

2013-2017

# Area Plan

*Piedmont Conservation Council, Inc.*



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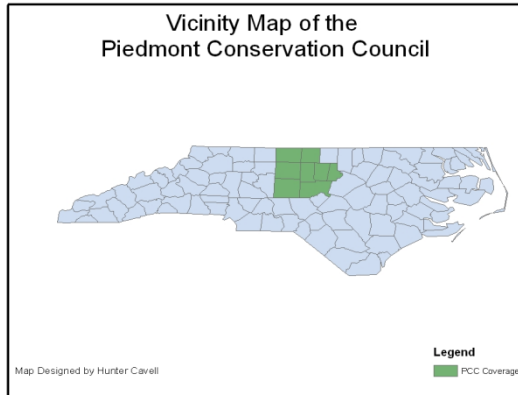
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## INTRODUCTION

According to the National Association of Resource Conservation and Development Councils (NARC&DC), the role of Resource Conservation and Development (RC&D) councils is to “identify, address and solve challenges to sustain and improve quality of life in their own communities. By working together on local RC&D Councils; communities, all levels of Government, and grassroots organizations work together to develop and implement solutions to widespread problems and to develop opportunities that will help sustain rural communities, local economies, and natural resources.”

Piedmont Conservation Council, Inc. is an all-volunteer organization that accomplishes its goals and objectives by bringing together and leveraging needed resources to get the job done. The strength of the RC&D model is in giving local people the opportunity to solve their own problems. Piedmont Conservation Council, Inc. (PCC) effectively develops partnerships with public and private organizations. These alliances provide PCC with the tools to accomplish its goals and objectives. PCC programs and activities are directed by its Board of Directors and implemented by its members and other partners and volunteers.

## PCC LOCATION AND GENERAL INFORMATION



### Counties:

The RC&D region includes Alamance, Caswell, Chatham, Durham, Guilford, Orange, Randolph, Rockingham and Wake Counties.

### Sponsors:

Rockingham SWCD, Guilford SWCD, Randolph SWCD, Caswell SWCD, Alamance SWCD, Chatham SWCD, Durham SWCD, Orange SWCD, Town of Franklinville, Piedmont Land Conservancy, Chatham County Conservation Partnership, Guilford County Open Space Committee, Piedmont Triad Council of Governments, Dan River Basin Association, and Haw River Corridor Project

### *What is Piedmont Conservation Council RC&D?*

PCC is an independent, non partisan, non profit organization that is community based and regionally focused.

### PCC Vision

***“Leveraging people and resources for innovative community and conservation projects throughout the Piedmont Region”***

### PCC Mission

***“We will protect and preserve our natural environment while enriching the quality of community life.”***

### *Background and Council Structure*

PCC was established in 1967, authorized by Congress in October of 1968, incorporated in 1986, and received 501(c)(3) status in March of 1987. PCC is a not for profit organization that addresses natural resource conservation and development issues in the eight central Piedmont counties of Alamance, Caswell, Chatham, Durham, Guilford, Orange, Randolph, Rockingham and Wake Counties..

The Council is made up entirely of volunteers who wish to bring about opportunities to help communities develop innovative solutions for natural resource management. Members of the Council are representatives of county leadership, planning departments, soil and water districts, natural resource practitioners, and concerned citizens.

## THE AREA PLAN PROCESS

The Area Plan serves as a strategic plan for the RC&D Area for a five-year period. The plan documents the goals the Council wants to accomplish through the RC&D Program for the five-year time period based on well-defined needs and opportunities.

The purpose of PCC's Area Plan is to identify the natural resource challenges and opportunities throughout the region and determine the most effective ways to identify possible project solutions to guide the strategies of resource conservation and community development over the next five years. PCC depends upon community leaders to provide direction and vision to identify and address the area's needs. Every five years PCC's Board of Directors outlines the Council's driving vision in the form of an Area Plan. This document lays out the framework for a five year working business plan through a series of selected goals and objectives.

These resource challenges and opportunities were chosen by the full council based on community needs and issues as researched by NC Division of Water Quality Basinwide Management Plans, Nature Conservancy Ecoregional Plan, NC Wildlife Action Plan, NRCS Natural Resource Inventory, and the Governor's Task Force on Forest Sustainability. These needs and issues were developed into a grouping of opportunities and services to be addressed and provided by PCC that align with the RC&D program elements of Land Conservation, Water Management, Community Development, and Land Management. These opportunities and services were then submitted to the public to define and develop priorities for PCC goals and objectives. The solicitation of public opinion ensures that broad-based support was explored to establish priorities.

### *Public Input Process:*

Because the RC&D is a hybrid private and public entity, it can receive both private and public financial support for Council projects. Therefore, the planning process is a collaborative effort that encourages public input through partnerships among county, town, and city governments, non-profit organizations, and private enterprise. PCC conducted a public survey to solicit opinions and priority levels of private citizens in the PCC area using the latest technology of Qualtrics® that administered and summarized the results via an internet based survey that could be accessed via a link sent out on email and a link placed on public websites. Over 700 emails were sent to citizens, neighbors, partner organizations, their affiliate partners, school systems, natural resource and community non-profits, and local universities. A link to the survey was placed on three public websites which included Guilford County Audobon society, Chatham County Community Conservation Partnership, and the Durham Soil and Water Conservation District. The *Caswell County News* also ran a link to the survey. Citizens from each of the eight counties in PCC participated in the survey.

This plan addresses community-prioritized concerns and needs, and presents the Council's 5-year goals, objectives and strategies to address these concerns and issues under the following RC&D program elements:

- Land Conservation: *erosion and sediment control*
- Water Management: *water use, quality, supply, conservation, flood control*
- Community Development: *resource-based business promotion, recreation facility improvement, economic development, education promotion*
- Land Management: *energy conservation, bio fuels, farm land preservation, fish & wildlife habitat protection*



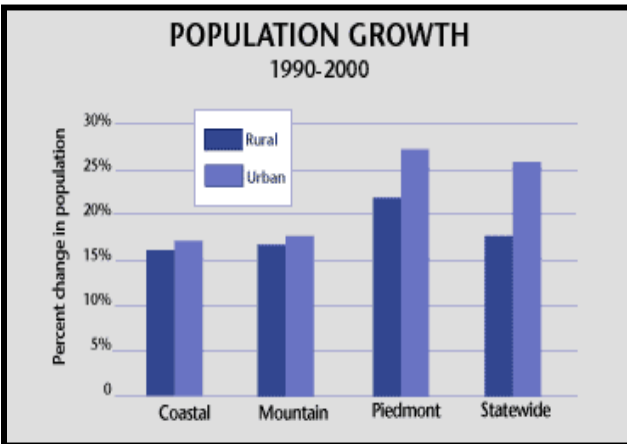
## GENERAL AREA DESCRIPTION

Piedmont Conservation Council encompasses an eight county region in the central to northern Piedmont of North Carolina. The area is economically, geographically, and environmentally diverse. The Piedmont, or central portion of the state, is a plateau of rolling hills with a range in elevation of 150 to 1,000 feet. This region includes about two-fifths of the area of the state.<sup>1</sup>

North Carolina has historically been a rural state, with most of the population living on farms and in small towns. However, over the last 30 years the state has experienced rapid urbanization and sub-urbanization. The Piedmont region has been especially transformed along the major transportation corridors of Interstate 40 and Interstate 85.

### *PCC Area Demographics:*

North Carolina saw a 16.5% increase in population between 2000 and 2009, according to US Census Bureau population estimates<sup>2</sup>. According to the North Carolina Rural Center the Piedmont Region had the largest population increase of any of the three physiographic provinces in North Carolina<sup>3</sup>.



“Population growth from 1990 to 2000 was dominated by migration. Net migration, the number of people who moved to North Carolina minus the number who left, accounted for 70 percent of the population increase, or more than 1 million new residents.”<sup>4</sup> Since 1950, the state's population has increased by 63%.<sup>5</sup> Because high population densities correspond with

high resource use, it is important to understand where North Carolinians live.<sup>6</sup>

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<sup>1</sup> 1997 Natural Resources Inventory of North Carolina

<sup>2</sup> US Census Bureau

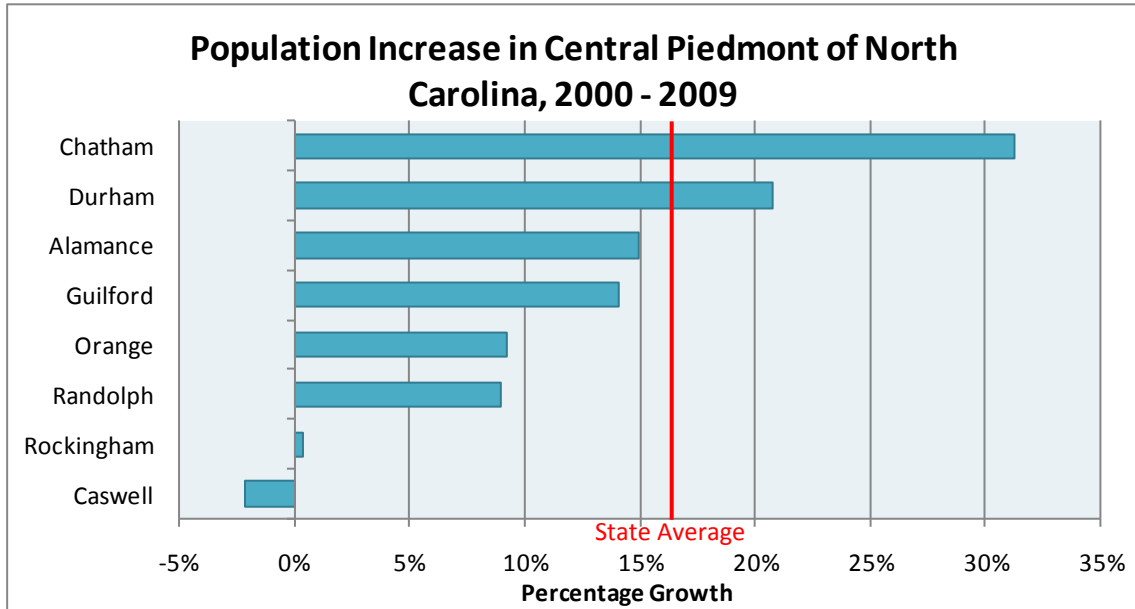
<sup>3</sup> NC Rural Center Rural Data Bank

<sup>4</sup> NC Rural Center Rural Data Bank

<sup>5</sup> 1997 Natural Resources Inventory of North Carolina

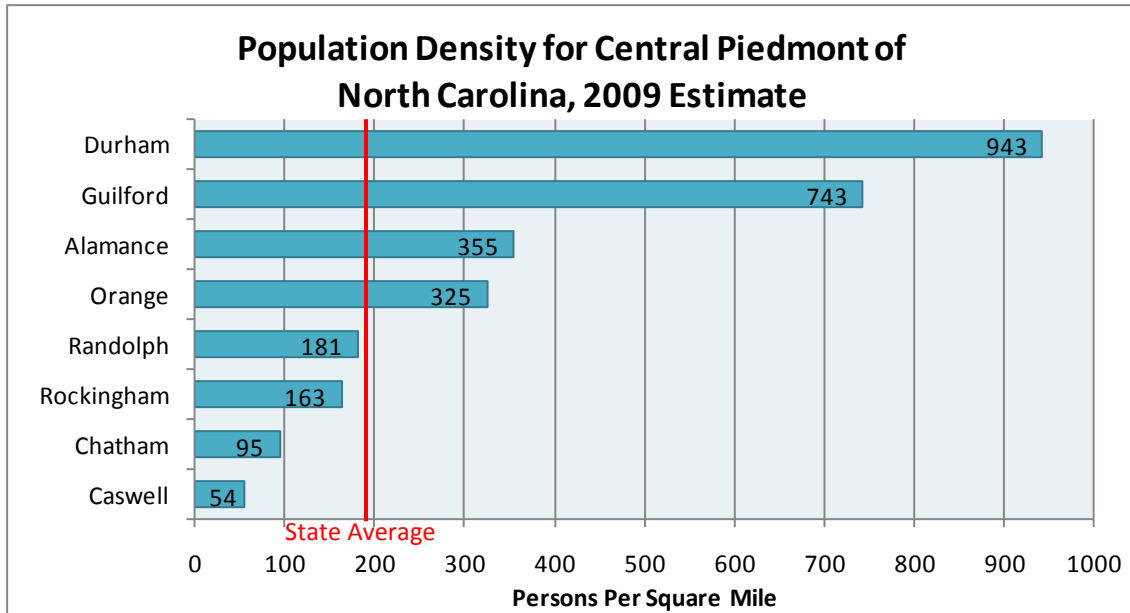
<sup>6</sup> 1997 Natural Resources Inventory of North Carolina

Guilford, Alamance, Durham, and Orange Counties have harbored the bulk of the growth in PCC’s eight county region. Some of the counties are experiencing rapid transition from predominantly rural communities to more suburban landscapes as bedroom communities extend from the urban sectors of Greensboro and Raleigh/Durham/Chapel Hill (referred to throughout as the Research Triangle) into nearby rural areas where cheaper land prices exist. Chatham County has experienced the most rapid growth since 2000 of any of the eight counties in PCC’s region. Durham also exceeds the state average for population growth and density (See Graphs 1 and 2 below).



**Graph 1: Central Piedmont Population Increase**

Population trends in Chatham and Durham counties exceed the state average. In fact, Chatham County growth is approximately twice as high as North Carolina. It will be important for PCC to focus on conservation efforts in these two counties. As more residents use more resources, it is increasingly important to mitigate the negative effects of population growth. However, this growth trend should not cause alarm at this point. As shown in Graph 2, the population density in Chatham is relatively low. On average there are 95 persons per square mile. When this figure is compared with Durham’s density of 943 persons per square mile, the population growth in Chatham does not warrant as much attention as that of Durham County. The already high population density in Durham combined with the growing population suggests that efforts should be focused on conserving natural resources and social welfare in this county.



**Graph 2: Central Piedmont Population Density**

Four counties in PCC’s region have greater population density than the state average: Durham, Guilford, Alamance, and Orange. Population density is a good indicator for PCC attention; the greater the number of people the larger the threat of negative impacts on the environment. Therefore, in order to make the greatest impact on benefits to the entire region, PCC should allot time and resources relative to population density. In this case, Durham County should be given higher priority especially considering the compounding factor of significant population growth.

As stated earlier, PCC serves a very diverse population. The more urban counties have higher percentages of ethnic/racial diversity. See Table 1 below.

**Table 1: Central Piedmont Population Diversity of North Carolina<sup>7</sup>**

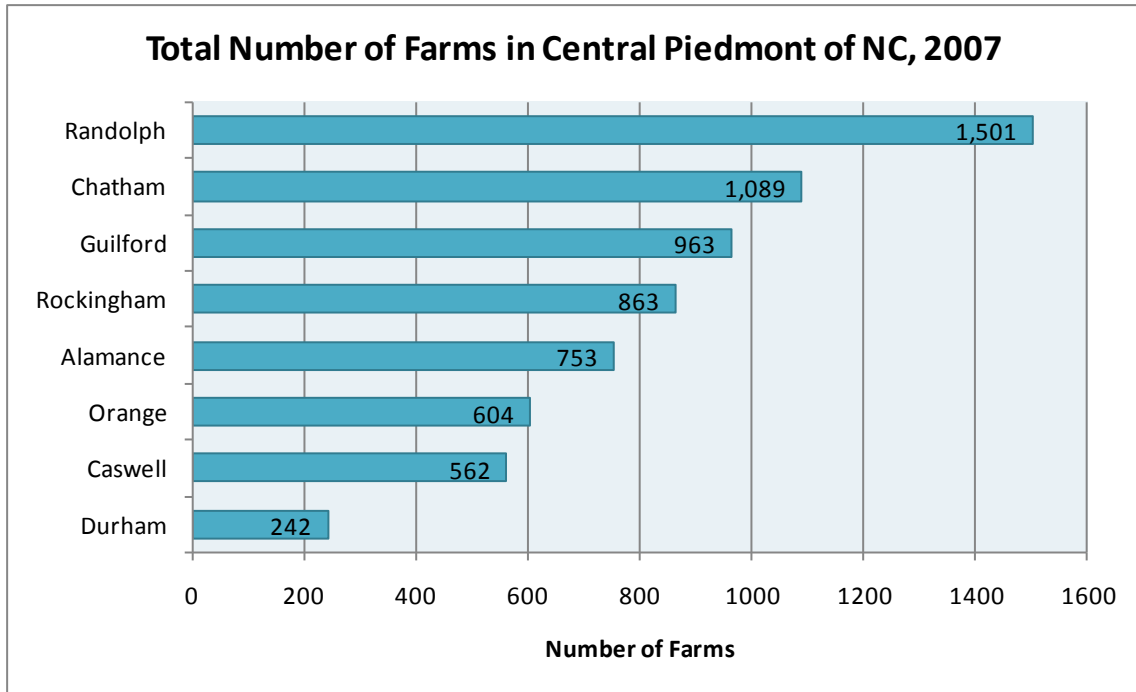
|                       | Total Population | % Black      | % Hispanic  | % White      | % Other     |
|-----------------------|------------------|--------------|-------------|--------------|-------------|
| <b>North Carolina</b> | <b>8,856,505</b> | <b>21.2%</b> | <b>6.7%</b> | <b>67.7%</b> | <b>4.4%</b> |
| <b>Guilford</b>       | 451,905          | 30.1%        | 5.7%        | 59.0%        | 5.2%        |
| <b>Durham</b>         | 246,896          | 36.8%        | 11.6%       | 45.4%        | 6.2%        |
| <b>Alamance</b>       | 142,661          | 18.0%        | 10.7%       | 68.4%        | 2.9%        |

<sup>7</sup> 2006 U.S. Census Bureau

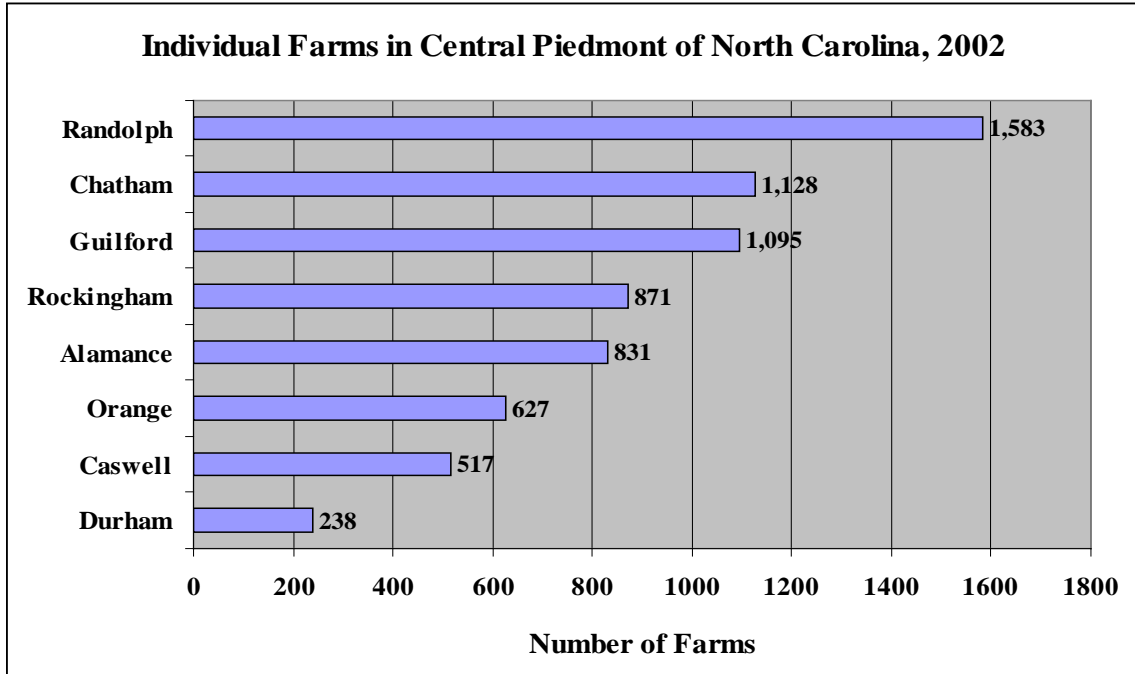
|                   | <b>Total Population</b> | <b>% Black</b> | <b>% Hispanic</b> | <b>% White</b> | <b>% Other</b> |
|-------------------|-------------------------|----------------|-------------------|----------------|----------------|
| <b>Randolph</b>   | 140,410                 | 5.4%           | 9.9%              | 82.7%          | 2.0%           |
| <b>Orange</b>     | 120,100                 | 12.5%          | 5.6%              | 73.5%          | 8.4%           |
| <b>Rockingham</b> | 93,063                  | 19.0%          | 4.6%              | 74.7%          | 1.7%           |
| <b>Chatham</b>    | 49,329                  | 17.1%          | 9.6%              | 71.6%          | 1.7%           |
| <b>Caswell</b>    | 23,501                  | 36.8%          | 1.8%              | 61.1%          | 0.3%           |

*PCC Area Agricultural Resources:*

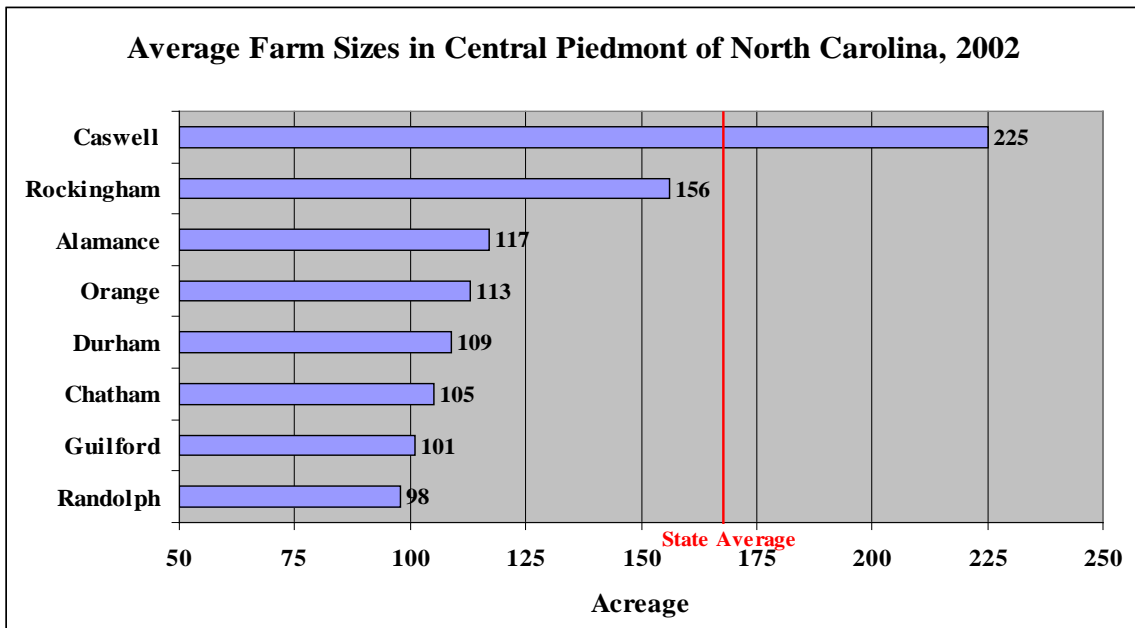
Randolph County has the most individual farms (see Graph 3) of any other county in PCC's eight county region and also has the largest amounts of agricultural receipts. However, Caswell County has the largest average farm size and is the only county with an average farm size larger than the state average of North Carolina.



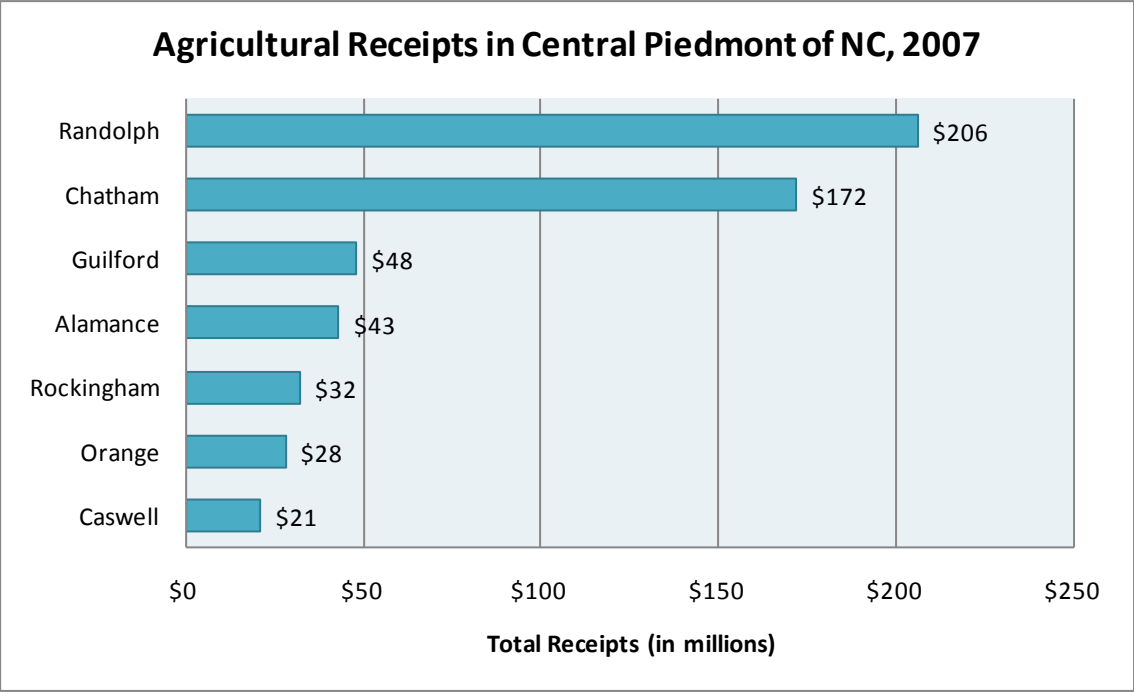
**Graph 3: Population Distribution**



Graph 4: Number of Farms in Central Piedmont



Graph 5: Average Farm Size



**Graph 6: Agricultural Receipts**

## PCC NEEDS AND OPPORTUNITIES

### *Population Increase and Urbanization*

“Urbanization and development are a mixed blessing. From an economic perspective, development means more jobs, enhanced business opportunities, and an expanded tax base. However, development increases pressures on natural resources. Resource depletion, pollution, and use-conflicts increase with population density.”<sup>8</sup> Areas with high projected population growth can expect considerable land use change. More agricultural land is expected to be converted to suburban development or commercial and industrial use.

Areas experiencing population growth also experience water quality impairments. “As land areas urbanize, stream ecosystems can be substantially altered. Changes in the landscape as a watershed urbanizes may cause changes in stream hydrology, water quality, physical habitat, and water temperature that are known to have profound effects on aquatic communities of algae, invertebrate and fish. Understanding these interrelationships may contribute to informed decisions that result in practical and effective water-resource management and strategies that protect and restore stream ecosystems.”<sup>9</sup> Water quality impairments include a dramatic increase in sedimentation from land clearing activities for new construction and increased point source discharges from municipal sewage treatment plants. Population growth is expected to have a substantial impact on non-point source loading as well, specifically total phosphorus, oil and grease, and heavy metals. Future growth also threatens the quantity of water supply sources. In some way, every person, industry, landowner and municipality in the basin impacts water quality. Therefore, every resident of the basin should play a role in management strategies designed to protect and restore the streams, lakes and rivers of the basin.<sup>10</sup>

“The waters of the Cape Fear River basin where Guilford, Alamance, and parts of Orange and Durham counties are located are nutrient sensitive, meaning excessive growths of microscopic or macroscopic vegetation is occurring in downstream reservoirs due to nutrient overloads from nitrogen or phosphorous. Excessive growth is considered that which substantially impairs the use of the water for its best usage as determined by the state's water classification system. The most polluted basin in North Carolina, however, is the Neuse River basin, where Wake, Orange,

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<sup>8</sup> 1997 Natural Resources Inventory of North Carolina

<sup>9</sup> Giddings, E.M., Moorman, M., Cuffney, T.F., McMahon, Gerard, and Harned, D.A., 2007, Selected physical, chemical, and biological data for 30 urbanizing streams in the North Carolina Piedmont ecoregion, 2002–2003: U.S. Geological Survey Data Series 279, 14  
<http://water.usgs.gov/nawqa/urban/html/overview.html>

<sup>10</sup> <http://h2o.enr.state.nc.us/basinwide/Neuse/2008/documents/ExecutiveSummary.pdf>



and Durham counties are located. Urban stormwater, and agricultural and construction activities all contribute to the problem in the form of nonpoint source pollutants. Point sources from industry and wastewater treatment plants also contribute. This has resulted in the entire Neuse basin being declared nutrient sensitive.”<sup>11</sup>

Urbanization and paving can have a severe effect on stream aquatic life. Studies by the Maryland Department of Natural Resources stated that a reduction in stream aquatic species diversity may begin with as little as 2% impervious cover.<sup>12</sup> Maryland streams with above 15% impervious cover were rated fair to poor for aquatic species. When the impervious cover reached 25%, species diversity was significantly reduced. Riparian vegetation removal and paving affect both stream water temperature and habitat for aquatic species. Organisms most affected include many species of reptiles and amphibians, brook trout, and stoneflies. Stormwater runoff from paved areas can also wash out oil and grease and other pollutants into streams. The paved areas also restrict replenishment of groundwater and contribute to flash flooding during storm events and extreme fluctuations in stream water levels. Extreme flow fluctuations cause difficulties in the attachment of bottom dwelling organisms to the stream substrate and also cause a scouring of the substrate. Retention of riparian vegetation in unnamed headwater tributaries, known as first order streams, which may comprise as much as 50% of the streams in a watershed, can be especially critical to the protection of organisms in the downstream watershed.

Forest fragmentation is on the rise.<sup>13</sup> Wildlife species dependent on interior forest habitats will continue to decline in the Piedmont as urbanization and population increases decrease parcel size and take large acres of forest and convert them into residential neighborhoods, parks, or commercial/industrial facilities. Forest fragmentation is thought to be a contributing factor to the decline in certain neotropical populations.<sup>14</sup>

Many species are also sensitive to road density for terrestrial migrations for food and reproduction. Furthermore, soil erosion and water pollution may increase in North Carolina's watersheds as forest fragmentation becomes more prevalent, depending on how land conversions and land-disturbing activities are conducted. It is also economically more difficult to produce and harvest timber on fragmented lands using current forestry practices and

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<sup>11</sup> 1997 Natural Resources Inventory of North Carolina

<sup>12</sup> Maryland Department of Natural Resources and Pennsylvania Department of Environmental Protection “Watershed Restoration Action Strategy”

<sup>13</sup> North Carolina Report of the Governor's Task Force on Forest Sustainability. 1996

<sup>14</sup> 1997 Natural Resources Inventory of North Carolina

techniques. Durham County is the most densely populated, followed by Guilford County, Alamance and Orange County. Caswell County has the lowest population density in PCC's Area.

"As the urban/rural interface shifts, some species of wildlife adapt to living within close proximity to humans. Deer, raccoons, opossums, squirrels, and rabbits are species most commonly seen around urban and residential areas. Urban residents attract numerous bird species to feeders and wildlife-friendly landscaped yards. However, interactions between wildlife and humans are not always beneficial, as evidenced by the rapid rise in deer/auto collisions and rabies cases reported across the state."<sup>15</sup>

Not all wildlife adapt to habitat modifications designed to meet human needs. North Carolina has lost critical habitat and consequently has 64 plant or animal species on the Federal Endangered and Threatened Species list.

### *Rural Economic Decline:*

North Carolina has experienced a tremendous shift in its historic economic drivers. The backbone of much of the state's economic success has been textile manufacturing and tobacco. Both of these economies have disappeared over the last decade leaving many small towns struggling to find an economy that adequately fills the gaps left by the absence of manufacturing jobs and the cash crop of tobacco. Urban centers like Greensboro and the Research Triangle have more diverse economies. As a result they have the capacity to weather the economic downturn and hardships brought on by globalization. Many of the smaller cities and small towns are not so lucky. Small towns have traditionally depended upon single market economies where one or two manufacturing companies employ the majority of their workforce and keep the local economies vibrant. Many small towns were hit hard throughout the 1990s as manufacturing dried up and most of the rural south has yet to experience a recovery nearly a decade into the 21<sup>st</sup> Century. Durham, Chapel Hill, Greensboro, and Burlington have also relied on their proximity to major universities to maintain economic flexibility.

As the population ages in the Piedmont much of the youth has chosen to reside in the urban centers as opposed to more rural areas due to the proximity of job opportunities and activity. This puts a brain drain on rural areas and few communities are able to replace aging leadership with younger, civically responsible and creative citizens to combat economic hardship and mounting development pressures. Farmland loss continues at a quickening pace as the younger generations leave agriculture and the family farm for the urban economies. Most rural farms on the fringe of these urban landscapes have land values that are worth more divided and sold into lots than they are producing commodities.

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<sup>15</sup> 1997 Natural Resources Inventory of North Carolina

### *Agricultural Shifts:*

Agriculture has historically been a vital sector in North Carolina's economy and it remains so today. However, the industry is changing. As evidenced in the agricultural description, the number of farms is declining as small farmers are edged out of the market. As families move away from farming, there is a trend for movement back to the cities, which puts even more stress on the resources available in cities. Therefore, it is important for PCC to focus on preservation of agriculture.

Families are leaving farming for several reasons, but one of the most powerful forces is that property values exceed revenue in most cases. Foreign markets, regulatory pressures, and natural disasters are also factors. Commodity prices are much lower than what they were in the 1950s which means that only large operations that produce mass quantities can remain economically viable.<sup>16</sup>

Thus, farmers must adapt in order to remain competitive in the global market. Finding niche markets, such as organics and local farmer's markets, can help farmers avoid the negative effects of the agricultural shift. In addition, it is important for local governments to make efforts toward retaining agricultural land. With support from governments and organizations like the PCC, farming can remain part of the North Carolina landscape.

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<sup>16</sup> National Agriculture Statistics Service, <http://www.nass.usda.gov/>

## RC&D RESOURCE CONCERN AREAS

The purpose of this section is to define a comprehensive understanding of the issues, trends, and conditions of natural and human resources within the designated PCC Area.

### *Land & Water Management*

The state of North Carolina is approximately 84% privately owned<sup>17</sup>, thus private landowners play a most important role in determining the fate of the state's natural resources.

#### *Forests:*

"North Carolina forests consist of more than 180 tree species, of which one third have commercial value. North Carolina forests have economic, ecological, recreational, and aesthetic value. Standing timber in North Carolina is worth an estimated \$19 billion. In addition to the directly measurable value that forests give to the state, there are many additional benefits that cannot be quantified. Forests provide habitat for game and nongame species of wildlife, recycle nutrients, and contribute to the development of fertile soils through the decomposition of organic matter, and minimize soil erosion. Most importantly perhaps, forests provide clean air and water by filtering pollutants and other impurities from the environment. Only 55% of the land area in the Piedmont is wooded. Urbanization, agriculture, and small public holdings make it the least forested region in the state."<sup>18</sup>

With talk of emerging ecosystem payment systems, North Carolina residents may be able to benefit financially from the private land they own. Nonindustrial private forests may be a source of income for their owners, while also contributing to overall environmental health of the state. It is important for citizens to be aware of such prospects; with such information, citizens may be able to choose ecosystem service payments over the wholesale of woodlots for development.

#### *Wetlands:*

"Wetlands constitute some of the most biologically productive and ecologically sensitive areas in the state. Collectively, they support hundreds of plant species, provide habitat for a variety of waterfowl and wildlife as well as rare or endangered species. Wetlands also are important to water quality because many of them occupy riparian areas along streams, rivers and estuaries and provide buffer areas which retard flow, allowing deposition of sediment and filtration and/or decomposition of other potential pollutants (nutrients, pesticides, etc.) before they

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<sup>17</sup> 1997 NRCS

<sup>18</sup> 1997 Natural Resources Inventory of North Carolina

reach environmentally sensitive waters. In addition, wetlands provide areas for water storage which aids in flood control and may assist in groundwater recharge or discharge.”<sup>19</sup> Wetlands in the Piedmont have been affected by conversion to agriculture, road development, commercial development, and the creation of reservoirs to meet the water demands of the rapidly growing urban population. “A recent emphasis in both regulatory and nonregulatory wetland programs has been wetland mitigation. Restoration (restoring a wetland to a site where it previously existed), creation (converting an upland area into a wetland), or enhancement (manipulating the hydrology or vegetation of an existing wetland to increase its functions) are the three main types of mitigation. Mitigation is an imperfect and developing science which has great potential to begin replacing some of the losses of critical wetlands in the past.”<sup>20</sup>

### *Water Resources:*

“Water for agricultural, domestic, and industrial uses is obtained from either surface sources or groundwater. Groundwater supplies about 50% of the domestic water requirements for the state’s residents. Ninety-five percent of rural residents and 75% of city residents in North Carolina depend on groundwater to supply domestic needs. However, 50% of the state’s residents, including those in the larger cities, depend on surface water sources, and surface water withdrawals have increased with the state’s population. Two aquifers serve the Piedmont and Mountain areas of the state.”<sup>21</sup>

River basins in the Piedmont (Yadkin, Cape Fear, and Neuse) have the highest percentage of impaired partially supporting or non-supporting waterways (PCC’s area also includes the Roanoke River Basin). See below for a map of PCC Area’s River Basins.

The Piedmont is the most heavily populated and industrialized region in the state, placing the greatest demand on clean water for consumption, industrial uses, and recreation.<sup>22</sup> Increases in impervious surfaces, and stormwater flows, have caused changes in stream energy, which has led to limitations in the amount of suitable aquatic habitat and stream bed material, especially near urban areas.

The Piedmont also contributes the greatest pollution load to the state’s waters, mostly through land-disturbing activities such as urban expansion and agriculture. Nonpoint source pollution continues to be a problem that is difficult to assess and correct. Sediment, nutrients, pesticides,

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<sup>19</sup> 1997 Natural Resources Inventory of North Carolina

<sup>20</sup> 1997 Natural Resources Inventory of North Carolina

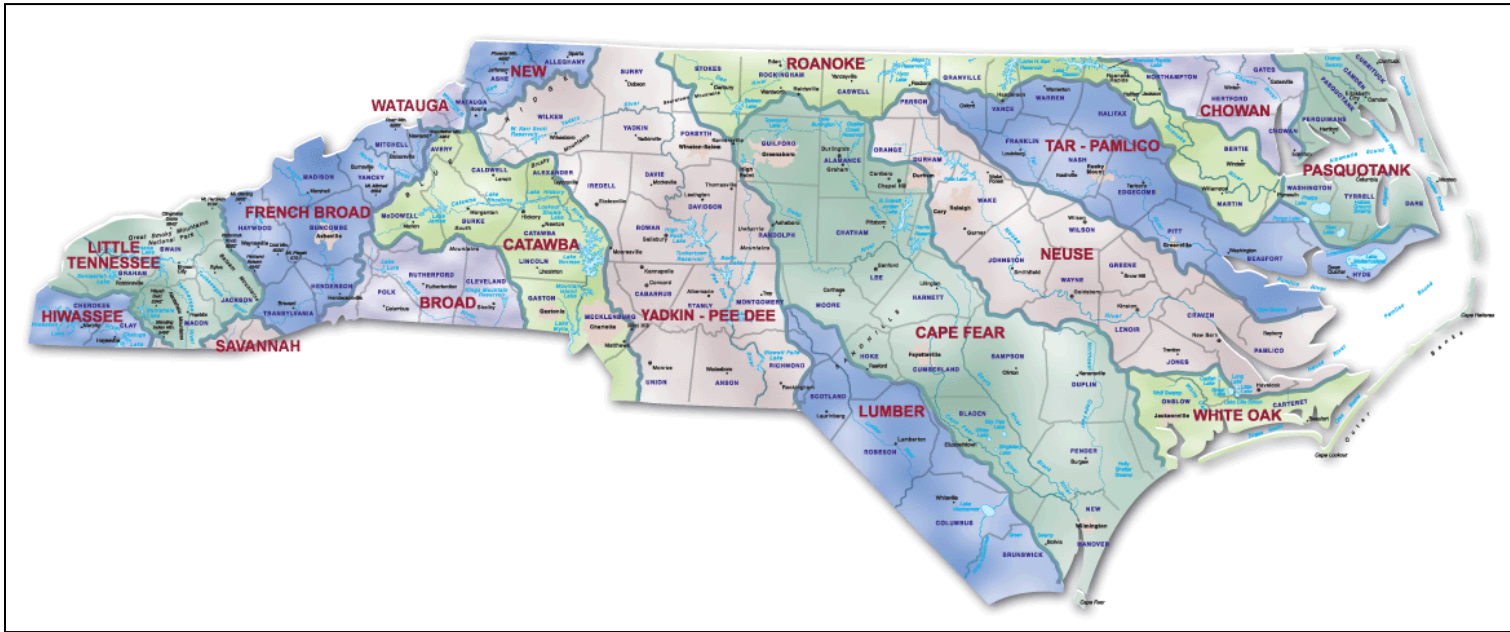
<sup>21</sup> 1997 Natural Resources Inventory of North Carolina

<sup>22</sup> 1997 Natural Resources Inventory of North Carolina

bacteria, metals, and thermal variations are the most common forms of nonpoint source pollution.”<sup>23</sup>

Water quality stressors are identified when impacts have been noted to biological (fish and benthic) communities or water quality standards have been violated. Sources of stressors are most often associated with land use in a watershed as well as the quality and quantity of any treated wastewater that may be entering a stream. During naturally severe conditions such as droughts or floods, any individual stressor or group of stressors may have more severe impacts to aquatic life than during normal climatic conditions. The most common source of stressors is from altered watershed hydrology. Stressors to recreation uses include the following pathogen indicators - fecal coliform bacteria, escheria coli, and enterococci.<sup>24</sup>

<sup>25</sup>North Carolina River Basin’s:



*Fish and Wildlife:*

“North Carolina's wide variety of ecosystems supports an abundance of wildlife and fish populations for the residents of the state to enjoy. North Carolina lands and waters are home to

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<sup>23</sup> 1997 Natural Resources Inventory of North Carolina

<sup>24</sup> NC Division of Water Quality Basinwide Management Plans (Cape Fear 2005)

<sup>25</sup> Office of Environmental Education,  
<http://www.eenorthcarolina.org/public/ecoadress/riverbasins/riverbasinmapinteractive.htm>

white-tailed deer, black bear, eastern wild turkey, ducks, geese, doves and quail, as well as other game and non-game wildlife species. Hunting, fishing, watching birds and other wildlife, and trapping add millions of dollars to our economy through license fees and sales of equipment and supplies.<sup>26</sup>

In quantitative terms, North Carolina is home to 120 species of mammals, 200 species of resident and migrating breeding birds, 70 species of reptiles, 80 species of amphibians, 245 species of freshwater fish, and a large number of saltwater fish and invertebrate species.<sup>27</sup> Today, more than 40 federally-listed endangered or threatened animal species and more than 60 state endangered or threatened animal species occur in the state. There are 115 state Species of Special Concern, and many more are at risk of being added to that list. North Carolina contains eight of the top 21 most endangered ecosystems in the country.<sup>28</sup>

Destruction of natural habitats reduces wildlife and fish populations and increases the need for more intensive management. Good instream habitat is necessary for aquatic life to survive and reproduce. Streams that typically show signs of habitat degradation are in watersheds that have a large amount of land disturbing activities (construction, mining, timber harvest and agricultural activities) or a large percentage of impervious surface area. A watershed in which most of the riparian vegetation has been removed from streams or channelization has occurred also exhibits instream habitat degradation. Streams that receive a discharge quantity that is much greater than the natural flow in the stream often have degraded habitat as well. All of these activities result in altered watershed hydrology.

Once a watershed is severely altered, as is the case in most urban areas, there are many ways for altered conditions to affect aquatic life. Also in these watersheds the important habitats are depleted because the natural ground cover is removed and trees are rare. The very high flows in heavily altered watersheds can cause a multitude of instream habitat problems as well.<sup>29</sup>

The overloading of sediment in the form of sand, silt and clay particles fills pools and covers or embeds riffles that are vital aquatic insect and fish habitats. A diversity of these habitats is important for maintenance of biological integrity. Suspended sediment can decrease primary productivity (photosynthesis) by shading sunlight from aquatic plants, affecting the overall productivity of a stream system. Suspended sediment also has several effects on various fish species including avoidance and redistribution, reduced feeding efficiency, and therefore,

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<sup>26</sup> 1997 Natural Resources Inventory of North Carolina

<sup>27</sup> 1997 Natural Resources Inventory of North Carolina

<sup>28</sup> NC Wildlife Resource Commission "Wildlife Action Plan" 2007

<sup>29</sup> NC Division of Water Quality Basinwide Planning Cape Fear Basinwide Plan 2005 Chapter 27  
<http://h2o.enr.state.nc.us/basinwide/documents/chapter27stressors.pdf>

reduced growth by some species, respiratory problems, reduced tolerance to diseases and toxicants, and increased physiological stress. Sediment filling rivers, streams and reservoirs also decreases their storage volume and increases the frequency of floods. Suspended sediment also increases the cost of treating municipal drinking water. Sediment overloading to many streams has reduced biological diversity to the point of the stream being Impaired for aquatic life.<sup>30</sup>

Sediment comes from land-disturbing activities in a watershed. The cause of this form of sedimentation is erosion of land in the watershed. Land-disturbing activities such as the construction of roads and buildings, crop production, livestock grazing and timber harvesting can accelerate erosion rates by causing more soil than usual to be detached and moved by water. Streambank erosion, caused by very high stormwater flows after rain events, is another source of sediment overloading. Watersheds with large amounts of impervious surfaces transport water to streams very rapidly and at higher volumes than occurs in watersheds with little impervious surfaces. In many urban areas, stormwater is delivered directly by storm sewers. This high volume and velocity of water after rain events undercuts streambanks causing bank failure and large amounts of sediment to be deposited directly into the stream. Many urban streams are adversely impacted by sediment overloading from the watershed as well as from the streambanks. Sedimentation can be controlled during most land-disturbing activities by using appropriate BMPs. Substantial amounts of erosion can be prevented by planning to minimize the amount and time that land is exposed during land-disturbing activities and by minimizing impervious surface area and direct stormwater outlets to streams.<sup>31</sup>

### *Community Development*

Many communities in North Carolina have been suffering from economic decline for decades. Dependence on tobacco farming and manufacturing jobs left these counties in distress when those industries were outsourced to other countries. Creative community development is necessary to assist with economic improvement. Grant opportunities exist with the Tobacco Trust Fund, Golden Leaf Foundation, and NC Rural Center to name a few.

“After big declines during the sixties and seventies, poverty remains high in rural North Carolina. Even the dramatic economic growth during the nineties was not enough to have a significant impact. The number of rural North Carolinians living in poverty increased during the 1990s by nearly 50,000, and the total number of rural people in poverty is now more than 560,000. Of the more than 560,000 rural people living in poverty, 290,000 are white. However, the poverty rate for rural blacks, 27 percent, is more than 1.5 times greater than the rate for rural whites. In

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<sup>30</sup> NC Division of Water Quality Basinwide Planning Cape Fear Basinwide Plan 2005 Chapter 27  
<http://h2o.enr.state.nc.us/basinwide/documents/chapter27stressors.pdf>

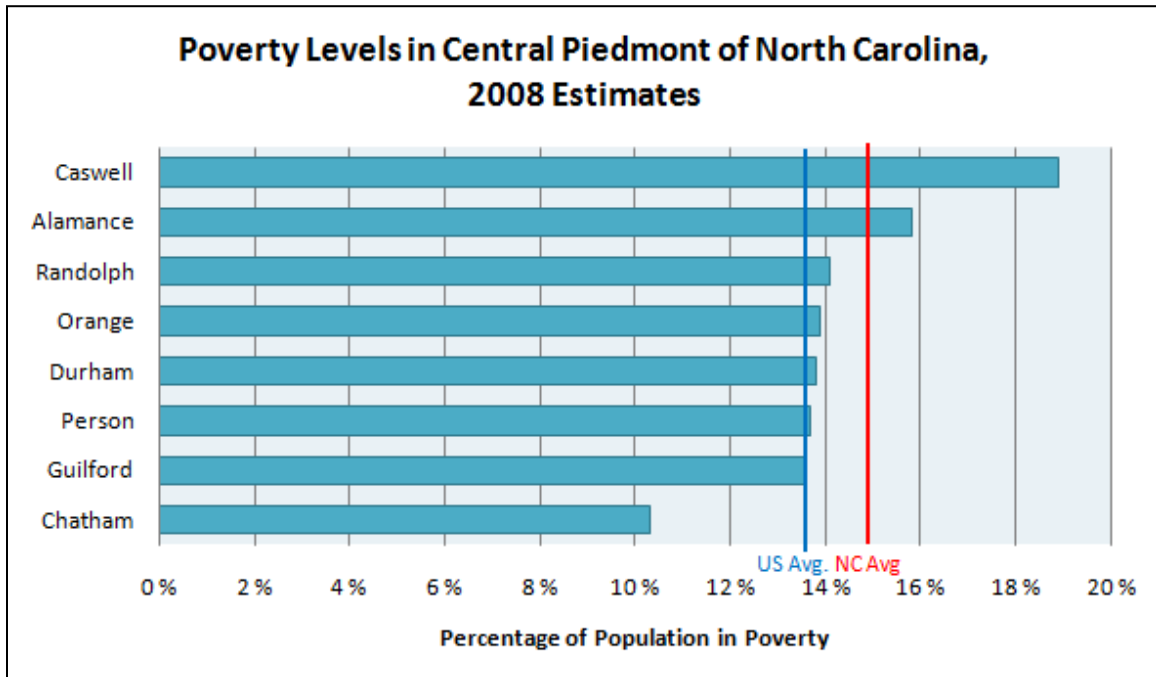
<sup>31</sup> NC Division of Water Quality Basinwide Planning Cape Fear Basinwide Plan 2005 Chapter 27  
<http://h2o.enr.state.nc.us/basinwide/documents/chapter27stressors.pdf>



10 Coastal Plain counties, more than a third of blacks live in poverty. The poverty rate for American Indians is 22 percent and for Hispanics, 28 percent.”<sup>32</sup>

“The poverty rate in North Carolina increased from the 2000 level of 12.3 percent to 15.0 percent for 2002-2003. The recession and increasing unemployment rates in North Carolina are a likely cause of the increase in poverty. North Carolina had the third highest increase in poverty in 2002-2003 and was one of only 7 states that experienced an increase.”<sup>33</sup>

*Poverty and Unemployment*<sup>34</sup>



**Graph 7: Poverty Levels in Central Piedmont of North Carolina**

It is important to note that the entire state has a higher poverty rate than the nation as a whole. Only two counties in PCC’s region, Caswell and Alamance, exceed the state average, but only one is actually below the national average. This is a major area of concern for any agency that seeks to improve welfare in these areas. PCC is faced with a unique set of challenges because funding is not abundant in these areas. Conservation is often trumped by economic prosperity; therefore, it is important for PCC to look for ways to bring money to this area through

<sup>32</sup> NC Rural Center [http://www.ncruralcenter.org/databank/trendpage\\_Poverty.asp](http://www.ncruralcenter.org/databank/trendpage_Poverty.asp)

<sup>33</sup> [http://www.ncruralcenter.org/databank/trendpage\\_Poverty.asp](http://www.ncruralcenter.org/databank/trendpage_Poverty.asp)

<sup>34</sup> Small Area Income and Poverty Estimates, US Census Bureau, <http://www.census.gov//did/www/saipe/county.html>

conservation projects. This provides a way to increase economic welfare and the health of our ecosystem.

### *Distressed Communities*

Distress is generally defined by a lack of the characteristics like access to employment, education, quality housing, and health care. A recent University of North Carolina Center for Urban and Rural Studies publication defined distressed areas as those which met all three of the following criteria in 2000:<sup>35</sup>

- Unemployment rate greater than or equal to 150% of the North Carolina average unemployment rate of 3.4% (greater than or equal to 5.1%)
- Per capita income less than or equal to 67% of the North Carolina average per capita income of \$20,307 (less than or equal to \$13,606)
- Poverty rate greater than or equal to 150% of the North Carolina average poverty rate of 12.3% (greater than or equal to 18.45%)

North Carolina rural counties have lower per capita income and higher rates of poverty and unemployment than urban counties. Rural county residents also lag urban county residents on a number of factors relating to educational attainment, housing quality, and access to health care.<sup>36</sup>

Residents of urban distressed tracts suffer from high rates of unemployment, low per capita incomes, and a rate of public assistance qualification three times that of the state as a whole. North Carolina has over 550 thousand residents living in distressed tracts, representing nearly seven percent of the state's population. Distressed tracts, urban and rural, are disproportionately black. Whereas 7 percent of all North Carolinians live in distressed tracts, nearly 19 percent of blacks do. Whites make up 73 percent of the total state population, but only represent 28 percent of the population living in distress.<sup>37</sup>

### *Workforce Changes*

"North Carolina faces a formidable challenge of re-tooling its workforce in order to compete in the knowledge-intensive global economy. As a result of declines in traditional agriculture and labor-intensive manufacturing, communities across the state struggle with worker displacement, poorly educated workers, and steady out migration of its local talent, especially younger people.

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<sup>35</sup> "The State of North Carolina Urban Distressed Communities" Allen Serkin & Stephen Whitlow

<sup>36</sup> [http://research.unc.edu/oebd/urban\\_distressed\\_communities.pdf](http://research.unc.edu/oebd/urban_distressed_communities.pdf)

<sup>37</sup> [http://research.unc.edu/oebd/urban\\_distressed\\_communities.pdf](http://research.unc.edu/oebd/urban_distressed_communities.pdf)

The solutions must be interdisciplinary and based on partnerships between the private sector, universities and nonprofit organizations.”<sup>38</sup>

## *Land Management*

### *Energy Conservation and Alternative Fuels*

North Carolina currently has an energy policy that intends to reduce its dependence on petroleum through the production of bio-based fuels, power and products, to increase energy security, spur economic development, and improve environmental quality. Energy efficiency, although not specifically an energy source, is projected to have reduced national energy needs by 31% between 1975 and 1999.<sup>39</sup> NC GreenPower, is a new green pricing program which allows consumers across the state to purchase a portion of their electric needs from renewable sources.

Biomass is defined as “any organic matter that is available on a renewable or recurring basis, including agricultural crops and trees, wood and wood wastes and residues, plants (including aquatic plants), grasses, residues, fibers, animal wastes, and segregated municipal waste... Processing and conversion derivatives of organic matter are also biomass.”<sup>40</sup> Biomass can be converted into bioproducts and biofuels through chemical and biological means or can be used to generate heat and/or electricity through direct combustion, co-firing, gasification, and pyrolysis. Currently North Carolina already produces 4% of its energy using biomass, but it has the potential to produce another 10% with its existing biomass resources. Almost 60% of this additional biomass would come from North Carolina’s enormous forest resource, and the rest would be derived from agricultural and “waste” resources, such as animal renderings, animal waste and more.

According to the NC Biomass Roadmap, “by 2017, North Carolina should displace 10% of its gasoline and diesel needs (*10 in 10*) and 7% of its power needs (*7x17*) using North Carolina bio-based fuels and power, along with becoming a leader in bioproducts research and development. These goals can be achieved using North Carolina’s existing biomass resources and intellectual capital while producing new energy crops and new ideas.”

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<sup>38</sup> THE CAROLINA SUMMIT ON COMMUNITY ECONOMIC DEVELOPMENT February 6, 2006  
[http://research.unc.edu/oebd/csced\\_summary.pdf](http://research.unc.edu/oebd/csced_summary.pdf)

<sup>39</sup> [http://www.energync.net/resources/docs/pubs/sep\\_12-04.pdf](http://www.energync.net/resources/docs/pubs/sep_12-04.pdf)

<sup>40</sup> *Roadmap for Biomass Technologies*. Biomass Research and Technical Advisory Committee. December, 2002. <http://www.energync.net/resources/docs/pubs/North%20Carolina%20Biomass%20Roadmap%202007.pdf>

## *Sustainable Agriculture and Business Development*

According to the North Carolina Sustainable Business Council a *sustainable business*:<sup>41</sup>

- Undertakes best business management practices so as to support long term economic prosperity
- Operates as a good corporate citizen and develops mutually beneficial partnerships with stakeholders
- Goes beyond compliance to adopt proactive strategies which restore and enhance the environment

There are many practices that identify a company striving for sustainability, including:<sup>42</sup>

- *Materials*: Uses materials that come from sustainable/green/socially responsible sources
- *Energy*: Reduces energy use and/or shifts to renewables for space heating/cooling, process and transportation
- *Process*: Makes all processes as efficient and benign as possible
- *Product Design*: Reduces energy, materials consumption, use of hazardous materials and waste throughout life of its products
- *Waste*: Reuses, recycles or composts most or all wastes and by products
- *Community*: Addresses pressing social problems in a way that relates to the business
- *People*: Treats its employees, partners, customers and stakeholders with respect and dignity
- *Governance*: Conducts business in an ethical and transparent manner
- *Influence*: Applies leadership and buying power to drive its industry toward sustainability

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<sup>41</sup> [http://www.sustainnc.org/public/files/NCSBC\\_Guiding\\_Principles.pdf](http://www.sustainnc.org/public/files/NCSBC_Guiding_Principles.pdf)

<sup>42</sup> [http://www.sustainnc.org/public/files/NCSBC\\_Guiding\\_Principles.pdf](http://www.sustainnc.org/public/files/NCSBC_Guiding_Principles.pdf)

Sustainable Agriculture: American agriculture has traditionally focused on increased production and efficiency to provide low-cost food for domestic and export markets. Sustainable agriculture “involves the application of scientific knowledge to achieve beneficial production systems that generate acceptable, long-term economic returns; protect the environment; protect human health and safety and support society's goals-production of high-quality, reasonably priced food and continuation of farming as a way of life.”<sup>43</sup> The goal of sustainable agriculture is a permanent change in the way producers think about their farming operations and the practices they use. A sustainable approach emphasizes the farm as a living, changing system that is in constant interplay with the total environment. Diversity of farming enterprises, reduced agrichemical use, use of soil and water conservation practices, land stewardship and recycling of animal wastes on the farm are examples of these changes in attitudes.<sup>44</sup>

Local Food Initiative: A way to encourage sustainable agriculture is through promotion of local food initiatives. “Recently, public interest in local foods has grown, creating new economic opportunities for North Carolina farmers and businesses.”<sup>45</sup> Many consumers of local agriculture are also concerned with environmental impacts of farming. Therefore, local food initiatives and sustainable agriculture are inherently connected, which makes it easier to promote each aspect of our food system.

“Agriculture and fisheries are the foundations of our food system in North Carolina. Developing viable and lasting production systems to meet the consumption demands of a growing population and to confront challenging natural resource realities requires a multi-disciplinary approach that understands and is responsive to social, political and economic trends... Greater spending on local foods increases economic activity at the community level, which can translate into job opportunities. Our state’s population is rapidly increasing. By supporting the development of local food and farming businesses, we can harness consumer spending to support North Carolina producers, including those in rural and urban-fringe communities. We can revitalize our agricultural heritage by strengthening consumers’ connections to the land and to the farmers who grow our food... The opportunity before us fundamentally revolves around harnessing consumer spending on food to bolster the sustainability of local farms and fisheries, to support economic development and job creation in rural areas, and to help address diet-related health problems. By focusing on increasing consumption of local foods, we have an important and unprecedented chance to connect our rapidly expanding metropolitan areas with

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<sup>43</sup>NC Cooperative Extension Program Statement on Sustainable Agriculture <http://www.sustainable-ag.ncsu.edu/sustain1.htm>

<sup>44</sup> <http://www.sustainable-ag.ncsu.edu/sustain1.htm>

<sup>45</sup> <http://www.goldenleaf.org/localfoods.html>

our rural, largely agricultural communities— leveraging a core desire on the part of consumers for a greater connection to the land and the farmers who grow their food.”<sup>46</sup>

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<sup>46</sup> <http://www.cefs.ncsu.edu/resources/stateactionguide2010.pdf>

## PCC Public Online Survey

PCC solicited input from citizens in its eight-county region by distributing an online survey, via email, that asked for priorities and opinions on conservation-related activities. The email was sent to local governments and agencies requesting assistance in distribution; overall, 746 emails were sent to solicit comments. In addition, the Piedmont Triad Council of Governments posted a link to the survey on their website. Four local newspapers ran an advertisement for the survey: *Northwest Observer*, *Chatham News*, *The Randolph Guide*, and *Reidsville Review*. 125 surveys were completed and 89 responses were considered usable (on the basis of living within PCC’s region) giving a response rate of 16.8% and a usable response rate of 11.9%. While the response rate may not be ideal, the pool of respondents includes input from each county in the region.

Respondents were asked to indicate how important specific environmental issues were to them. Following are their responses.

**Table 2: Importance of Environmental Issues**

| Question   | Very important | Neutral  | Not important | Don't know/Doesn't apply |
|--|----------------|----------|---------------|--------------------------|
| Improve Water Quality and Reduce Pollution Entering Streams and Rivers | 94% (84)       | 4% (4)   | 1% (1)        | 0% (0)                   |
| Help Protect and Improve Local Drinking Water Supplies                 | 92% (82)       | 7% (6)   | 0% (0)        | 1% (1)                   |
| Protect Ground Water and Soils from Pollution                          | 90% (80)       | 10% (9)  | 0% (0)        | 0% (0)                   |
| Promote Farmland and Open Space Protection                             | 89% (79)       | 11% (10) | 0% (0)        | 0% (0)                   |
| Promote Water Conservation   | 85% (75)       | 15% (13) | 0% (0)        | 0% (0)                   |
| Promote Conservation/Renewable Energy                                  | 83% (74)       | 15% (13) | 1% (1)        | 1% (1)                   |

| Availability   |          |          |        |        |
|--|----------|----------|--------|--------|
| Improve Stormwater Run-off/Reduce Flash Flooding                               | 80% (70) | 17% (15) | 1% (1) | 2% (2) |
| Promote Sustainable Development (Economic, Social, Environmental)              | 79% (70) | 18% (16) | 2% (2) | 1% (1) |
| Improve Forests  | 79% (70) | 20% (18) | 1% (1) | 0% (0) |
| Establish and Enhance Trails, Greenways, Canoe/Kayak/Fishing Access, and Parks | 78% (69) | 19% (17) | 2% (2) | 0% (0) |
| Supply Better Access to Locally Grown Food                                     | 77% (68) | 22% (19) | 1% (1) | 0% (0) |
| Improve Wildlife Habitat   | 77% (67) | 22% (19) | 0% (0) | 1% (1) |
| Improve and Establish Recycling, Re-use, and Composting Programs               | 75% (67) | 25% (22) | 0% (0) | 0% (0) |
| Improve Air Quality and Reduce Greenhouse Gases                                | 73% (65) | 22% (20) | 3% (3) | 1% (1) |
| Assist with Environmental Restoration Projects                                 | 72% (63) | 27% (24) | 0% (0) | 1% (1) |
| Encourage "Green" Enterprises and Business Solutions                           | 67% (60) | 27% (24) | 6% (5) | 0% (0) |

The top three priorities were to improve water quality and reduce pollution entering water bodies, to help protect and improve local drinking water supplies, and to protect ground water and soils from pollution. These three priorities suggest that the citizens in the PCC region are highly concerned with water quality. This is most likely due to the recent history of drought and media coverage over water reservoir disputes between Durham and Wake counties. In addition, areas with high population have more cause for concern over water quality. The largest



percentage of respondents was from Guilford County which has one of the highest population densities in the eight-county region.

Respondents were also asked to identify other priority areas that were not listed. The responses to this question are below.

- I'm sorry to answer that they're all very important, but they all are to me...
- Educational programs on biomass energy, so the public can discern the facts from the fearmongering.
- Improve energy efficiency of low to moderate income housing stock. Elimination of lead based paint hazards in low to moderate income housing.
- School & community gardens
- work to increase fines for people violating forest practice guidelines and destroying streamside management zones. 3 strikes your out.
- Reintroduce eastern prairie grassland habitats in the Piedmont which have disappeared almost completely due to widespread farming, grazing and urbanization.
- Educating HOAs to allow and promote rain barrels, cisterns, and grey water lines in home plumbing.
- The above list sounds ambitious enough
- Workshops on "Being a friend to wildlife", educating people on how to manage their properties, no matter how big or small, so that biodiversity and stewardship of their land can be enhanced.
- Items unmarked above are important--therefore not neutral--but not as important as those marked "very important."
- promote vegetable and fruit gardening in urban areas through use of flower gardens, lawns, paved areas and any other spaces usable.
- Promote bicycle lanes on all streets

It is obvious that many of our respondents are concerned about environmental health in the area. While this is promising, it adds an additional layer of complexity because it is impossible to address all areas of concern. However, this input is very important for prioritizing PCC goals.

Respondents were also asked to give feedback on the services that PCC provides to the community. The results are below.

**Table 3: Feedback on PCC-Provided Services**

| Question   | Very important | Neutral  | Not important | Don't know/Doesn't apply |
|--|----------------|----------|---------------|--------------------------|
| Facilitate Partnerships Among Community Groups and Natural Resource Agencies                 | 71% (59)       | 28% (23) | 1% (1)        | 0% (0)                   |
| Connect university experts into local communities to help highlight and solve local problems | 67% (56)       | 28% (23) | 1% (1)        | 4% (3)                   |
| Conduct Media Campaigns to Bring Issues into Public Awareness                                | 66% (55)       | 30% (25) | 1% (1)        | 2% (2)                   |
| Supply Engineering & Outside Expertise for Community Projects                                | 56% (46)       | 39% (32) | 1% (1)        | 4% (3)                   |
| Grant writing, fundraising   | 56% (46)       | 39% (32) | 1% (1)        | 4% (3)                   |
| Provide Project Management/Leadership/Oversight  | 51% (42)       | 45% (37) | 0% (0)        | 4% (3)                   |
| Assist citizen groups with organizing, 501c3 status, strategic planning, etc                 | 37% (31)       | 51% (42) | 5% (4)        | 7% (6)                   |

Additional comments concerning PCC services were solicited and the responses are included below:

- Bring existing 501c3 wildlife and nature-oriented groups such as native plant and bird groups into the process.
- Organize a conference of all the environmental groups (of every ilk---in either Guilford County and/or the larger Triad) so one after another can present what they are doing, talk with one another (making important alliances), and get a sense of how active so many people are in their own smaller circles and groups, neighborhoods and other communities. Together the many connect and gain power to make good things happen. I would be happy to help

brainstorm this idea and work on it to bring it to fruition.

- Until I received this survey I did not know this group existed, so would like more information about the PCC

Facilitating partnerships between community groups and natural resource agencies, connect university experts to communities, and conduct media campaigns for public awareness were of most importance to respondents. The trend here seems to be community involvement. This is, too, is a promising yet complex finding. Although there is intended support from the community, it is often the case that these intentions do not materialize. It is difficult to actually get the community involved even though there is interest. Therefore, public engagement should be a priority for PCC; creative marketing strategies and volunteer coordination will play a key role in getting the community involved.

The online survey allowed close to 100 people to participate in PCC’s public input process for the business plan. In years past only 200 letters have been sent out to citizens with zero response rate. A citizen from each of the eight counties participated, multiple age ranges are represented, and multiple people from different racial backgrounds are included. Rural and urban citizens participated and the vast majority of survey respondents indicated some level of farming. Overall the demographics show that the survey reached a wide variety of citizens in the eight county region.

**Table 4: Demographic Characteristics  
(ordered in descending percentage of total)**

|                |                        | Number | Percent |
|----------------|------------------------|--------|---------|
| Gender         | Female                 | 46     | 55%     |
|                | Male                   | 37     | 45%     |
| Race/ethnicity | White/Caucasian        | 76     | 93%     |
|                | African American       | 2      | 2%      |
|                | Hispanic               | 2      | 2%      |
|                | Other (Please specify) | 2      | 2%      |
| Age            | 45 to 54               | 22     | 27%     |
|                | 35 to 44               | 16     | 20%     |
|                | 65 years and over      | 16     | 20%     |
|                | 55 to 64               | 13     | 16%     |

|                             |                        | Number | Percent |
|-----------------------------|------------------------|--------|---------|
|                             | 25 to 34               | 12     | 15%     |
|                             | 20 to 24               | 3      | 4%      |
| County                      | Guilford               | 40     | 48%     |
|                             | Rockingham             | 14     | 17%     |
|                             | Chatham                | 12     | 14%     |
|                             | Orange                 | 5      | 6%      |
|                             | Randolph               | 5      | 6%      |
|                             | Alamance               | 3      | 4%      |
|                             | Durham                 | 3      | 4%      |
|                             | Caswell                | 1      | 1%      |
| Land Ownership              | Urban residential      | 24     | 30%     |
|                             | Rural residential      | 23     | 29%     |
|                             | Suburban residential   | 20     | 25%     |
|                             | Agriculture/production | 13     | 16%     |
| Agricultural classification | Traditional            | 7      | 54%     |
|                             | Specialty/niche        | 5      | 38%     |
|                             | Hobby                  | 1      | 8%      |

## PCC GOALS, OBJECTIVES, AND STRATEGIES

The PCC Board of Directors realizes that a regional approach is needed to address resource conservation and community development needs. Creative solutions are critical to address the depressed rural economies by encouraging entrepreneurial development and selling technology sectors on the opportunities that exist in rural areas. Everyone must come together to determine a healthy balance between human, natural, and economic capital.

PCC leverages its resources to bring private sector solutions to projects that require partnership between conservation districts, community groups, non-profits, local governments, and private citizens.

### *Area Plan Linkages to USDA/NRCS Strategic Plan*

PCC is part of a larger national network of RC&D's. The RC&D program, up until April 2011, was administered by the USDA Natural Resource Conservation Service and is also tied directly to the mission, goals, and priorities of the Natural Resource Conservation Service. While RC&D Councils are no longer affiliated with NRCS, this area plan was developed under the guidance of NRCS Strategic Plan 2005-2010 which was updated in 2008 to extend thru 2015 and links directly to the mission, vision, and mission goals outlined in the 2005-2010/2015 NRCS Strategic Plan "Productive Lands Healthy Environment".

The Natural Resource Conservation Service describes their top priorities in their "Strategic Plan"<sup>47</sup>, and this text is included in Appendix A of this Area Plan. NRCS also summarizes their top priorities in a matrix, displaying the relationships between the RC&D goal elements and the USDA and NRCS priorities.

PCC has chosen to take these USDA/NRCS priorities and combine them with identified community needs and opportunities as well as public input priorities from the online survey to determine Piedmont Conservation Councils Goals, Objectives, and Strategies over the next five years. The table on the next page summarizes the linkage between the Goals of this PCC Area Plan to the national priorities. The Goals, Objectives, and Strategies are described in more detail on subsequent pages.

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<sup>47</sup>USDA/NRCS 2005-2010 Strategic Plan "Productive Lands – Healthy Environment"  
[http://www.nrcs.usda.gov/about/strategicplan/strategic\\_plan\\_final\\_%2018\\_10.pdf](http://www.nrcs.usda.gov/about/strategicplan/strategic_plan_final_%2018_10.pdf)

**Table 5: Cross-Reference of PCC Goals and National Priorities**

| RC&D Program Elements        | USDA Priorities   |  |  |  | NRCS Priorities  |   |  |  |  |   |
|------------------------------|---|--|--|--|--|---|--|--|--|---|
|                              | Assist rural communities to create prosperity so they are self-sustaining, repopulating, and economically thriving. | Ensure our national forests and private working lands are conserved, restored, made more resilient to climate change and enhance water resources | Help America promote sustainable agricultural production and biotechnology exports as America works to increase food security, | Ensure that all of America's children have access to safe, nutritious, and balanced meals. | High Quality, Productive Soils to enable sustained production of a safe, healthy, and abundant food supply | Clean and Abundant Water to protect human health, support a healthy environment, encourage a productive landscape, and ensure an abundant and reliable supply | Healthy Plant and Animal Communities to provide habitats for diverse and healthy wildlife, aquatic species, and plant communities; protect water quality; and reduce flood damages | Clean Air to make a positive contribution to local air quality and the Nation's effort to sequester carbon | Adequate Energy Supply to conserve energy and be a source of environmentally sustainable biofuels and renewable energy | Working Farm and Ranch Lands to sustain a viable agricultural sector and natural resource quality |
| <b>Land Conservation</b>     | Goal 1  | Goal 1   | Goal 1   |  | Goal 1<br>Goal 2   |   | Goal 2   |  |  | Goal 1<br>Goal 2  |
| <b>Water Management</b>      |   |  |  |  |  | Goal 3<br>Goal 4<br>Goal 5  | Goal 3<br>Goal 4<br>Goal 5   |  |  | Goal 4<br>Goal 5  |
| <b>Land Management</b>       | Goal 6  |  |  |  |  |   |  | Goal 6   | Goal 6   |   |
| <b>Community Development</b> | Goal 7  |  | Goal 7   | Goal 7   |  | Goal 7  |  |  |  |   |

## *Land Conservation Element*

### Sub-element: Farmland Preservation

- **GOAL 1: Engage remaining Soil and Water District, Cooperative Extension, and County Planning Staff in the development and completion of Farmland Preservation Plans for Caswell, Randolph, and Guilford Counties (Alamance, Durham, Rockingham, Orange, and Chatham are complete) by 2013.**

**Objective:** Assist in the completion of three countywide Farmland Preservation Plans by 2013

#### **Strategies:**

1. Assist existing Farmland Protection Committees with technical assistance.
2. Ensure that Farmland Preservation Plans meet the objectives outlined through NC Farmland Trust Fund by 2013
3. Conduct a regional survey of citizens in 2014 to determine how farmland protection planning has affected their community
4. Conduct a regional meeting and 8 local forums in 2015 to discuss opportunities and challenges to countywide farmland protection plans

### Sub Element: Innovative Tools and Technologies for Land Conservation

- **GOAL 2: Work with local farm agencies to improve environmental quality on and surrounding farmland by implementing innovative tool/technology equipment sharing programs in at least one district by 2013.**

**Objective:** Coordinate fundraising and grant-writing strategies to assist with the purchase of equipment or adoption of practices that has a positive environmental impact on farmland.

#### **Strategies:**

1. Utilize available funding resources - to acquire funding for the purchase of innovative chemical application equipment that can be used by farmers and result in reduced burden or net benefit to the environmental conditions on and surrounding pastureland by 2012.
2. Implement an equipment sharing program for Caswell County farmers by 2013.
3. If equipment sharing is successful (measured by monthly use by 3 or more users) investigate alternatives for regional equipment sharing to the neighboring counties:

- a. Identify other tools/technologies and specialized equipment that are adequate for lending that improve environmental conditions and improved economic benefits to farming community by 2013.
- b. Implement a funding strategy to assist two more PCC regional partners in acquiring necessary specialized equipment and implementing equipment sharing programs by 2015.

**Outcomes:** Innovative technology use on farms to improve environmental conditions, economic efficiency, production diversification.

### *Water Management Element*

#### Sub-Element: Urban Water Quality

- **GOAL 3: Improve water quality in the Jordan and Falls Lake Watersheds by reducing non-point sources of water pollution generated from 3 urban communities currently challenged by 303(d) listed streams by 2015.**

**Objective 1:** Determine at least 3 sets of priority projects in 3 urban communities challenged by impaired streams.

**Strategies:**

1. Analyze TMDLs, Watershed Assessments, and Watershed Plans by 2012 to rank and prioritize projects based on feasibility, landowner willingness to participate in improvement project, and how well the project meets funding resources.
2. Provide technical assistance to 3 urban communities for the purpose of targeting external funding sources and partner program staff resources to prioritized projects
3. Assist in the production of 3 stormwater related grants by 2014
4. Implement 3 non-point pollution reduction practice/stormwater projects by 2015.

**Outcomes:** Reduced peak discharges from BMP installation, reduced nutrient, heavy metal, and sediment run-off into urban streams

**Objective 2:** Improve water quality to the Haw River and Jordan Lake Watershed by implementing an innovative storm water design project in Graham NC by 2012.

**Strategies:**

1. Secure funding through CWMTF for design and construction of storm water BMPs by 2011
2. Coordinate with project location about specific concerns with runoff and future development



3. Monitor water quality at discharge points into the Haw from project location both before and after project implementation to demonstrate improvement.

**Objective 3:** Improve water quality to the Eno River by implementing an innovative storm water design project in Hillsborough, NC by 2012.

**Strategies:**

1. Secure funding through CWMTF for design and construction of storm water BMPs
2. Coordinate with project location about specific concerns with runoff and future development
3. Monitor water quality at discharge points into the Eno from project location both before and after project implementation to demonstrate improvement.

**Objective 4:** Develop a full engineering design for the removal of the Lassiter Mill Dam on the Uwharrie River in Randolph County, NC by 2014.

**Strategies:**

1. Write grant proposal to American Rivers-NOAA Community Based Restoration Program for the approximate cost of engineering design and dam removal by 2012.
2. If received, hire engineering firm, complete engineering design, acquire approval from the landowner and any permits required by 2014.

**Sub-Element: Rural Water Quality**

- **GOAL 4: Analyze water quality in 3 Sub-Watersheds (Drainage Areas less than 200 square miles) by 2016.**

**Objective 1:** Develop 3 non-point source pollution management plans for 3 rural watersheds by 2016.

**Strategies:**

1. In cooperation with river basin, watershed associations, Piedmont Triad COG, or local government partners conduct 3 non-point pollution source surveys in 3 sub-watersheds with drainage areas less than 200 square miles in size by 2013.
2. Identify sediment/erosion problem areas in the 3 sub-watersheds and develop a list of alternative solutions to reduce non-point source pollution by 2014.

3. Prioritize agriculture BMPs, stream restoration opportunities, and forestry BMP needs in 3 sub-watersheds by 2015
4. Provide through cooperative agreements a technical and financial assistance program to implement pollution reduction practices on 3 non-point pollution sites by 2016.

**Outcomes:** Potential water quality improvement projects will be identified and prioritized for PCC and/or partner organizations to focus funding and staffing resources to implement BMPs.

➤ **GOAL 5: Maintain Cooperation amongst Water Resource Groups in the Dan River Basin by 2016**

**Objective:** Identify ways multi-agency partners can work together towards common goals. (PCC established a bi-state, multi-agency Coalition of Water Resource Groups working in the Dan River Basin in 2008. The cooperative group was called “The Dan River Coalition”)

**Strategies:**

1. Host one annual meeting each year for Dan River Coalition Partners for the next five years.
2. Encourage the formation of sub-committees that will work together throughout the year and report progress and communicate water quality challenges at each annual Dan River Coalition meeting
3. PCC will maintain a working stakeholder list for distribution and will update this annually.
4. Establish a Dan River Basin Coordinator position to oversee planning and communication by 2015.

## *Land Management Element*

### Sub-Element: Energy Conservation and Alternative Energy Production

➤ **GOAL 6: Facilitate Advanced Energy Strategies by providing technical and financial assistance for 10 community outreach educational sessions by 2016.**

**Objective 3:** With either funding or program development, assist in community education and outreach on energy issues.

**Strategies:**

1. Assist Clean Energy Durham in leveraging funds to conduct neighborhood based trainings on low-cost and no-cost ways to save energy in the home.

2. Secure funding for innovative neighbor-to-neighbor energy education outreach in Northeast Central Durham.

### *Community Development Element*

- **GOAL 7: Support local agencies and governments in conducting three projects to improve community organization and cohesiveness, and add economic, environmental, or social benefit to the community.**

**Objective 1:** Assist Randolph County in implementing a Quilt Trail project to improve agri-tourism and awareness of community agricultural heritage.

**Strategies:**

1. Secure funding to install 20 quilt squares on barn facades in Randolph County by 2011.
2. Coordinate with Randolph County to solicit applications and make selections for 20 quilt squares by 2011.
3. Assist Randolph County as needed with design or installation of quilt squares and publicizing the project by 2012.

**Objective 2:** Assist Trees Asheboro with finding and acquiring financial assistance for the environmental education project by 2011.

**Strategies:**

1. Assist with the writing of at least 3 grants per year through 2016
2. As needed assist with program planning and project management if grants are awarded by offering technical assistance and strategic planning analysis

**Objective 3:** Assist Trees Asheboro with a regional expansion/development plan to become a statewide organization by 2016.

**Strategies:**

1. Assist Trees Asheboro with a regional expansion/development plan to become established as a regional organization by 2012.
  - a. This will include presence in at least 5 different communities
  - b. Have a chapter in at least 3 different counties by 2010

2. Assist with the development of an internship program by 2013 with area community colleges and universities to provide steady volunteer labor and professional development to youth.

3. Assist with the continued success of YES! Youth Environmental Service an environmental education and leadership program for youth aged 6-18 to conduct activities such as litter clean-up, tree planting, vegetable planting, solid waste and recycling educational activities, species conservation education, and leadership development each summer thru 2016.

**Objective 4:** Encourage the growth and development of the Piedmont Local Foods project in Rockingham County by providing funding support by writing at least 6 grants by 2013 so that the organization can become fully self-sustaining.

**Strategies:**

1. Write two grants per year for the next three years (thru 2013) to assist Piedmont Local Foods with funds needed to coordinate, store, deliver, and expand local food supply and purchasing in the region

2. Assist Piedmont Local Foods with technical assistance and guidance on marketing and business fiscal responsibility and guidelines in 2011 and 2012.

3. Assist Piedmont Local Foods with reporting and program analysis quarterly thru 2013.

## Signature Page

The Piedmont Conservation Council RC&D, Inc. agrees that the RC&D program will be conducted in compliance with the nondiscrimination provisions as contained in Title VI and VII of the Civil Rights Act of 1964 as amended, the Civil Rights Restoration Act of 1987 (Public Law 100-259) and other nondiscrimination statutes; namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, and the Age Discrimination Act of 1975.

The Piedmont Conservation Council RC&D, Inc. agrees that the signing of this document constitutes agreement to comply with federal laws concerning restrictions on lobbying, a drug-free workplace, and responsibilities for nonprocurement, suspension, disbarment and state review.

The Piedmont Conservation Council RC&D, Inc. hereby adopts this RC&D Area Plan..

Piedmont Conservation Council RC&D, Inc., North Carolina

By: \_\_\_\_\_ Date: \_\_\_\_\_  
(President)

Attest: \_\_\_\_\_  
(Council Secretary)

This action authorized at an official meeting of the Piedmont Conservation Council RC&D, Inc. and Executive Committee on \_\_\_\_\_.  
(Date)