</b>       | <b>D</b>               |
| Underemployment     | <b>D</b>       | <b>B</b>               |
| Employment Duration | <b>C</b>       | <b>C</b>               |
| Business by Size    | <b>C</b>       | <b>C</b>               |
| Clean Job Intensity | -              | <b>C</b>               |
| Clean Job Growth    | <b>B</b>       | <b>A</b>               |
| Clean Job Wages     | -              | <b>D</b>               |
| <b>OVERALL</b>      | <b>C</b>       | <b>C</b>               |





## *Nearly 1 in 4 local children lived in poverty in 2011.*

A sustainable region provides opportunities for residents to find and maintain employment to support themselves and their families. Several metrics were evaluated to measure the health of Charlotte's economy. Overall, the data indicates a strong need for improvement.

The percent of families living below the poverty line in Mecklenburg County has roughly doubled from 6.6 percent in 2000 to 13.1 percent in 2011. The percent of children living in poverty showed a similar trend as it has almost doubled from 12.2 percent in 2000 to 23.8 percent in 2011.

Mecklenburg County's 9.2 percent unemployment rate in 2013 was roughly 20 percent higher than the national unemployment rate of 7.7 percent. The local unemployment rate increased from 3.0 percent in 2000 to a high of 10.8 percent in 2009. Since the peak of the recession in 2009, Mecklenburg County's unemployment rate has decreased by an average of 0.4 percent per year. Because the recession dramatically increased unemployment rates across the nation, we evaluated Mecklenburg against the national average from 2009 to 2013 in order to accurately portray the current trend. However, the 2013 rate of 9.2 percent is still more than three times higher than the 2000 value of 3.0 percent.

The underemployment rate (less than 35 hours/week and 50 weeks/year) increased slightly from 2005 to its 2011 value of 50.3 percent, which is slightly lower than the national average of 53.8 percent. Economic changes

since the recession have made it difficult for many employees to schedule enough work hours to adequately support themselves and their families.

Employment duration, or the percentage of workers who have been employed at their current job for six months or less, dipped sharply after the recession but has since nearly returned to the pre-recession value in Mecklenburg County. Although this is a proxy for average turnover rates, it is also affected by worker age.

A robust economy must be resilient in the face of changing market forces. A city with a variety of small, medium, and large businesses provides a greater variety of employment opportunities than a city that is highly dependent on a few extremely large employers. Mecklenburg County's percentage of small businesses (1-49 employees) relative to overall number of businesses has remained relatively steady since 1999. 93 percent of Mecklenburg County's businesses had 1 to 49 employees in 2011, only slightly less than the national average of 94.7 percent.

Mecklenburg County's growth in "clean jobs" (as defined by the Brookings Institute) averaged 4.7 percent per year from 2003 to 2010, compared to a national average increase of 3.4 percent over the same time period. In terms of its overall size, the clean economy in the Charlotte metropolitan area ranks 33rd among the 100 largest metro areas. Median wages for clean jobs were 6 percent higher than all wages in Charlotte in 2010, but 7 percent lower than the national median wage for clean jobs.

Between 2005 and 2008, Mecklenburg County's median household income jumped from \$50,215 to \$57,033. Over the next three years, during the recession, it steadily fell back to just under \$52,000 in 2011. However, in 2012, this downward trend reversed and it climbed back to \$55,295. Over the entire eight-year period, Mecklenburg's median income was, on average, 7 percent higher than the national median income.



**BUSINESS BY SIZE**



**1999**



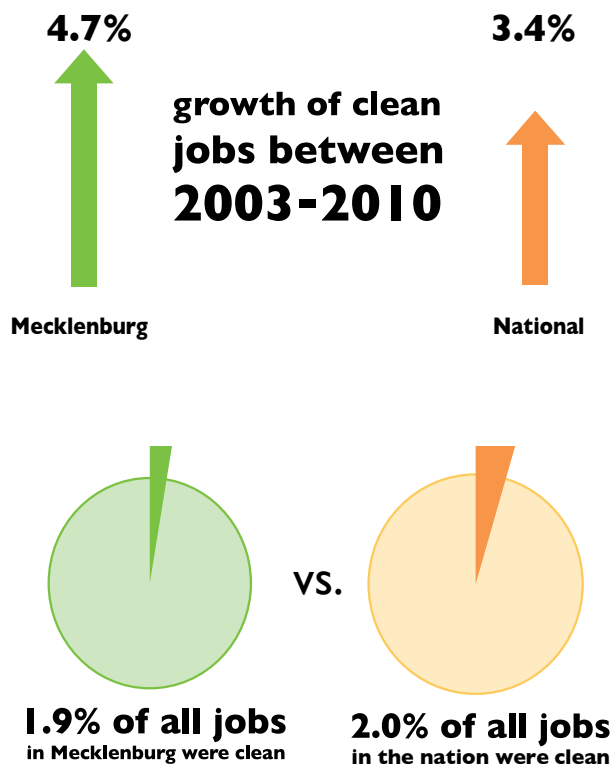
**2005**



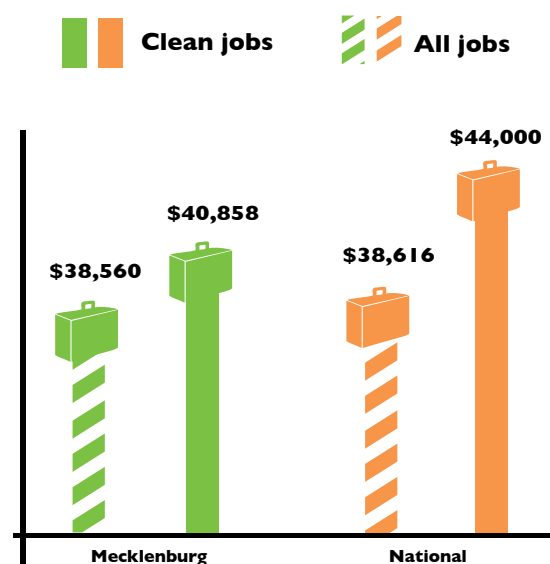
**2011**

● 1-49 Employees    ● 50+ Employees

**CLEAN JOBS IN 2010**

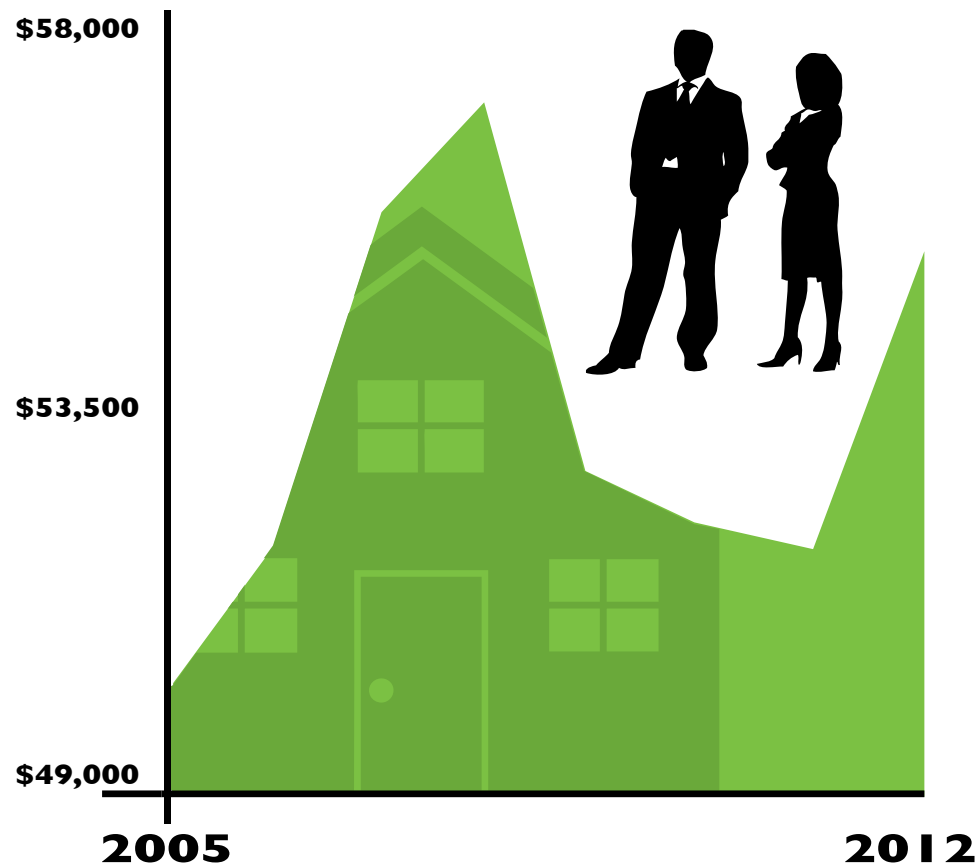


**MEDIAN JOB WAGES**  
**CLEAN JOBS VS. ALL JOBS**





## MEDIAN HOUSEHOLD INCOME IN MECKLENBURG CO.



## 2012 MEDIAN HOUSEHOLD INCOME

\$55,295



Mecklenburg

\$51,371



National

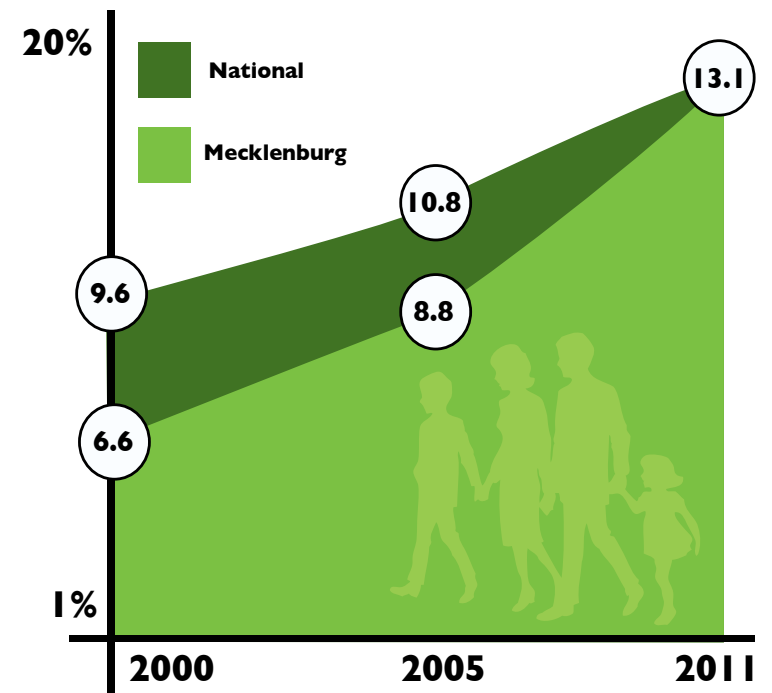


## RECOMMENDATIONS

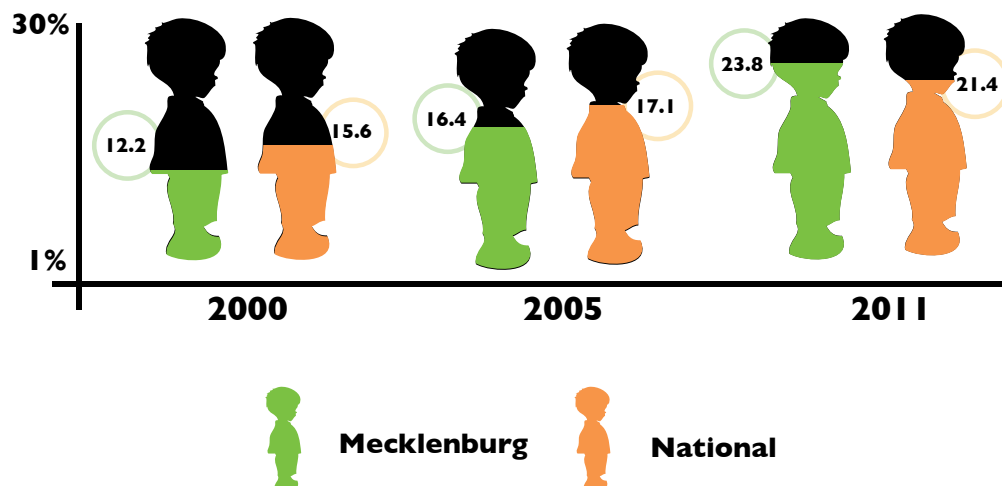
Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ Identify the existing skills mismatch between the pool of unfilled jobs and unemployed workers and work with local businesses and educational organizations to develop workforce training for unemployed workers in order to meet employer needs. Continue to build partnerships between businesses, local governments, and secondary education institutions (trade schools, community colleges, 4 year universities) to develop educational programs whose graduates possess skills that are in local demand.
- ◆ Invest in transportation improvements to enhance mass transit infrastructure while providing jobs. A University of Massachusetts study found that funding mass transit expansion is the most cost-effective way to increase employment.
- ◆ Encourage the use of a career ladder approach (with clear progression from entry-level positions) to workforce training programs in clean energy fields, a rapidly expanding sector of North Carolina's economy.
- ◆ Expand transit, biking, and pedestrian infrastructure to provide individuals with lower cost transportation choices to access jobs, education, and training to better address long-term unemployment.

## % OF FAMILIES IN POVERTY



## % OF CHILDREN IN POVERTY

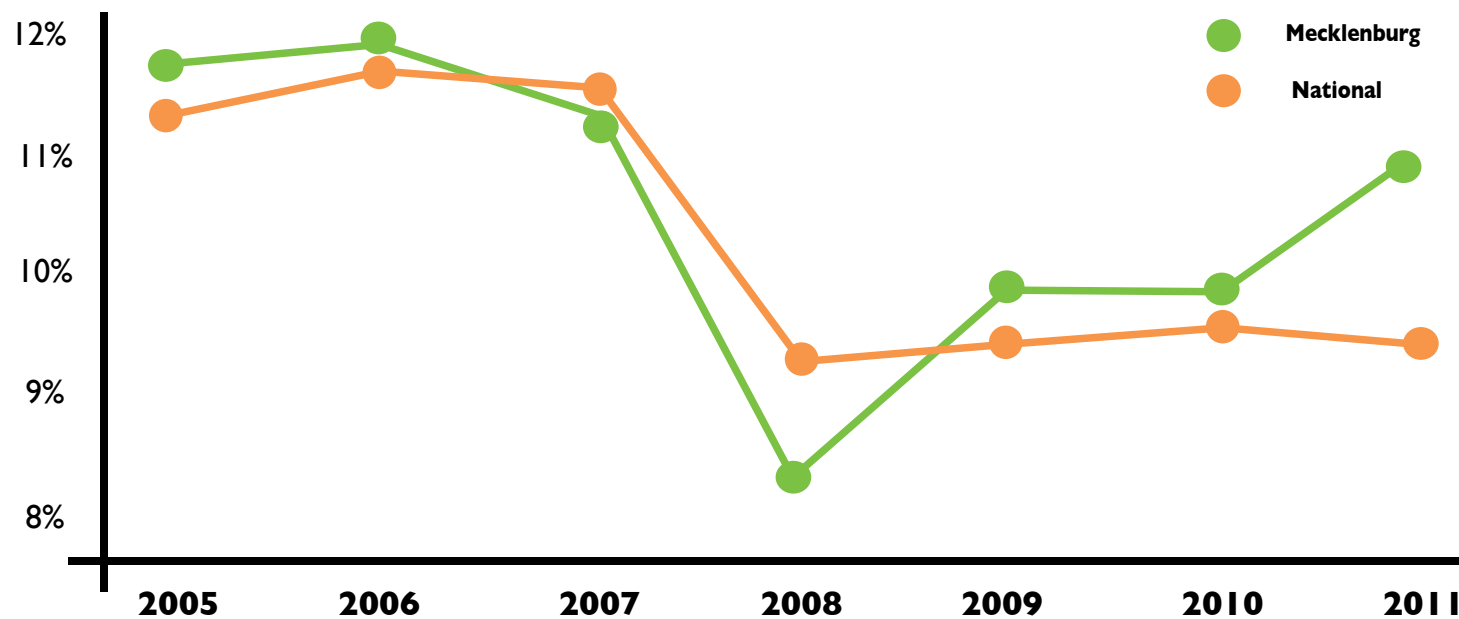


1 nearly 4  
of the **children** living  
in Mecklenburg in 2011  
lived in **poverty**

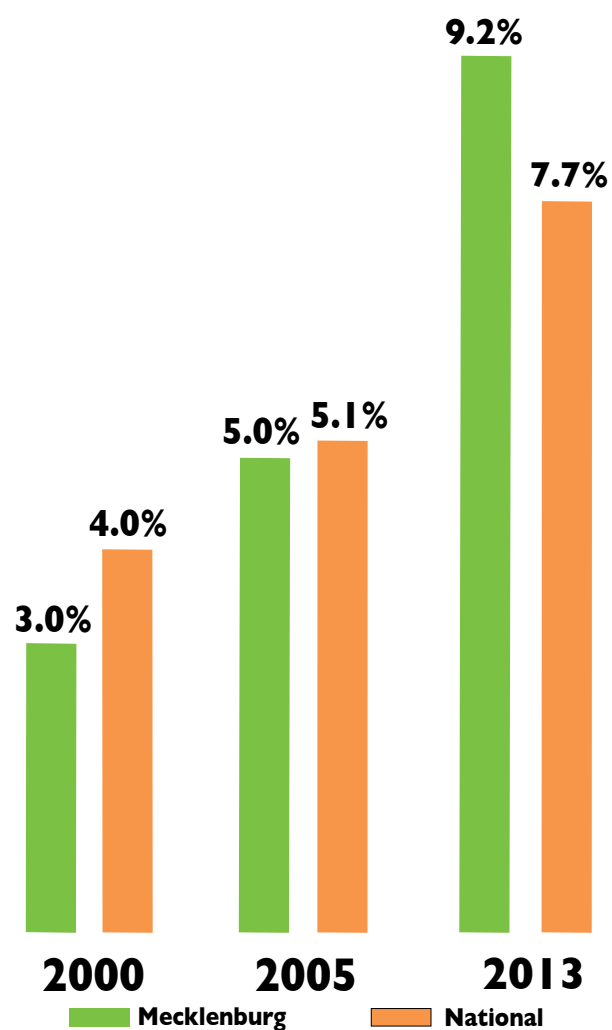




# % OF WORKFORCE WORKING 6 MONTHS OR LESS

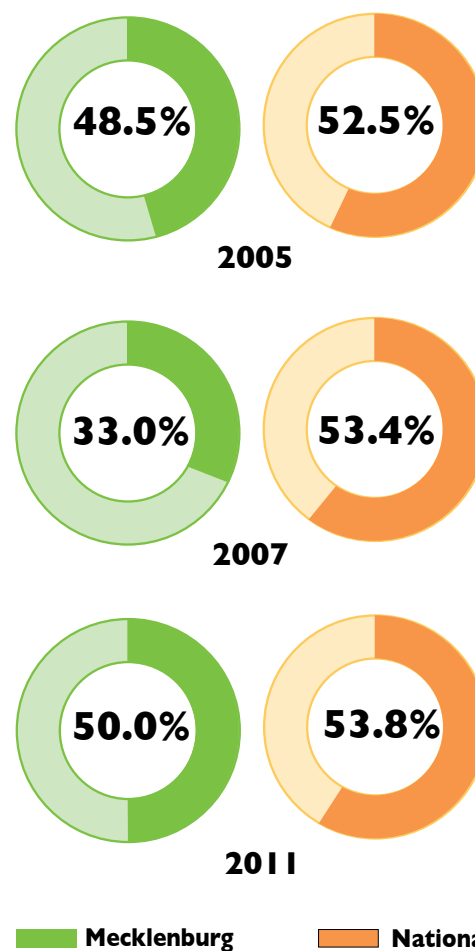


## UNEMPLOYMENT RATE



## UNDEREMPLOYMENT RATE

(LESS THAN 35 HRS/WEEK, 50 WEEKS/YR)



# LAND USE



| METRIC                               | LOCAL TREND | NATIONAL COMPARISON |
|--------------------------------------|-------------|---------------------|
| Parks, Greenways, & Recreation Space | D           | -                   |
| Preserves                            | B           | -                   |
| Outdoor Recreation Proximity         | -           | -                   |
| Developed Acreage per Capita         | D           | D                   |
| Residential Density                  | B           | -                   |
| Total Impervious Surface             | C           | -                   |
| Percentage of Tree Canopy            | D           | -                   |
| Brownfield Redevelopment             | A           | -                   |
| OVERALL                              | D           | D                   |





*In 2014, the Charlotte metro area ranked as the 5th most sprawling in the country among large metro areas.*

The Charlotte area was ranked the fifth most sprawling large metro area in the US in Smart Growth America's 2014 Measuring Sprawl Report. In the same report, high sprawl was quantitatively linked to lower economic mobility, higher combined housing and transportation costs, fewer transportation options, and higher rates of obesity and fatal car crashes. Our region's population is growing rapidly, so data-based land use planning that considers long-term consequences is critical to ensuring that growth does not compromise our economic and environmental sustainability.

Land use planning and zoning policies that support community health, wellness and equitable development ensure the inclusion of parks, greenways, recreational space for all and protection of existing trees. Green and open spaces greatly improve our quality of life by providing health benefits and positively impacting our infrastructure and economy. They boost tourism and increase home values as well.

The number of developed park acres per 1,000 Mecklenburg County residents decreased almost 8 percent between 2007 and 2011, indicating that park expansion has not kept pace with our growing population. As the county continues to develop, it has become increasingly difficult for Mecklenburg Park and Rec to identify and purchase large tracts of land for new parks and preserves. However, despite this challenge, the number of acres of land set aside for preservation per 1,000 Mecklenburg County residents increased 2.7 percent over the same time period.

As of 2012, 72 percent of housing units were located within one half of a mile of a public outdoor recreation area. In 2014, Charlotte's ParkScore ranked 57th among the 60 largest US cities according to the Trust for Public Land, a score that aggregates a variety of park and land use metrics. We scored well for median park size, but poorly for park land as a percent of city area, park access, spending per resident, and playgrounds per 10,000 residents.

The residential population density of Mecklenburg County has increased at an average of 3 percent annually since 2000. We consider this to be a positive trend

because increasing population density in growing areas reduces sprawl, and its associated costs. However, Mecklenburg's developed acreage per capita increased an average of 3 percent annually from 0.11 acre in 1976 to 0.23 acre in 2010, which is a very troubling trend. Since 1996, the amount of developed acreage per capita has remained roughly the same. Yet we still have 21 percent more developed land per person than the national average of 0.19 acres based on 2006 data.

According to a study by American Forests, Mecklenburg's impervious surfaces increased by 127 percent between 1984 and 2001. Fortunately this trend later slowed, and the percentage of impervious surfaces has remained roughly the same at 24.5 percent on average over the past five years. For an urban county, our impervious surface percentage is fairly good, but we need to maintain green spaces to facilitate natural water flow and continue the trend of increasing population density to reduce urban sprawl.

Mecklenburg's trees are one of its great treasures. Charlotte's trees alone contribute approximately \$6 million annually in cost savings by providing stormwater interception, energy use reductions, aesthetic benefits resulting in higher property values, and sequestration of carbon dioxide and combustion pollutants. Between 1985 and 2008, Mecklenburg County lost over 33 percent of its tree canopy and the City of Charlotte lost 49 percent. Reversal of this trend will require active participation in replanting and preservation efforts.

The total "Active Eligible" sites in the NC Brownfields program qualified for redevelopment has increased 32 percent on average each year from 2 sites in 1997 to 107 in 2013, resulting in the most positive local trend of the land use metrics we evaluated, and the only 'A' grade.

For most of the land use metrics we evaluated, comparing Mecklenburg's performance to other metro areas was not possible due to a lack of national averages. Variations in the total land area of counties also complicates a national comparison. If national-level data becomes available we will incorporate into our analysis in future reports.



## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

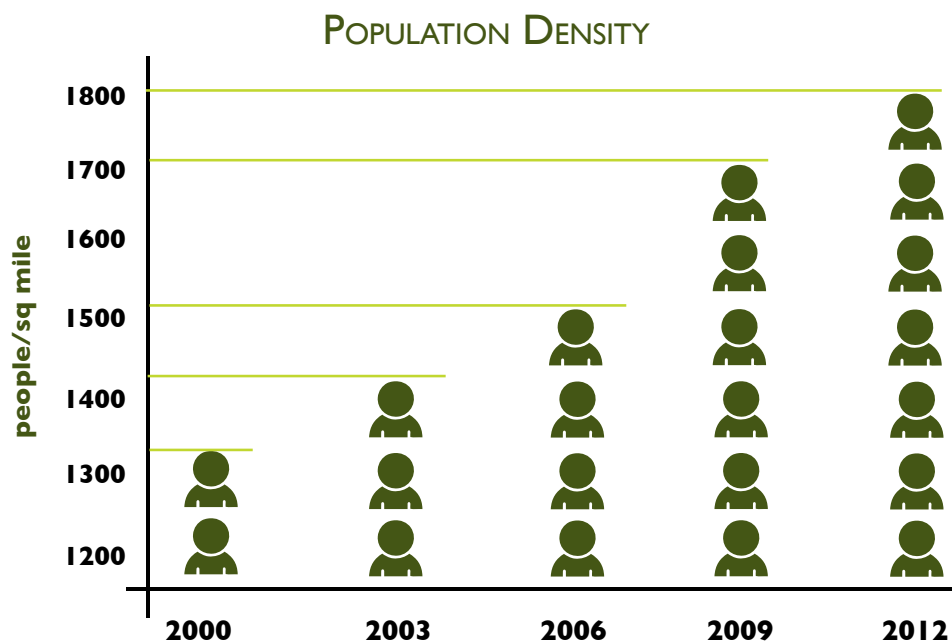
- ◆ Plan future land use strategically by developing policy documents that set specific measurable goals rather than vague aspirations -- and adhere to them.
- ◆ Promote brownfield and infill redevelopment by removing requirements that encourage sprawl (such as minimum parking requirements).
- ◆ Support redevelopment of vacant and abandoned properties by removing barriers that hinder redevelopment, without removing environmental protections.
- ◆ Encourage permitting of more multi-family and higher-density housing, especially along existing and planned transit corridors.
- ◆ During new construction and redevelopment, require parking lots in densely populated areas to incorporate green elements such as planting strips, multi-level design (garages), and other mitigation techniques listed in EPA's Green Parking Lot Resource Guide.
- ◆ Coordinate infrastructure and permitting decisions to prioritize redevelopment over new projects on undeveloped land.
- ◆ Establish an agricultural district program to address problems that farmers face in developing areas, in order to protect and encourage commercial agriculture.
- ◆ Adopt zoning codes that support agricultural tourism at farms, orchards, wineries, livestock shows, and other agriculture-based venues or businesses.
- ◆ Use fees-in-lieu of compliance with stormwater regulations to provide flexibility for projects on dense infill sites only in cases when on-site mitigation is not physically possible; however, vegetated roofs, porous concrete, rainwater collection for use on site, and evaluation of other best management practices should all be required before allowing payment in-lieu of compliance.
- ◆ Benchmark recreational needs in order to closely tailor investment in municipal parks and civic space to resident demand and environmental sensitivity.
- ◆ Expand greenway construction near streams to protect vegetation cover and increase the percentage of residents who have access to recreation and a safe transportation route for walking or biking.
- ◆ Adopt a "no net loss" policy for both the Charlotte and Mecklenburg County tree canopy by requiring trees removed during property development to be replaced, either on-site or in close proximity, at the developer's expense.
- ◆ Consolidate Charlotte's development regulations into a Unified Development Ordinance that emphasizes pedestrian-scaled design and permits a greater mix of uses across Charlotte's neighborhoods.
- ◆ Link zoning regulations and transportation planning efforts to ensure that development adjacent to existing and planned transit routes is of a sufficient density and character to support transit service.
- ◆ Ensure that zoning regulations require densities high enough to support compact, walkable development or low enough to effectively preserve sensitive lands. Gradually phase out zoning districts with density thresholds and use regulations that do not support either of these goals.

We also agree with the following recommendations from Mecklenburg County's 2014 State of the Environment Report:

- ◆ Support the updated Mecklenburg County Park and Recreation Comprehensive Master Plan. This plan calls for the acquisition of more acres of nature preserves and active neighborhood, community and regional parklands, new greenway trails, regional recreation centers and special use facilities.
- ◆ Continue supporting the Greenprint software program. Greenprint (computer software) allows the County to objectively and strategically make best use of available tax dollars while accounting for the needs of our natural community as land acquisition is considered. Mecklenburg County is anticipated to be largely developed by the year 2030, so acquiring land now is of vital importance.
- ◆ Look for partnerships. The County should continue to look for partnerships with entities like the Thread Trail, NCDOT and surrounding towns as well as investigate new funding opportunities to help make the Comprehensive Master Plan a reality. Public-private partnerships will be key to realizing the goals and needs of the plan.







In 2012, **72%** of housing was within **1/2 mile** of outdoor **recreation** facilities.



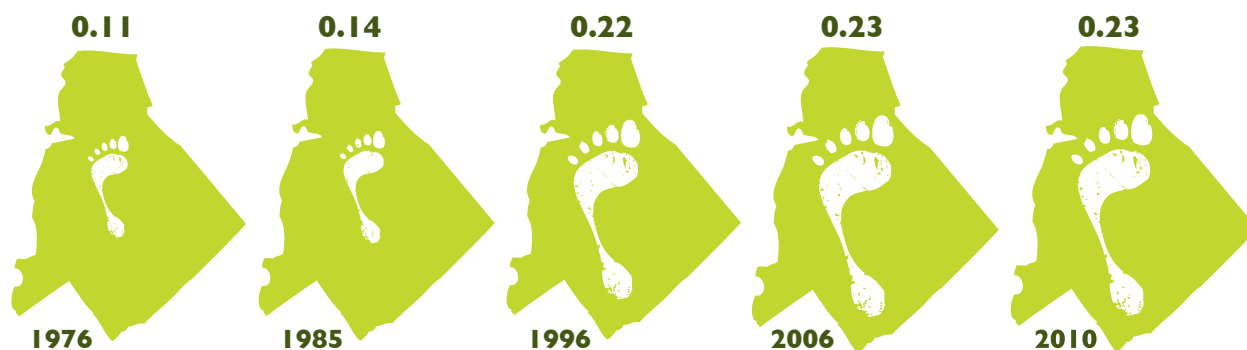
### ACRES PRESERVED LAND PER 1,000 PEOPLE



### ACRES OF DEVELOPED PARKS



### DEVELOPED ACREAGE PER CAPITA



Our development footprint per resident has doubled between 1976 and 2010.





# TRANSPORTATION

| METRIC   | LOCAL<br>TREND | NATIONAL<br>COMPARISON |
|--|----------------|------------------------|
| Commuting Means  | C              | C                      |
| Vehicle Miles per Capita   | B              | D                      |
| Average Travel Delay   | D              | D                      |
| Share of Workers<br>Traveling by Public<br>Transit, Bicycle, or Foot | B              | F                      |
| Bike Lanes   | -              | -                      |
| Percentage of Paved<br>Streets with Sidewalks                        | -              | -                      |
| Average Weekday<br>Transit Ridership                                 | B              | -                      |
| Public Transit Proximity   | -              | -                      |
| OVERALL  | B              | D                      |





*93% of us commute to work by car; 83% drive alone.*

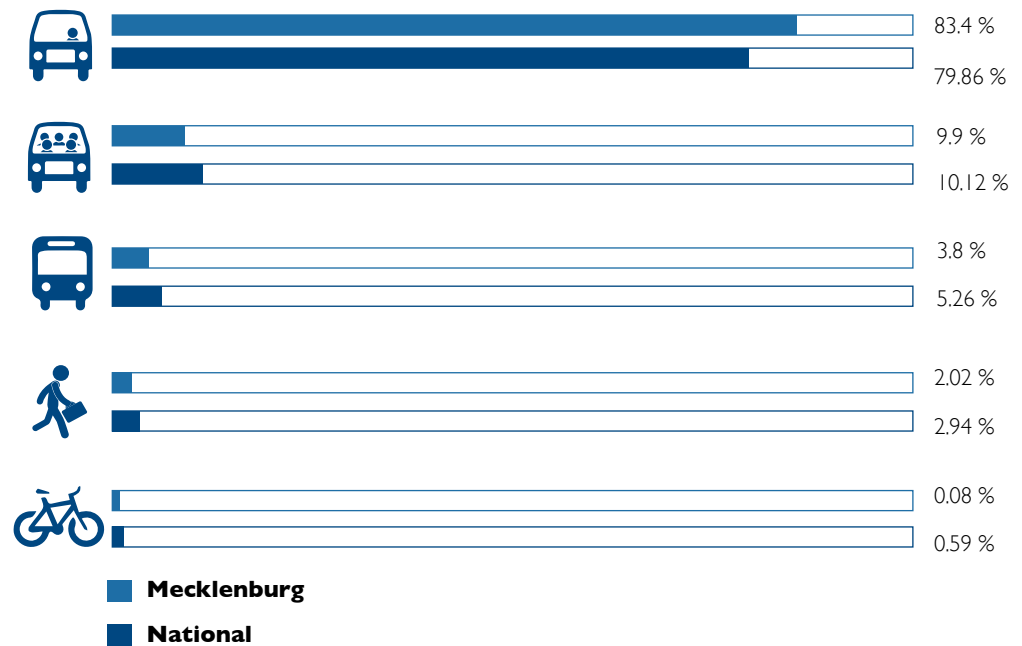
Mecklenburg is a growing county in need of more transportation choices. As the fifth most sprawling large metro area in the country, our transportation patterns are closely linked to land use patterns. High-sprawl communities are more auto-dependent. Area residents drove nearly 10 billion miles in 2010. Transportation is a critical dimension of sustainability because the ways we move throughout the region affect air quality, traffic safety, public health, household spending on transportation, and access to jobs, housing, and health care services.

The percentage of Mecklenburg County workers who drove alone to and from work remained relatively stable between 2000 and 2011; at 83.4 percent in 2011, the rate of single passenger commuting in Mecklenburg County was 4 percent higher than the national average. Over the same period, the percentage of commuters using public transit increased an average of 7 percent annually from 2000 to 2011, while the percentage of commuters carpooling dropped an average of 4 percent over this time. The percentage of Mecklenburg County workers who commute by transit, walking, or biking has increased from 5 percent in 2006 to 5.9 percent in 2011, but we are still below the national average of 8.8 percent.

Transit ridership using the Charlotte Area Transit System (CATS) more than doubled from an average of 44,014 riders per day in 2000 to 92,134 in 2012. Even when accounting for population growth over this same period, ridership increased an average of 4 percent per year from 633 to 994 riders per 10,000 residents.

Mecklenburg County's vehicle miles traveled per capita have decreased an average of 1.4 percent annually between 2002 and 2012. However, vehicle miles traveled per capita during 2005 in the Charlotte Metropolitan Statistical Area (a six county metro area in 2005, which in 2013 underwent a boundary change to include a total of ten counties) averaged 11,546 miles in 2005, which was 27.2 percent higher than the national average of 9,079 miles per capita for the 100 largest metro areas.

## MEANS OF TRANSPORTATION TO WORK IN 2011



We were 15.1 percent lower than the national average of travel delay person-hours from 2000 to 2006. In 2007, travel delay in Charlotte exceeded the national average for the first time. That trend has continued, with an average travel delay 7 percent higher than the national average from 2007 to 2011.



## RECOMMENDATIONS

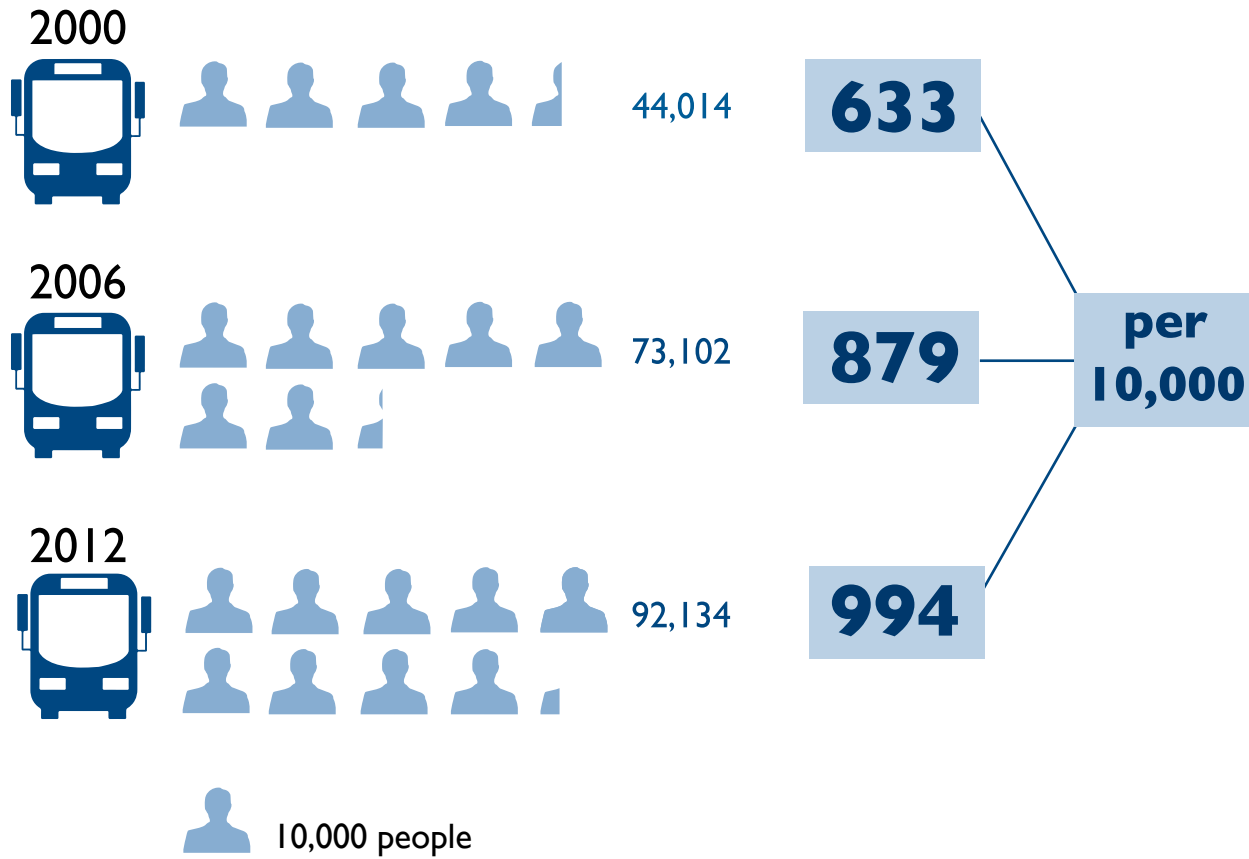
Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ Increase the level of current transportation spending for transit, bike, and pedestrian infrastructure by decreasing spending for expanding road capacity in outlying areas, which encourages further sprawl and induces more driving.
- ◆ Secure additional funding to execute the remainder of the 2030 Transit System Plan.
- ◆ Target development within ½ mile of current and planned transit stations and transit corridors and discourage development that will require driving for every trip.
- ◆ Revise current state funding formula that favors roadway over non-roadway projects to provide a more level playing field for all transportation modes.
- ◆ Convert more existing streets to “complete streets” that streamline safe vehicular traffic flow while incorporating infrastructure for walking and biking.
- ◆ Adopt a “fix it first” approach to transportation investment by maintaining and improving existing infrastructure rather than continuing to expand highways.
- ◆ Encourage employers to offer telecommuting, provide car or van pool coordination, and incentives for commuting by transit, bike, or foot.
- ◆ Foster partnerships between local government departments, non-profits, and businesses to integrate bike and pedestrian projects into other transportation projects due to the new state funding formula that excludes funding for stand-alone bike/pedestrian projects.
- ◆ Increase comfort level for pedestrians and bicyclists by creating safer and more abundant crosswalks, sidewalks, and bike lanes.
- ◆ Create safe routes for children to bike or walk to school through expanded infrastructure, education of parents and school officials, and safety patrols.
- ◆ Increase regional connectivity by building commuter rail lines and expanding the Piedmont and Carolinian Amtrak lines to meet projected demand.





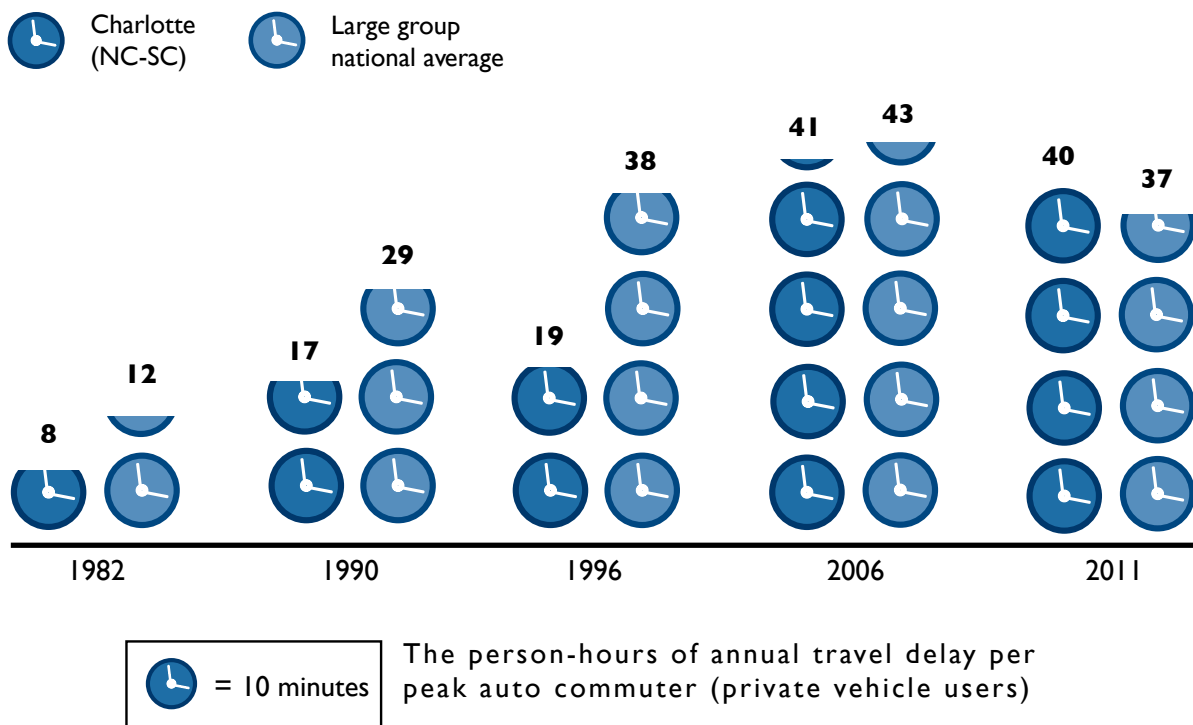
## AVERAGE WEEKLY CATS RIDERSHIP



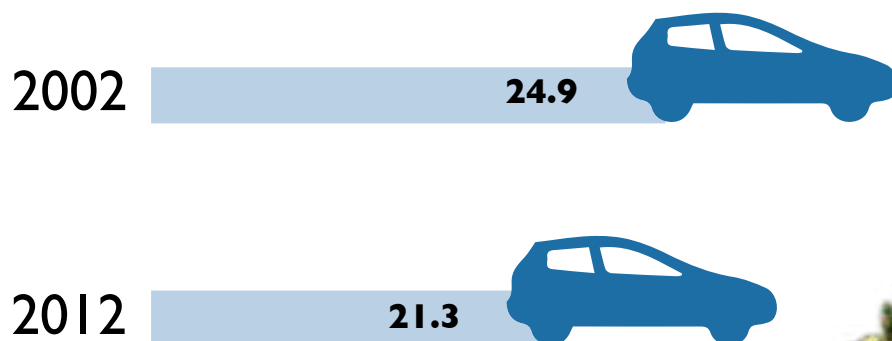
## % OF HOUSING UNITS WITHIN 1/2 MILE OF PUBLIC TRANSPORT IN MECKLENBURG (2011)



## AVERAGE TRAVEL DELAY (HOURS)



## AVERAGE DAILY VEHICLE MILES TRAVELED (VMT) PER CAPITA IN MECKLENBURG







## BIKE LANE AVAILABILITY



in 2012 only 2% of Charlotte's roads had a bike lane

## SIDEWALK AVAILABILITY



in 2011 only 42% of Charlotte's roads had a sidewalk





# WASTE



| METRIC                                     | LOCAL TREND | NATIONAL COMPARISON |
|--|-------------|---------------------|
| Yard Debris Composted at County Facilities | A           | -                   |
| Recycling Processed at County Facilities   | C           | -                   |
| Commercial Waste Landfilled                | B           | -                   |
| Construction & Demolition Waste Landfilled | A           | -                   |
| Residential Waste Landfilled               | C           | -                   |
| OVERALL                                    | B           | -                   |





## *Nearly half of Mecklenburg County's single family residents and more of the multi-family residents do not fully participate in the available recycling programs.*

There is no such thing as throwing something “away” -- all discarded waste in Mecklenburg County is buried in a landfill if it is not recycled or composted. Yet landfills are unsustainable. They require large amounts of land, are expensive to maintain, and can generate groundwater pollution if not properly designed or maintained. Decomposition in landfills also produces large amounts of two greenhouse gases: methane and carbon dioxide. Further, landfilling materials that could be recycled increases the need for mining and harvesting new materials, which requires additional energy and water, disrupts ecosystems, and generates pollution.

Municipal collection and composting of yard debris is important to preventing these natural materials from being buried in landfills. 229 pounds of yard debris per person were kept out of landfills in 2013, which was 75 more pounds per person than in 1999, a very positive trend. While yard debris collected is affected by the number of debris-producing weather events in a given year and therefore not necessarily indicative of public efforts to collect it, yard debris per person increased an average of 8.6 percent per year over this time period.

Mecklenburg County has seen a major decrease in the amount of construction and demolition (C&D) debris landfilled per person. Between 1999 and 2013, the amount of C&D debris landfilled per person per year decreased by 683 pounds, from 1,018 to 335 pounds, with an average annual decrease of 6.8 percent. The economic downturn and housing crisis that began in 2007 led to decreased construction and commercial activity, which led to a sharp decline in C&D debris being landfilled starting in that same year.

The amount of waste generated by businesses has also declined significantly. It has fallen 1200 pounds per person per year, from 2,080 in 1999 to 880 in 2013 -- and decreased an average of 4.9 percent each year.

In short, the total amount of waste we are sending to the landfill has declined since 1999 largely due to increasing collection of yard debris, declining C&D



debris landfilled, and declining commercial waste. Unfortunately, we're generating about the same amount of waste per person at home each year. The amount of residential waste buried in a landfill decreased by just 0.7 percent per year, on average.

We are also recycling about the same amount at home that we were in 1999. In fact, at home we recycled 8 pounds/person more in 1999 than in 2013 with a slight average annual decrease of 0.1 percent over this time. This decline in pounds of recycling per person may be due to fewer homes subscribing to the print version of daily newspapers, which historically has been one of the most common items in household recycling bins but increasingly is not as more readers get their news online. Private recycling companies that serve larger multi-family residences are not required to report the amount of recyclables they process, so this metric does not represent the total amount of residential waste being recycled. Instead, it measures the amount of material recycled by residents whose recyclables are collected by their local government -- primarily residents who live in single family homes or multi-family buildings with less than 30 units. However, many larger apartment and condominium buildings in Mecklenburg do not provide recycling services to their residents as it is not required by law. As stated in Mecklenburg County's 2014 State of the Environment report: “Even with a mature residential recycling program, nearly half of the County's single family residents and more of the multi-family residents do not fully participate in the available recycling programs. The collection and processing infrastructure to handle additional materials already exists, it just needs to be used.”



## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ Enact “pay as you throw” pricing for residential waste pickup to discourage waste generation and incentivize waste reduction strategies such as recycling and composting.
- ◆ Working with major waste generators, set a goal and plan to work towards “zero waste”, as has been done in hundreds of municipalities around the country and world.
- ◆ Support a comprehensive recycling law with minimum requirements for residential, commercial and industrial facilities.
- ◆ Continue to assess recycling across the county and within neighborhoods.
- ◆ Benchmark and monitor waste generated by the construction and demolition industry, and create goals and incentives for reducing such as a reduction in permit fees based on amount of material recycled or reused.
- ◆ Provide small businesses with recycling service and require participation.
- ◆ Businesses and organizations should designate an administrative entity responsible for all logistical operations associated with recycling and waste management.
- ◆ Encourage all municipal departments to support recycling practices and promote recycling within departmental operations.
- ◆ Provide outdoor recycling receptacles adjacent to trash receptacles where not already present.
- ◆ Educate the public on proper hazardous waste disposal procedures and provide ample disposal outlets.

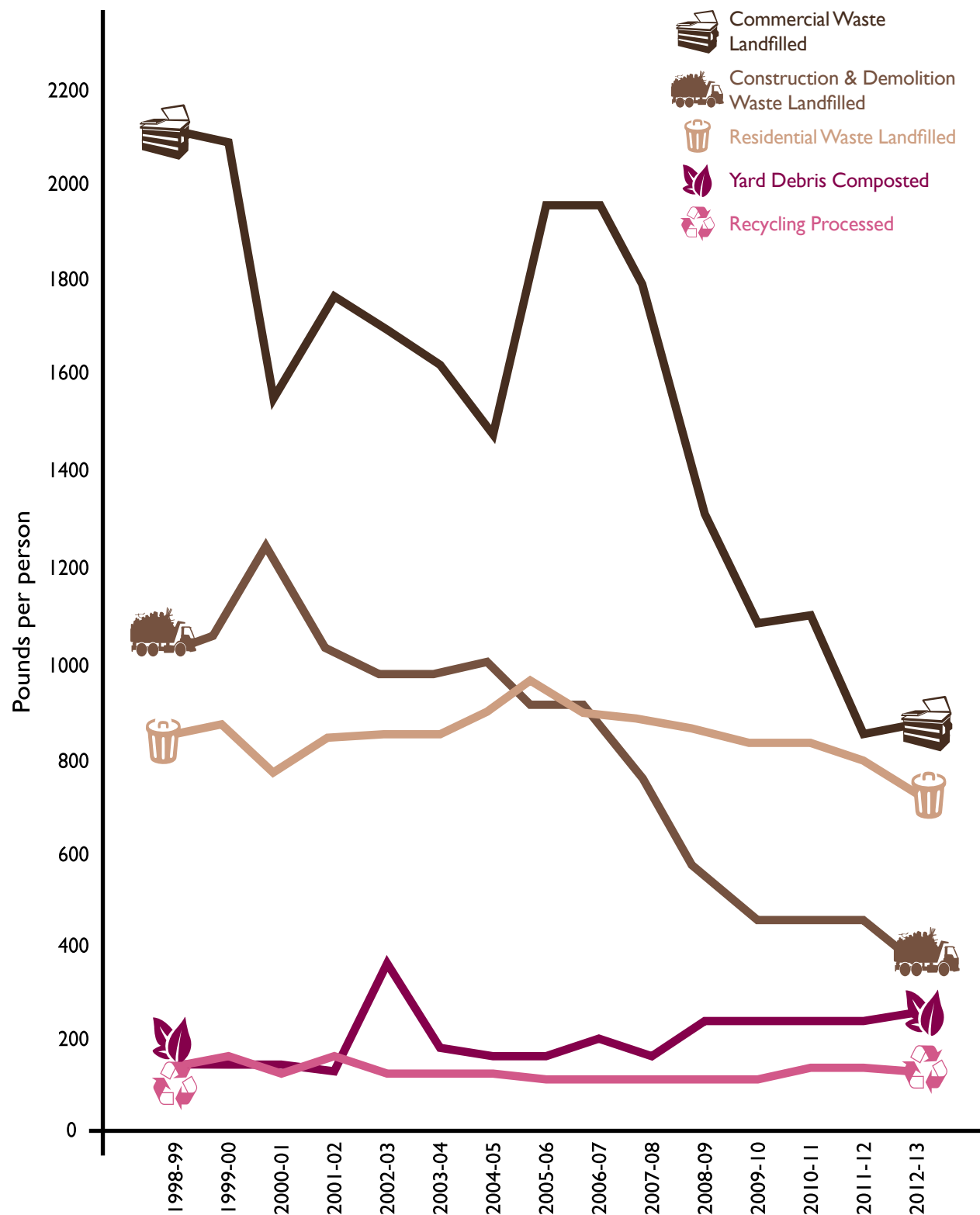
We also agree with the following recommendations from Mecklenburg County’s 2014 State of the Environment Report:

- ◆ Improve citizen outreach efforts, and tracking of educational outreach effectiveness, to realize the full potential of residential recycling. Even with a mature residential recycling program, nearly half of the County’s single family residents and more of the multi-family residents do not fully participate in the available recycling programs. The collection and processing infrastructure to handle additional materials already exists, it just needs to be used.
- ◆ Expand the base of commercial recycling. Comprising nearly half of the waste disposed, commercial or business waste needs to be central to any waste reduction efforts. Initiatives and policies should be instituted that expand the number of businesses recycling their waste and the types of materials recycled. The existing Source Separation Ordinance requires only large businesses to recycle two materials, office paper and cardboard.
- ◆ Support the growth of waste reduction/recycling activities in our schools. Behavioral patterns are set early in life and schools provide a great opportunity to increase awareness of recycling issues. We need to build on the existing relationship between County Solid Waste and the Charlotte-Mecklenburg Schools (CMS) to realize the full potential of our recycling programs. The County/CMS partnership also provides a great proving ground for environmental leadership practices and institutional waste recycling programs.
- ◆ Foster an infrastructure for food waste recycling. Food waste and other organics represent a significant portion of both the single family residential and the commercial/institutional waste streams. Today food waste is largely unrecovered although potential is high to reuse these materials once collected. Educational campaigns encouraging food waste composting fostering public acceptance of food waste diversion should be increased.





## MECKLENBURG CO. WASTE DISTRIBUTION





# WATER USE



| METRIC                          | LOCAL TREND | NATIONAL COMPARISON |
|---------------------------------|-------------|---------------------|
| Total per Capita Water Usage    | B           | -                   |
| Household Water Consumption     | B           | B                   |
| Water Used for Power Generation | C           | -                   |
| OVERALL                         | <b>B</b>    | <b>B</b>            |





*Since 1999, per capita water consumption has decreased by 27% in Mecklenburg.*

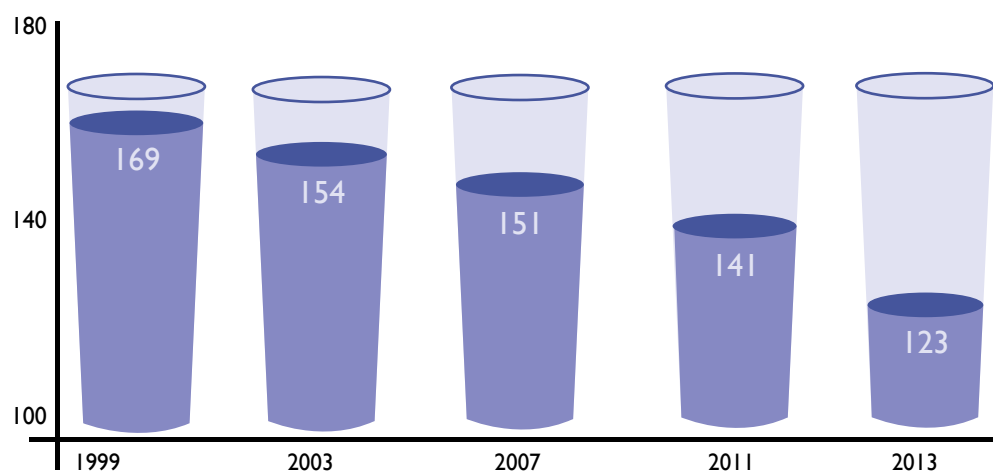
Sustainable water systems provide both adequate water quantity and appropriate water quality for a given need, without compromising the ability to meet these needs in the future. The provision of safe, plentiful and affordable water, given our growing population, will be a significant but critical challenge.

Residential metered water usage per household in Mecklenburg County has decreased 3 percent annually on average since 2003. Our per capita water usage has decreased an average of 2 percent annually between 1999 and 2013. Differences in the way per capita water usage is calculated locally and nationally makes it difficult to compare these values directly, therefore no national comparison score is available for this metric.

Mecklenburg County's average annual rate of fresh water withdrawals from surface and ground water sources for power generation, primarily for condenser cooling, makes up roughly 95 percent of our total water withdrawals, including consumptive and returned flow. This shows the interdependence between our water and energy usage, as well as water quality issues where surface water is used for power generation and then returned to its source.

Currently, 81 percent of Mecklenburg County watersheds contain "impaired" streams, meaning they are not clean enough for their intended use, which is recreation. This is an issue that affects quality of life for residents and overall ecosystem health. Our sprawling development is leading to increased impervious surfaces such as rooftops, roads, and parking lots that contribute to pollutant runoff and erosion.

PER CAPITA DAILY WATER CONSUMPTION, GALLONS



The recent coal ash spill into the Dan River highlights the serious risk we face given the proximity of similar coal ash ponds to the source of Mecklenburg's drinking water, the Catawba River. Stormwater runoff from rooftops, roads, and parking lots as well as sewage overflows remain threats to our streams in Mecklenburg County. The recent illegal dumping incidents in Mallard and Sugar Creeks are a reminder of the vulnerability of our waterways. Although drinking water was not affected by these incidents, they highlight a major concern: Mecklenburg County is almost entirely dependent upon the Catawba River as our source of water, so any disaster that renders the river unfit for that purpose could be catastrophic to our region.



## RECOMMENDATIONS

Set short, mid, and long term goals for improving each of the metrics used to evaluate this aspect of our sustainability; consider the strategies below for achieving them.

- ◆ The Charlotte Mecklenburg Utility Department (CMUD) should continue comprehensive water audits, benchmarking, and incorporating the projected impacts of climate change into long-term plans to target consumption reductions and meet the water needs of a growing population.
- ◆ Integrate smart growth into stormwater management programs by shifting to one that is watershed based, as detailed in the National Academy of Sciences 2008 Urban Stormwater Management in the United States report.
- ◆ Educate residents about the EPA's "WaterSense" program, the costs and benefits of water-savings products, and recommend purchasing water-saving fixtures and appliances.
- ◆ Continue to provide incentives for residents to implement landscape practices for improved water quality and conservation through the North Carolina Community Conservation Assistance Program (CCAP).
- ◆ Increase promotion of CMUD's Smart Irrigation program to incentivize customers to reduce water demand and curtail runoff.
- ◆ Identify appropriate opportunities for harvesting and reuse of "free" water sources, such as rainwater and air conditioning condensate and implement where feasible.
- ◆ Integrate water saving investments into multi-year capital/operating budgets.
- ◆ Analyze municipal purchasing/supply chain to ensure that products are produced by companies that use sound water management practices.
- ◆ Include public engagement as well as local non-profits and businesses in a public and private partnership for integrated water resource management planning.
- ◆ Support the development of regulations to adequately safeguard bodies of water near coal-burning power plants or other facilities that generate potential water pollutants.
- ◆ Dedicate resources to preventing, investigating, and prosecuting illegal dumping in sewer systems and waterways.
- ◆ Increase educational efforts regarding the proper disposal of cooking grease. Grease clogs were responsible for half of last year's sanitary sewer overflows.

We also agree with the following recommendations from Mecklenburg County's 2014 State of the Environment Report:

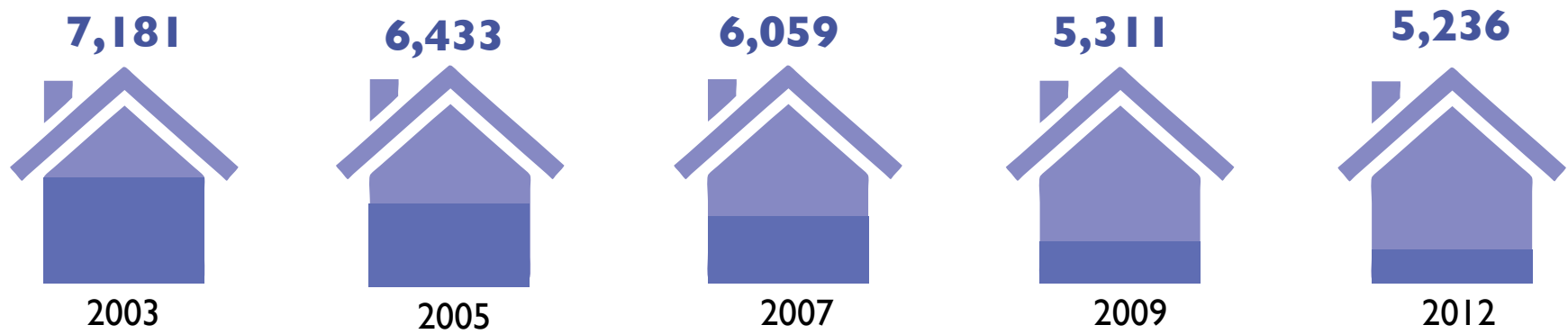
- ◆ Continue the effective implementation of the Post-Construction Stormwater Ordinances adopted by the City of Charlotte, six Towns and Mecklenburg County by ensuring adequate funding and support of plan reviews, inspections, enforcement, and maintenance activities, so that the intent and goals of the ordinances are met.
- ◆ Develop and fund implementation of watershed management plans to restore those watersheds that have been identified as impaired or not meeting their designated uses and to protect those that have remained fully supporting of their uses.
- ◆ Continue to monitor fish tissue, in cooperation with the State, and advise the public of consumption risks.
- ◆ Continue to aggressively identify and track contamination sites, and the location of wells, and to support the enforcement of the Groundwater Well Regulations to ensure safe drinking water throughout Mecklenburg County.



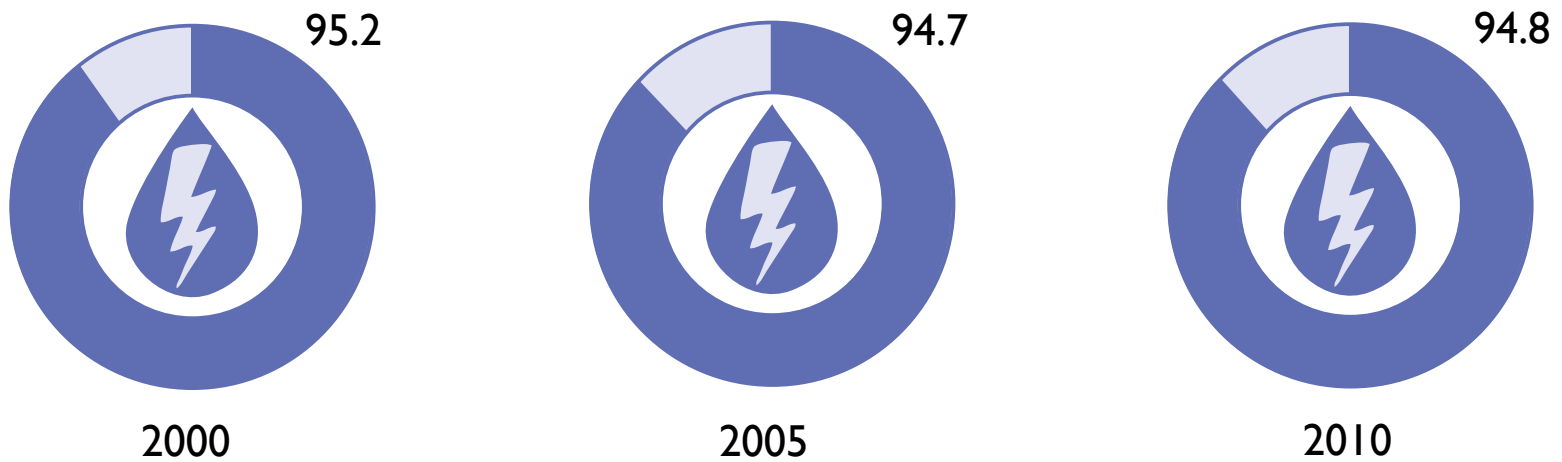




## HOUSEHOLD MONTHLY WATER CONSUMPTION, GALLONS



## % OF TOTAL WATER USE FOR POWER GENERATION



# APPENDIX: METRICS + DATA SOURCES

| DIMENSION                 | SUBCATEGORY             | METRIC  | YEAR(S)  |
|---------------------------|-------------------------|---|--|
| 1<br>AIR QUALITY          | Air Quality             | Air quality index                                   | 2012-2000  |
|                           |                         | Ground-level ozone                                  | 2012-2000  |
|                           |                         | Sulfur dioxide emissions                            | 2012-2000  |
|                           |                         | Nitrogen oxides emissions                           | 2012-2000  |
|                           |                         | PM2.5 emissions                                     | 2012-2000  |
| 2<br>ENERGY USE           | Energy Use              | Average monthly residential electricity consumption | 2011-2010 (12-month period)                                  |
|                           |                         | Average monthly residential natural gas consumption | 2011-2010 (12-month period)                                  |
|                           |                         | Average annual residential total energy use         | 2011-2010 (12-month period)                                  |
|                           | Building Efficiency     | Number of LEED certified buildings                  | 2013-2000  |
|                           | Building Efficiency     | Number of Energy Star certified buildings           | 2013-2000  |
| 3<br>EQUITY + EMPOWERMENT | Electric Emissions      | Carbon emissions from electricity generation        | 2012   |
|                           | Affordability           | Housing affordability                               | 2011-2006 (average); 2009-2005 (average)                     |
|                           |                         | Transportation costs as a percent of income         | 2009   |
|                           | Civic Engagement        | Giving to private foundations & public charities    | 2010-2000  |
|                           |                         | Health care coverage                                | 2010-2005  |
|                           | Education               | Educational attainment                              | 2011-2005, 2000  |
|                           |                         | Students at or above grade level in reading/math    | 2012-2003 (grades 3,4, & 8); 2012-2003 (grades 3 & 8)        |
|                           |                         | High school graduation rate (4 year cohort)         | 2012-2006  |
| 4<br>FOOD                 | Safety                  | Crime index   | 2011-2000  |
|                           | Access and Availability | SNAP participation                                  | 2012-2005  |
|                           |                         | Food deserts  | 2010   |
|                           |                         | Households with food insecurity                     | 2011-2009(average), 2008-2006 (average), 2001-1999 (average) |
|                           | Local Foods             | Residents per farmers' market                       | 2012, 2009   |





| DESCRIPTION  | SOURCE(S)  |
|--|--|
| Percent of days air quality index was in Unhealthy for Sensitive Groups, Unhealthy, or Very Unhealthy according to the Environmental Protection Agency's Air Quality Index   | Environmental Protection Agency  |
| Annual 4th maximum 8-hour average ozone concentration, in ppm  | Environmental Protection Agency  |
| Annual 99th percentile of the daily max 1-hour SO2 concentration, in ppb   | Environmental Protection Agency  |
| Annual 98th percentile of the daily max 1-hour NO2 concentration, in ppb   | Environmental Protection Agency  |
| Annual 98th percentile of the daily average PM2.5 concentration, in ug/m3  | Environmental Protection Agency  |
| Average monthly electricity consumption in kilowatt hours per household  | Charlotte-Mecklenburg Quality of Life Study                              |
| Average monthly natural gas consumption in therms per household  | Charlotte-Mecklenburg Quality of Life Study                              |
| Total annual energy consumption in KBTU per household  | Converted from Charlotte-Mecklenburg Quality of Life Study               |
| Number of LEED certified buildings (Silver, Gold, or Platinum) per 100,000 persons   | US Green Building Council / Census                                       |
| Number of Energy Star certified buildings per 100,000 persons  | US Green Building Council / Census                                       |
| Total CO2 emissions per MWH output in SRVC eGRID   | EPA eGrid  |
| Percentage of Mecklenburg County households spending more than 50%, 30-50%, and less than 30% of income on housing each month  | Comprehensive Housing Affordability Strategy / American Community Survey |
| Percent of income spent on transportation costs  | Housing and Transportation Affordability Index                           |
| Dollar amount of contributions, gifts, and grants to private foundations and public charities divided by population  | University of North Carolina at Charlotte - Regional Indicators          |
| Percent of individuals who have health insurance coverage  | University of North Carolina at Charlotte - Regional Indicators          |
| Highest level of education (Less than high school; High school diploma; Some college, No degree; Associate's degree; Bachelor's degree; Graduate or professional degree; completed by population over 25 years of age, as a percentage of total population   | University of North Carolina at Charlotte - Regional Indicators          |
| Percent of students performing at or above grade level in reading/math   | University of North Carolina at Charlotte - Regional Indicators          |
| Percent of students who entered 9th grade in a particular year that graduated 4 years later  | University of North Carolina at Charlotte - Regional Indicators          |
| Number of index offenses (sum of: Murder; Rape; Robbery; Aggravated Assault; Burglary; Larceny; Motor Vehicle Theft) committed per 10,000 people   | University of North Carolina at Charlotte - Regional Indicators          |
| Percentage of population that receives benefits from the federally funded Supplemental Nutritional Assistance Program (SNAP), calculated by multiplying the annual average monthly number of participating households by the Census Bureau's average household size for Mecklenburg County, then normalizing by total county population. | US Census Bureau / American Community Survey                             |
| Percent of population residing in low income census tract and more than 1 mile from supermarket/ large grocery store (>10 mi. in rural areas)  | US Department of Agriculture Food Environment Atlas                      |
| Percent of households that were unable, at times during the year, to provide adequate food for one or more household members because the household lacked money and other resources for food   | US Department of Agriculture Food Environment Atlas                      |
| Ratio of population to farmers' markets in Mecklenburg County  | US Department of Agriculture Food Environment Atlas                      |



| DIMENSION           | SUBCATEGORY                      | METRIC   | YEAR(S)                      |
|---------------------|----------------------------------|--|------------------------------|
| 5<br>JOBS + INCOME  | Income                           | Household income   | 2012-2005                    |
|                     |                                  | Families in poverty  | 2011-2005, 2000              |
|                     |                                  | Children in poverty  | 2011-2000                    |
|                     | Employment                       | Unemployment   | 2013-2010                    |
|                     |                                  | Underemployment  | 2011-2005                    |
|                     |                                  | Employment duration  | 2011-2005                    |
|                     |                                  | Businesses by size   | 2011-2000                    |
|                     | Clean Economy                    | Clean job intensity  | 2010                         |
|                     |                                  | Clean job growth   | 2010-2003 (average)          |
|                     |                                  | Clean job wages  | 2010                         |
| 6<br>LAND USE       | Green Space                      | Parks, greenways, and recreation space                         | 2011, 2007                   |
|                     |                                  | Preserves  | 2011, 2007                   |
|                     |                                  | Outdoor recreation proximity                                   | 2012                         |
|                     | Density & Development            | Developed acreage per capita                                   | 2010, 2006, 1996, 1985, 1976 |
|                     |                                  | Residential density  | 2012-2000                    |
|                     |                                  | Total impervious surface                                       | 2013-2009                    |
|                     |                                  | Percentage of tree canopy                                      | 2008                         |
|                     |                                  | Brownfield redevelopment                                       | 2013-1997                    |
| 7<br>TRANSPORTATION | Commute                          | Commuting means  | 2011-2005, 2000              |
|                     | Private Vehicles                 | Vehicle miles per capita                                       | 2012, 2002                   |
|                     |                                  | Average travel delay   | 2011-1982                    |
|                     | Biking & Walking                 | Share of workers traveling by public transit, bicycle, or foot | 2010-2006 (average), 2000    |
|                     |                                  | Bike lanes   | 2012                         |
|                     |                                  | Percentage of paved streets with sidewalks                     | 2011                         |
|                     | Public Transit                   | Average weekday transit ridership                              | 2011-2000                    |
| 8<br>WASTE          | Materials Diverted from Landfill | Public transit proximity                                       | 2011                         |
|                     |                                  | Yard debris composted at county facilities                     | 1998-2013                    |
|                     | Materials Sent to Landfill       | Recycling processed at county facilities                       | 1998-2013                    |
|                     |                                  | Commercial waste landfilled                                    | 1998-2013                    |
|                     |                                  | Construction & demolition waste landfilled                     | 1998-2013                    |
| 9<br>WATER USE      | Water Usage                      | Residential waste landfilled                                   | 1998-2013                    |
|                     |                                  | Total per capita water usage                                   | 2013-1999                    |
|                     |                                  | Residential water consumption                                  | 2012-2003                    |
|                     |                                  | Water usage for electricity generation                         | 2010, 2005, 2000             |





| DESCRIPTION   | SOURCE(S)   |
|---|---|
| Median household income   | US Census Bureau  |
| Percent of families that live below the poverty line  | University of North Carolina at Charlotte - Regional Indicators                                 |
| Percent of individuals below the age of 18 that live below the poverty line   | University of North Carolina at Charlotte - Regional Indicators                                 |
| Unemployment rate as calculated by the Bureau of Labor Statistics   | University of North Carolina at Charlotte - Regional Indicators                                 |
| Percent of workforce (age 16-64) working less than 35 hours a week, 50 weeks a year   | US Census Bureau  |
| Percent of workforce (age 16-64) working less than 26 weeks in the past year  | US Census Bureau  |
| Number of business establishments with fewer than 50 employees, over 50 employees, and total  | US Census Bureau  |
| Percent of clean jobs out of total jobs   | Brookings Clean Economy Report  |
| Annual percent change in green jobs   | Brookings Clean Economy Report  |
| Median wage of clean jobs   | Brookings Clean Economy Report  |
| Number of acres of developed parkland and recreation areas maintained by Mecklenburg County   | Mecklenburg County Parks and Rec  |
| Number of acres set aside for open space/preservation   | Mecklenburg County Parks and Rec  |
| Percent of housing units within ½ mile of a public outdoor recreation area  | Charlotte-Mecklenburg Quality of Life Study   |
| The amount of developed land (acres) per person in a specified area   | UNCC - Regional Indicators  |
| Mecklenburg population divided by area in square miles  | US Census Bureau / Regional Indicators  |
| Percent of impervious surface coverage in relation to total number of acres   | Mecklenburg County GIS  |
| Percent of total area covered by tree canopy, including residential and non-residential areas   | Mecklenburg County GIS  |
| Number of projects entering the NC Brownfields program each year, eligible for redevelopment  | NC Brownfields Program  |
| Percent of workers using a specified means of transportation to travel to work (Drive Alone; Carpool; Public Transport; Bike; Walk)   | US Census Bureau / American Community Survey  |
| Daily vehicle miles traveled per capita   | Charlotte Department of Transportation / Metrolina Household Travel Survey/ Brookings Institute |
| Person-hours of annual travel delay per peak auto commuter (private vehicle users)  | Bureau of Transportation Statistics   |
| Percent of workers travelling to work by public transit, bicycle, or foot   | Census Transportation Planning Products - US Census Bureau, American Community Survey           |
| Percent of paved roads with marked bike lanes   | Charlotte Department of Transportation  |
| Percent of paved streets that have sidewalks on at least one side of the street (quality not assessed)  | Charlotte-Mecklenburg Quality of Life Study   |
| Average number of unlinked public transit trips on weekdays   | National Transportation Database / Charlotte Area Transit System                                |
| Percent of housing units within 1/2 mile of public transit services   | Charlotte-Mecklenburg Quality of Life Study   |
| Yard debris composted at a county facility in pounds/person   | Mecklenburg County Solid Waste and Recycling  |
| Recyclable materials processed at the Meck County materials recovery facility in pounds/person  | Mecklenburg County Solid Waste and Recycling  |
| Commercial waste landfilled in pounds/person  | Mecklenburg County Solid Waste and Recycling  |
| Construction & demolition waste sent to landfill in pounds/person   | Mecklenburg County Solid Waste and Recycling  |
| Residential waste sent to landfill in pounds/person   | Mecklenburg County Solid Waste and Recycling  |
| Total per capita water consumption in gallons/person/day  | Charlotte-Mecklenburg Utility Department  |
| Average annual residential water consumption per residential account, in CCF  | Charlotte-Mecklenburg Utility Department  |
| Average annual rate of withdrawal of fresh and salt water from surface and ground water sources for thermoelectric power generation uses, primarily for condenser cooling, by county in millions of gallons per day (Mgal/d or MGD). Includes consumptive use and return(ed) flow. Does not include in stream uses such as hydroelectric power generation. Derived from a combination of actual data and estimates. | LINC / NC Department of Environment and Natural Resources                                       |



# AIR QUALITY

## Ground Level Ozone

Annual 4th maximum 8-hour average concentration, in ppm

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 0.101       | 0.0817   |
| 2001 | 0.099       | 0.0837   |
| 2002 | 0.107       | 0.0877   |
| 2003 | 0.088       | 0.0822   |
| 2004 | 0.085       | 0.0749   |
| 2005 | 0.090       | 0.0797   |
| 2006 | 0.093       | 0.0791   |
| 2007 | 0.096       | 0.0789   |
| 2008 | 0.093       | 0.0750   |
| 2009 | 0.071       | 0.0696   |
| 2010 | 0.082       | 0.0732   |
| 2011 | 0.088       | 0.0742   |
| 2012 | 0.085       | 0.0757   |

Source: EPA

## Nitrous Oxides

Annual 98th percentile of the daily maximum 1-hour concentration, in ppb

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 65          | 67       |
| 2001 | 60          | 66       |
| 2002 | 57          | 64       |
| 2003 | 56          | 63       |
| 2004 | 53          | 58       |
| 2005 | 52          | 57       |
| 2006 | 51          | 55       |
| 2007 | 54          | 54       |
| 2008 | 50          | 54       |
| 2009 | 44          | 49       |
| 2010 | 50          | 48       |
| 2011 | 42          | 49       |
| 2012 | 42          | 46       |

Source: EPA

## Sulfur Dioxide

Annual 99th percentile of the daily maximum 1-hour concentration, in ppb

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 64          | 78       |
| 2001 | 86          | 79       |
| 2002 | 50          | 69       |
| 2003 | 69          | 72       |
| 2004 | 58          | 69       |
| 2005 | 91          | 67       |
| 2006 | 77          | 62       |
| 2007 | 82          | 57       |
| 2008 | 73          | 51       |
| 2009 | 26          | 45       |
| 2010 | 20          | 40       |
| 2011 | 15          | 34       |
| 2012 | 8           | 33       |

Source: EPA

## CO2 Emissions from Electricity Generation

CO2 emitted by energy production in Pounds per Megawatt Hour (lb/MWH)

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2012 | 1,036       | 1,216    |
| 2010 | 1,118       | 1,293    |
| 2007 | 1,135       | 1,329    |
| 2006 | 1,146       | 1,363    |

Source: EPA eGRID-2012, Mecklenburg falls in the SRVC eGRID, no adjustments were made to the eGRID data so this represents energy production beyond solely Mecklenburg County

## Particulate Matter Under 2.5 µm

Seasonally-Weighted Annual Average, in µg/m3

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 17          | 14       |
| 2001 | 16          | 13       |
| 2002 | 15          | 13       |
| 2003 | 15          | 13       |
| 2004 | 16          | 12       |
| 2005 | 16          | 13       |
| 2006 | 15          | 12       |
| 2007 | 14          | 12       |
| 2008 | 13          | 11       |
| 2009 | 11          | 10       |
| 2010 | 12          | 10       |
| 2011 | 11          | 10       |
| 2012 | 10          | 9        |

Source: EPA

## Air Quality Index (AQI)

Number of days 'Unhealthy for Sensitive Groups,' 'Unhealthy,' or 'Very Unhealthy'

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 45          | 78       |
| 2001 | 40          | 79       |
| 2002 | 45          | 69       |
| 2003 | 14          | 72       |
| 2004 | 24          | 69       |
| 2005 | 35          | 67       |
| 2006 | 30          | 62       |
| 2007 | 39          | 57       |
| 2008 | 19          | 51       |
| 2009 | 14          | 45       |
| 2010 | 15          | 40       |
| 2011 | 17          | 34       |
| 2012 | 9           | 33       |

Source: EPA

# ENERGY USE

## Average Monthly Electricity Consumption

Electricity use in Kilowatt Hours per Household

| Year      | Mecklenburg | National |
|-----------|-------------|----------|
| 2010-2011 | 1,140       | 940      |

Sources: CharMeck Quality of Life Study, US Energy Information Administration

## Average Monthly Natural Gas Consumption

Average monthly natural gas use in Therms per Household

| Year      | Mecklenburg | National |
|-----------|-------------|----------|
| 2010-2011 | 54          | 56       |

Sources: CharMeck Quality of Life Study, US Energy Information Administration

## Number of LEED certified buildings

Number of LEED certified buildings (silver, gold, or platinum) per 100,000 persons

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2005 | 0           | -        |
| 2006 | 0.24        | -        |
| 2007 | 0.46        | -        |
| 2008 | 1.35        | -        |
| 2009 | 2.53        | -        |
| 2010 | 5.87        | -        |
| 2011 | 7.73        | -        |
| 2012 | 9.60        | 17.79    |

Sources: USGBC GBIG, US Census

## Number of Energy Star certified buildings

Number of Energy Star certified buildings per 100,000 persons

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2005 | 1.88        | -        |
| 2006 | 3.25        | -        |
| 2007 | 4.64        | -        |
| 2008 | 5.18        | -        |
| 2009 | 5.61        | -        |
| 2010 | 6.74        | -        |
| 2011 | 9.74        | -        |
| 2012 | 16.72       | 7.14     |

Sources: USGBC GBIG, US Census





# EQUITY + EMPOWERMENT

| Highest Level of Educational Attainment, Adults 25 Years and Older |                      |                     |                        |                    |                   |                      |                      |                  |                        |                    |                   |                      |
|--|----------------------|---------------------|------------------------|--------------------|-------------------|----------------------|----------------------|------------------|------------------------|--------------------|-------------------|----------------------|
|  | Mecklenburg County   |                     |                        |                    |                   |                      |                      | National Average |                        |                    |                   |                      |
| Year   | Less than HS Diploma | High School Diploma | Some College No Degree | Associate's Degree | Bachelor's Degree | Grad or Professional | Less than HS Diploma | HS Diploma       | Some College No Degree | Associate's Degree | Bachelor's Degree | Grad or Professional |
| 2000   | 13.8%                | 19.9%               | 22.5%                  | 6.8%               | 26.6%             | 10.5%                | -                    | -                | -                      | -                  | -                 | -                    |
| 2005   | 11.1%                | 21.6%               | 19.7%                  | 8.5%               | 27.6%             | 11.4%                | 15.9%                | 29.6%            | 20.1%                  | 7.4%               | 17.2%             | 10.0%                |
| 2006   | 12.2%                | 22.3%               | 19.5%                  | 8.0%               | 25.9%             | 12.1%                | 15.9%                | 30.2%            | 19.5%                  | 7.4%               | 17.1%             | 9.9%                 |
| 2007   | 10.7%                | 20.9%               | 19.2%                  | 7.7%               | 28.7%             | 12.8%                | 15.5%                | 30.1%            | 19.5%                  | 7.4%               | 17.4%             | 10.1%                |
| 2008   | 10.7%                | 19.4%               | 21.5%                  | 7.5%               | 27.8%             | 13.0%                | 15.1%                | 28.5%            | 21.3%                  | 7.5%               | 17.5%             | 10.2%                |
| 2009   | 10.9%                | 19.3%               | 21.5%                  | 8.4%               | 27.3%             | 12.5%                | 14.8%                | 28.5%            | 21.3%                  | 7.5%               | 17.6%             | 10.3%                |
| 2010   | 12.3%                | 20.2%               | 21.0%                  | 7.3%               | 26.5%             | 12.8%                | 14.4%                | 28.5%            | 21.3%                  | 7.6%               | 17.7%             | 10.4%                |
| 2011   | 11.0%                | 20.0%               | 21.0%                  | 8.0%               | 28.0%             | 12.0%                | 14.1%                | 28.4%            | 21.2%                  | 7.8%               | 17.9%             | 10.6%                |

Sources: UNCC Regional Indicators, US Census, ACS

| Students at or Above Grade Level in Reading and Math               |           |           |           |           |
|--|-----------|-----------|-----------|-----------|
| Percent of Mecklenburg Students Performing at or Above Grade Level |           |           |           |           |
|  | Math      |           | Reading   |           |
| Year   | 3rd Grade | 8th Grade | 3rd Grade | 8th Grade |
| 2003   | 85.4%     | 79.1%     | 78.7%     | 81.7%     |
| 2004   | 87.6%     | 82.2%     | 81.9%     | 85.1%     |
| 2005   | 84.5%     | 80.5%     | 82.1%     | 84.7%     |
| 2006   | 69.7%     | 61.8%     | 84.0%     | 83.3%     |
| 2007   | 70.3%     | 63.3%     | 81.6%     | 85.0%     |
| 2008   | 69.7%     | 65.3%     | 55.7%     | 50.9%     |
| 2009   | 79.5%     | 79.5%     | 66.1%     | 65.6%     |
| 2010   | 82.1%     | 84.2%     | 67.7%     | 68.5%     |
| 2011   | 80.2%     | 84.8%     | 67.0%     | 69.7%     |
| 2012   | 81.5%     | 86.4%     | 69.2%     | 70.7%     |

Source: UNCC Regional Indicators

| Housing Affordability  |             |        |          |        |
|--|-------------|--------|----------|--------|
| Percentage of households spending more than 30% of income on housing each month, by owner or renter status |             |        |          |        |
|  | Mecklenburg |        | National |        |
| Year   | Owner       | Renter | Owner    | Renter |
| 2005   | 27.41%      | 45.26% | 28.32%   | 45.68% |
| 2006   | 30.12%      | 46.30% | 30.31%   | 45.96% |
| 2007   | 25.33%      | 44.00% | 30.51%   | 45.60% |
| 2008   | 28.27%      | 42.50% | 30.53%   | 49.80% |
| 2009   | 29.36%      | 46.70% | 30.37%   | 51.60% |
| 2010   | 30.92%      | 51.50% | 30.46%   | 53.00% |
| 2011   | 30.82%      | 53.20% | 29.61%   | 53.40% |

Sources: US Census, ACS

| Transportation Costs                                      |             |          |
|---|-------------|----------|
| Percent of household income spent on transportation costs |             |          |
| Year  | Mecklenburg | National |
| 2009  | 26%         | 19%      |

Sources: HTA Index, Fed. Highway Admin.

| High School Graduation Rate  |             |
|--|-------------|
| Percent of students in CMS who entered 9th grade in a particular year that graduated 4 years later |             |
| Year   | Mecklenburg |
| 2006   | 74.6%       |
| 2007   | 73.8%       |
| 2008   | 66.6%       |
| 2009   | 66.1%       |
| 2010   | 69.9%       |
| 2011   | 72.2%       |
| 2012   | 75.1%       |

Source: UNCC Regional Indicators

| Crime Index   |             |
|---|-------------|
| Number of index offenses (sum of: murder, rape, robbery, aggravated assault, burglary larceny, motor vehicle theft) committed per 10,000 people |             |
| Year  | Mecklenburg |
| 2000  | 753.3       |
| 2001  | 738.4       |
| 2002  | 705.5       |
| 2003  | 736.1       |
| 2004  | 749.2       |
| 2005  | 741.2       |
| 2006  | 730.3       |
| 2007  | 735.8       |
| 2008  | 661.2       |
| 2009  | 535.2       |
| 2010  | 479.9       |
| 2011  | 437.8       |

Source: UNCC Regional Indicators

| Charitable Giving   |                  |             |
|---|------------------|-------------|
| Total contributions to private foundations and public charities divided by Mecklenburg population |                  |             |
| Year  | Public Charities | Foundations |
| 2000  | \$729            | \$218       |
| 2001  | \$742            | \$271       |
| 2002  | \$720            | \$269       |
| 2003  | \$943            | \$250       |
| 2004  | \$876            | \$288       |
| 2005  | \$993            | \$283       |
| 2006  | \$1,161          | \$273       |
| 2007  | \$1,544          | \$430       |
| 2008  | \$1,161          | \$267       |
| 2009  | \$1,009          | \$176       |
| 2010  | \$1,041          | \$434       |

Source: UNCC Regional Indicators

| Health Care Coverage                                      |             |          |
|---|-------------|----------|
| Percent of individuals who have health insurance coverage |             |          |
| Year  | Mecklenburg | National |
| 2005  | 83.6%       | -        |
| 2006  | 81.7%       | -        |
| 2007  | 80.9%       | -        |
| 2008  | 83.9%       | -        |
| 2009  | 82.9%       | -        |
| 2010  | 81.6%       | 82.6%    |

Source: UNCC Regional Indicators, US CDC



## FOOD

### Food Deserts

Percent of population living in low income census tract and over 1 mile from supermarket/large grocery store

| Year | Meck  | National |
|------|-------|----------|
| 2010 | 6.57% | 8.37%    |

Source: USDA Food Environment Atlas

### Households with Food Insecurity

Percent of households unable, at times during the year, to provide adequate food for one or more household members due to lack of money or other resources

| Year      | Meck  | National |
|-----------|-------|----------|
| 1999-2001 | 11.1% | 10.5%    |
| 2006-2008 | 13.7% | 12.5%    |
| 2009-2011 | 17.1% | 14.7%    |

Source: USDA Food Environment Atlas

### Farmers Markets Ratio

Number of residents for every farmers market

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2009 | 151,451     | 58,589   |
| 2012 | 107,670     | 39,918   |

Source: USDA Food Environment Atlas

### SNAP Participation

Percent population receiving benefits from Supplemental Nutritional Assistance Program (SNAP)

| Year | Meck   |
|------|--------|
| 2005 | 6.02%  |
| 2006 | 5.78%  |
| 2007 | 6.90%  |
| 2008 | 6.90%  |
| 2009 | 9.60%  |
| 2010 | 11.10% |
| 2011 | 13.80% |
| 2012 | 12.30% |

Sources: US Census, ACS

## JOBS + INCOME

### Household Income

Median household income

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2005 | 50,215      | 46,242   |
| 2006 | 51,945      | 48,451   |
| 2007 | 55,890      | 50,740   |
| 2008 | 57,033      | 52,029   |
| 2009 | 52,881      | 50,221   |
| 2010 | 52,188      | 50,046   |
| 2011 | 51,935      | 50,502   |
| 2012 | 55,295      | 51,371   |

Sources: US Census, ACS

### Children In Poverty

Percent of individuals under 18 living below poverty line

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 12.2%       | 15.6%    |
| 2001 | 12.2%       | 15.8%    |
| 2002 | 14.3%       | 16.3%    |
| 2003 | 16.4%       | 17.2%    |
| 2004 | 16.7%       | 17.3%    |
| 2005 | 16.4%       | 17.1%    |
| 2006 | 15.0%       | 16.9%    |
| 2007 | 13.8%       | 17.6%    |
| 2008 | 14.7%       | 18.5%    |
| 2009 | 19.6%       | 20.1%    |
| 2010 | 21.3%       | 21.5%    |
| 2011 | 23.8%       | 21.4%    |

Sources: UNCC Regional Indicators, National Poverty Center

### Clean job wages

Comparison of median wage of clean jobs, to all jobs for 2010

|             | Mecklenburg | National |
|-------------|-------------|----------|
| Clean wages | \$40,858    | \$44,000 |
| All wages   | \$38,560    | \$38,616 |

Source: Brookings Clean Economy Report

### Families in Poverty

Percentage of families living below the poverty line

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 6.6%        | 9.6%     |
| 2005 | 8.8%        | 10.8%    |
| 2006 | 8.4%        | 10.6%    |
| 2007 | 7.4%        | 10.8%    |
| 2008 | 7.2%        | 11.5%    |
| 2009 | 10.5%       | 12.5%    |
| 2010 | 11.9%       | 13.1%    |
| 2011 | 13.1%       | 13.1%    |

Sources: UNCC Regional Indicators, National Poverty Center

### Employment Duration

Percent of workforce that worked less than 26 weeks of the past year

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2005 | 11.8%       | 11.3%    |
| 2006 | 11.9%       | 11.7%    |
| 2007 | 11.3%       | 11.5%    |
| 2008 | 8.4%        | 9.3%     |
| 2009 | 9.9%        | 9.5%     |
| 2010 | 9.9%        | 9.7%     |
| 2011 | 11.0%       | 9.5%     |

Source: US Census

### Clean Job Intensity

Percentage of jobs in the Clean Economy out of total jobs

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2010 | 1.9%        | 2.0%     |

Source: Brookings Clean Economy Report

### Unemployment Rate

Annual average of the BLS monthly unemployment rate

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2000 | 3.0%        | 4.0%     |
| 2001 | 4.4%        | 4.7%     |
| 2002 | 5.8%        | 5.8%     |
| 2003 | 5.8%        | 6.0%     |
| 2004 | 5.1%        | 5.5%     |
| 2005 | 5.0%        | 5.1%     |
| 2006 | 4.5%        | 4.6%     |
| 2007 | 4.5%        | 4.6%     |
| 2008 | 6.0%        | 5.8%     |
| 2009 | 10.8%       | 9.3%     |
| 2010 | 10.6%       | 9.6%     |
| 2011 | 10.3%       | 8.9%     |
| 2012 | 9.5%        | 8.1%     |
| 2013 | 9.2%        | 7.7%     |

Source: Bureau of Labor Statistics

### Underemployment

Percent of workforce working under 35 hours/week, 50 weeks/year

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2005 | 48.5%       | 52.5%    |
| 2006 | 49.2%       | 53.3%    |
| 2007 | 33.0%       | 53.4%    |
| 2008 | 43.7%       | 49.3%    |
| 2009 | 47.6%       | 52.3%    |
| 2010 | 50.9%       | 54.0%    |
| 2011 | 50.3%       | 53.8%    |

Source: US Census

### Clean job growth

Annual percent change in jobs in the Clean Economy

| Years     | Mecklenburg | National |
|-----------|-------------|----------|
| 2003-2010 | 4.7%        | 3.4%     |

Source: Brookings Clean Economy Report





# LAND USE

| Parks, Greenways, and Recreation Space   |             |
|--|-------------|
| Developed parkland and recreation areas maintained by the county in Acres per 1 000 People |             |
| Year   | Mecklenburg |
| 2007   | 18.81       |
| 2011   | 17.32       |
| Source: Mecklenburg County Parks and Recreation  |             |

| Preserves   |             |
|---|-------------|
| Land set aside for open space or preservation in Acres per 1 000 People |             |
| Year  | Mecklenburg |
| 2007  | 6.79        |
| 2011  | 7.52        |
| Source: Mecklenburg County Parks and Recreation                         |             |

| Developed Acreage per Capita  |             |          |
|---|-------------|----------|
| The amount of developed land (acres) per person in a specified area |             |          |
| Year  | Mecklenburg | National |
| 1976  | 0.11        | -        |
| 1985  | 0.14        | -        |
| 1996  | 0.22        | -        |
| 2006  | 0.23        | 0.19     |
| 2010  | 0.23        | -        |
| Source: UNCC Regional Indicators                                    |             |          |

| Outdoor Recreation Proximity  |            |
|---|------------|
| Percent housing units within ½ a mile of a public outdoor recreation area |            |
| Year  | Percentage |
| 2012  | 72.15%     |
| Source: CharMeck Quality of Life Study                                    |            |

| Residential Density                        |             |
|--|-------------|
| Population divided by area in square miles |             |
| Year                                       | Mecklenburg |
| 2000                                       | 1,328       |
| 2001                                       | 1,375       |
| 2002                                       | 1,406       |
| 2003                                       | 1,439       |
| 2004                                       | 1,476       |
| 2005                                       | 1,525       |
| 2006                                       | 1,587       |
| 2007                                       | 1,646       |
| 2008                                       | 1,695       |
| 2009                                       | 1,735       |
| 2010                                       | 1,756       |
| 2011                                       | 1,803       |
| 2012                                       | 1,850       |
| Source: UNCC Regional Indicators           |             |

| Total Impervious Surfaces  |             |
|--|-------------|
| Percentage of impervious surface coverage in relation to total number of acres |             |
| Year   | Mecklenburg |
| 2009   | 24.22%      |
| 2010   | 24.48%      |
| 2011   | 24.76%      |
| 2012   | 24.63%      |
| 2013   | 24.60%      |
| Source: Mecklenburg County GIS   |             |

| Tree Canopy Cover  |            |
|--|------------|
| Percent of Charlotte city limits covered by tree canopy, including residential and non-residential areas |            |
| Year   | Percentage |
| 2003   | 53%        |
| 2008   | 46%        |
| 2012   | 47%        |
| Sources: American Forests, City of Charlotte and Mecklenburg County                                      |            |

| Brownfield Redevelopment  |             |
|---|-------------|
| Total 'active eligible' projects in the NC Brownfields program annually |             |
| Year  | Mecklenburg |
| 1997  | 2           |
| 1998  | 5           |
| 1999  | 6           |
| 2000  | 9           |
| 2001  | 16          |
| 2002  | 20          |
| 2003  | 31          |
| 2004  | 36          |
| 2005  | 46          |
| 2006  | 56          |
| 2007  | 61          |
| 2008  | 68          |
| 2009  | 71          |
| 2010  | 78          |
| 2011  | 82          |
| 2012  | 100         |
| (ytd) 2013  | 107         |
| Source: NC Brownfields Program  |             |



# TRANSPORTATION

## Commuting Means

The percent of workers using a specified means of transportation to travel to work (Drive Alone; Carpool; Public Transit; Bike; Pedestrian)

| Year | Mecklenburg County |         |                |       |       | National    |         |                |       |       |
|------|--------------------|---------|----------------|-------|-------|-------------|---------|----------------|-------|-------|
|      | Drive Alone        | Carpool | Public Transit | Bike  | Walk  | Drive Alone | Carpool | Public Transit | Bike  | Walk  |
| 2000 | 82.0%              | 13.0%   | 2.5%           | 0.1%  | 1.4%  | -           | -       | -              | -     | -     |
| 2005 | 80.8%              | 13.5%   | 2.9%           | -     | -     | -           | -       | -              | -     | -     |
| 2006 | 79.7%              | 14.2%   | 3.1%           | 0.14% | 1.77% | 79.07%      | 11.18%  | 5.03%          | 0.47% | 2.97% |
| 2007 | 81.5%              | 12.1%   | 2.9%           | 0.09% | 1.91% | 79.32%      | 10.85%  | 5.09%          | 0.50% | 2.96% |
| 2008 | 80.8%              | 12.6%   | 3.9%           | 0.21% | 1.56% | 78.77%      | 11.15%  | 5.22%          | 0.57% | 2.94% |
| 2009 | 81.9%              | 11.6%   | 3.3%           | 0.14% | 2.51% | 79.50%      | 10.49%  | 5.22%          | 0.58% | 2.99% |
| 2010 | 83.0%              | 10.6%   | 3.5%           | 0.22% | 2.07% | 80.03%      | 10.13%  | 5.17%          | 0.56% | 2.90% |
| 2011 | 83.4%              | 9.9%    | 3.8%           | 0.08% | 2.02% | 79.86%      | 10.12%  | 5.26%          | 0.59% | 2.94% |

Sources: UNCC Regional Indicators, US Census

## Average CATS Ridership

Average weekday CATS ridership

| Year | Total  |
|------|--------|
| 2000 | 44,014 |
| 2001 | 52,085 |
| 2002 | 56,610 |
| 2003 | 63,233 |
| 2004 | 64,596 |
| 2005 | 59,731 |
| 2006 | 73,102 |
| 2007 | 70,108 |
| 2008 | 81,037 |
| 2009 | 86,391 |
| 2010 | 78,016 |
| 2011 | 89,054 |
| 2012 | 92,134 |

Source: National Transportation Database

## Average CATS Ridership

Average weekday CATS ridership per 10,000 people

| Year | Users |
|------|-------|
| 2000 | 632.9 |
| 2001 | 723.2 |
| 2002 | 768.7 |
| 2003 | 838.6 |
| 2004 | 835.7 |
| 2005 | 747.9 |
| 2006 | 879.2 |
| 2007 | 813.2 |
| 2008 | 912.6 |
| 2009 | 950.7 |
| 2010 | 848.3 |
| 2011 | 943.0 |
| 2012 | 994.0 |

Source: National Transportation Database

## Sidewalk Availability

Percent paved streets with sidewalks on at least one side

| Year | Charlotte |
|------|-----------|
| 2011 | 42%       |

Source: CDOT

## Bike Lane Availability

Percent of paved roads with marked bike lanes

| Year | Percentage |
|------|------------|
| 2012 | 2%         |

Source: CDOT

## Vehicle Miles Traveled

Daily vehicle miles traveled per capita

| Year | Mecklenburg | National |
|------|-------------|----------|
| 2012 | 21.3        | 25.7     |
| 2011 | -           | 23.4     |
| 2002 | 24.9        | -        |

Sources: CDOT, Federal Highway Admin.

## Public Transit Proximity

Percent housing units within ½ mile of public transit services

| Year | Mecklenburg |
|------|-------------|
| 2011 | 77%         |

Source: CharMeck Quality of Life Study

## Average Travel Delay

The person-hours of annual travel delay per peak auto commuter (private vehicle users)

| Year | Charlotte MSA (Metropolitan Statistical Area) | Large Group Nat'l Avg. (Cities of 1-3 million) |
|------|---|--|
| 1982 | 8   | 12   |
| 1983 | -   | -  |
| 1984 | -   | -  |
| 1985 | 13  | 19   |
| 1986 | -   | -  |
| 1987 | -   | -  |
| 1988 | -   | -  |
| 1989 | -   | -  |
| 1990 | 17  | 29   |
| 1991 | 17  | 29   |
| 1992 | 19  | 30   |
| 1993 | 17  | 32   |
| 1994 | 17  | 35   |
| 1995 | 16  | 37   |
| 1996 | 19  | 38   |
| 1997 | 22  | 39   |
| 1998 | 24  | 39   |
| 1999 | 27  | 41   |
| 2000 | 30  | 39   |
| 2001 | 31  | 41   |
| 2002 | 35  | 42   |
| 2003 | 36  | 43   |
| 2004 | 39  | 43   |
| 2005 | 39  | 44   |
| 2006 | 41  | 43   |
| 2007 | 42  | 41   |
| 2008 | 41  | 37   |
| 2009 | 41  | 37   |
| 2010 | 39  | 38   |
| 2011 | 40  | 37   |

Source: US Bureau of Transportation Statistics





## WASTE

| Waste Distribution   |  |  |                             |  |                              |
|--|--|--|-----------------------------|--|------------------------------|
| Amount of waste materials directed to Mecklenburg County facilities, in pounds per person per year |  |  |                             |  |                              |
|  | Materials Diverted from Landfill           |  | Materials Sent to Landfill  |  |                              |
|  | Yard Debris Composted at County Facilities | Recycling Processed at County Facilities | Commercial Waste Landfilled | Construction & Demolition Waste Landfilled | Residential Waste Landfilled |
| 1998-1999  | 154  | 155                                      | 2,080                       | 1,018                                      | 836                          |
| 1999-2000  | 156  | 167                                      | 2,060                       | 1,062                                      | 866                          |
| 2000-2001  | 153  | 143                                      | 1,540                       | 1,228                                      | 780                          |
| 2001-2002  | 137  | 151                                      | 1,720                       | 1,032                                      | 828                          |
| 2002-2003  | 351  | 140                                      | 1,680                       | 974  | 837                          |
| 2003-2004  | 192  | 139                                      | 1,600                       | 976  | 835                          |
| 2004-2005  | 186  | 144                                      | 1,460                       | 1,010                                      | 908                          |
| 2005-2006  | 189  | 130                                      | 1,920                       | 912  | 969                          |
| 2006-2007  | 195  | 133                                      | 1,920                       | 912  | 896                          |
| 2007-2008  | 185  | 133                                      | 1,740                       | 764  | 885                          |
| 2008-2009  | 212  | 136                                      | 1,300                       | 578  | 854                          |
| 2009-2010  | 214  | 138                                      | 1,100                       | 418  | 824                          |
| 2010-2011  | 213  | 161                                      | 1,120                       | 424  | 824                          |
| 2011-2012  | 213  | 154                                      | 860                         | 431  | 802                          |
| 2012-2013  | 229  | 147                                      | 880                         | 335  | 742                          |
| Source: Mecklenburg County Solid Waste and Recycling   |  |  |                             |  |                              |

## WATER USE

| Total Per Capita Water Consumption                               |             |          |
|--|-------------|----------|
| Total water consumption in Gallons per Person per Day            |             |          |
| Fiscal Year  | Mecklenburg | National |
| 1999   | 169         | -        |
| 2000   | 167         | -        |
| 2001   | 163         | -        |
| 2002   | 172         | -        |
| 2003   | 154         | -        |
| 2004   | 154         | -        |
| 2005   | 142         | 98       |
| 2006   | 152         | -        |
| 2007   | 151         | -        |
| 2008   | 139         | -        |
| 2009   | 128         | -        |
| 2010   | 139         | -        |
| 2011   | 141         | -        |
| 2012   | 127         | -        |
| 2013   | 123         | -        |
| Sources: CMUD (local data for CMUD users), US Geological Society |             |          |

| Household Water Consumption                                  |             |          |
|--|-------------|----------|
| Average annual water consumption per household, in CCF/Month |             |          |
| Fiscal Year  | Mecklenburg | National |
| 2003   | 9.6         | -        |
| 2004   | 9.0         | -        |
| 2005   | 8.6         | 10.3     |
| 2006   | 8.3         | -        |
| 2007   | 8.1         | -        |
| 2008   | 7.6         | -        |
| 2009   | 7.1         | -        |
| 2010   | 7.0         | -        |
| 2011   | 7.0         | -        |
| 2012   | 7.0         | -        |
| Sources: CMUD, US Geological Society                         |             |          |

| Water used for Power Generation                               |            |
|---|------------|
| Percent of water used for power generation out of total usage |            |
| Year  | Percentage |
| 2000  | 95.2%      |
| 2005  | 94.7%      |
| 2010  | 94.8%      |
| Source: NC DENR   |            |





## **The Leading Voice for Sustainability**

Sustainability is an indicator of a community's long-term economic, social, and environmental well-being. However, the Charlotte-Mecklenburg area lags other metro areas in many key sustainability measures, and prior to Sustain Charlotte's founding, there was no local organization raising awareness of the challenges to our sustainability and their solutions. Sustain Charlotte was founded in 2010 to fill this void, and has quickly become the metro area's leading voice for sustainability.

## **Our Mission**

Our mission is to inspire choices that lead to a healthier and more vibrant community for generations to come.

## **Our Approach**

To achieve our mission we focus on three key strategies:

- ◆ **Educate** – We educate the public about the value to our community of sustainability and how it is achieved, including the best ideas and practices from other cities around the country.
- ◆ **Engage** – We provide opportunities for increased public engagement in the discussions and decisions that determine our future's sustainability.
- ◆ **Unite** – We unite citizens, businesses, nonprofits, public agencies and academic institutions to develop shared visions, goals, and strategies for a sustainable region.

## **Join Us**

If you would like to support the work of Sustain Charlotte, we encourage you to become a member at [sustaincharlotte.org/supporter](http://sustaincharlotte.org/supporter). If your organization would like to join our growing network of local partners, please learn more about our partnership program at [sustaincharlotte.org/partnership](http://sustaincharlotte.org/partnership). You may also sign up for our e-news and updates via our website.







## The Environment



Boingo Graphics is a leader in managing our business in a way that impacts the environment in a friendly, positive, and thoughtful manner.

- ◆ Virtually 100% of our paper purchases are from mills that harvest trees from decades old tree farms specifically planted, harvested, and replanted to provide an ongoing source of non-public paper pulp.
- ◆ We recycle tons of paper, board and corrugated every month.
- ◆ Our chemicals and solvents are 100% water soluble, bio-degradable, and recyclable.
- ◆ We have programs that reduce our electrical consumption and minimize usage of all raw materials.
- ◆ We urge our customers to partner with us in our environment efforts is by using our digital/ internet ordering, proofing, and reordering system. Our digital ordering system enables everyone to save substantial amounts of gasoline and other raw materials.

## Your printing supports wind power!



Boingo Graphics has taken another stride in its commitment to environmental stewardship. We are now purchasing Renewable Energy Credits (RECs) to offset the energy we use in our operations. By purchasing RECs we guarantee that wind energy producers add the same number of kilowatt hours of clean electricity back into the power grid, reducing the overall need for fossil fuels.

Our investment has an impact similar to . . .

- ◆ Planting 2,703 fully mature trees, or
- ◆ Taking 57 passenger cars off the road for one year.

Boingo Graphics has a history of making changes that positively affect the environment. The purchase of energy credits allows us to go beyond the reductions we've made on our own. Offsets provide a market-based means to champion technologies that most efficiently create verified, measurable, and permanent environmental benefits.







# SUSTAIN CHARLOTTE

[www.sustaincharlotte.org](http://www.sustaincharlotte.org)



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