

Comprehensive Regional Growth Plan for the Fort Bragg Region

Assessment and Recommendations



Chapter 10 Land Use Planning

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DISCLAIMER

This report is intended as an aid to planners, managers, elected officials, and other decision makers in the Fort Bragg region. Our aim is not to dictate what should be done, but to assist in ongoing efforts to achieve goals and objectives identified and valued by the residents of the region. The recommendations presented in this report are suggestions for how the region could work towards those goals and objectives, based on best available information and current understandings.

The information, projections and estimates in this report are based upon publicly available data and have been prepared using generally accepted methodologies and formulas. The projections and needs presented in this report are based upon best estimates using the available data. It is important to note that currently available information and understandings are incomplete and cannot account for the inevitable, but unpredictable, impacts of unexpected global, national, state, and/or local events. Actual results and needs may differ significantly from the projections of this report due to such unforeseen factors and conditions, as well as inaccuracy of available data, and/or factors and conditions not within the scope of this project. Persons using this information to make business and financial decisions are cautioned to examine the available data for themselves and not to rely solely on this report.

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Chapter 10: Land Use Planning

Patterns of settlement greatly influence the human impact on the natural environment. Land use planners consider these impacts, and study the connections among people, their built environment, and the land. Planners evaluate how land use decisions in one area might have implications for other locations. For example, Fort Bragg, because of BRAC-mandated actions, will become an economic ‘engine’, creating new jobs, businesses, and housing arising from the establishment of a military and homeland security-related industry sector. However, Fort Bragg lies within the endangered Longleaf Pine eco-region, and both the forest and the Fort remain vulnerable to encroachment by incompatible land uses. How can the region benefit from the growth at Fort Bragg, while at the same time preserving the longleaf pine ecosystem and protecting the integrity of the military installation? Planners view these oft-times conflicting objectives through a comprehensive lens. When problems are viewed as separate and unrelated, solutions tend to be piecemeal or short term. Planners understand that the region’s land uses - farms, forests, downtowns, suburbs, industrial areas, natural resources, and Fort Bragg itself - are inextricably linked, and dealing with the challenges facing each will require an integrative approach to regional planning. A planning and development model based upon land suitability is the recommended method for this approach, which will require an unprecedented level of collaboration among local governments, public agencies, and the private sector. If directed, the region’s professional planners can take a lead role in building these relationships.

The way we plan the physical layout, or land use, of our communities is fundamental to sustainability. Patterns of human development strongly affect sustainability, and land use planning is the primary means through which communities determine how, where, and when development occurs.

The American Planning Association¹ has found that current growth in urban and suburban land use far exceeds the population growth in many major metropolitan centers in the United States, and that this trend has resulted in increased costs for public services, the decline of central cities, increased vehicle miles traveled and emissions of carbon dioxide, the destruction of farmland and open space, and arguably a loss of community. In addition, planning and public health professionals increasingly recognize that there is a connection between the prevailing pattern of land development and numerous public health concerns, including childhood obesity.²

1. American Planning Association (2000) Policy Guide on Planning for Sustainability. (<http://www.planning.org/policyguides/sustainability.htm>)

2. Frumkin, H., Frank, L., and R. Jackson. 2004. Urban Sprawl and Public Health: Designing, Planning and Building for Health Communities. Island Press, Washington, DC.

According to the American Planning Association,³ two main features of our land use practices over the past several decades have converged to generate haphazard, inefficient, and unsustainable development sprawl – zoning regulations that separate housing, jobs, and shopping, and low density development that requires the use of the car.

Just as land use planning has contributed to growing challenges, it can be a crucial tool in moving the Fort Bragg region towards a more prosperous and sustainable future. As Sustainable Sandhills⁴ has suggested, a coordinated approach to economic development and cultural and natural resource preservation and enhancement is needed to maintain and improve the quality of life in the region.

Natural areas and other undeveloped lands are important contributors to the capacity of the region to prosper and support a high quality of life. They form the region’s *green infrastructure*. Green infrastructure is defined as “an interconnected network of natural lands and other open spaces that conserves natural

3. American Planning Association (2000) Policy Guide on Planning for Sustainability. (<http://www.planning.org/policyguides/sustainability.htm>)

4. <http://www.sustainablesandhills.org/>

ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife. Used in this context, green infrastructure is the ecological framework for environmental, social, and economic health – in short, our natural life-support system.”⁵ An approach to land use planning that emphasizes conservation of green infrastructure on a regional scale can pay dividends in the form of reduced costs for public services. In addition to their beauty and recreational value, these undeveloped lands perform valuable functions that would be prohibitively costly to replace with human-engineered substitutes. For example, forest and wetland vegetation is highly effective at removing pollutants from water, reducing the need for expensive water treatment plants to make our drinking water safe to consume.

Included among the established objectives of the BRAC Regional Task Force are: to ascertain requirements for maintaining a well-functioning green infrastructure and conserving the region’s natural resources and working lands, farms and forests; to ensure that land uses near Fort Bragg and Pope Air Force Base are compatible with military operations and training; to preserve and enhance the unique, globally-recognized Sandhills longleaf pine ecosystem; and to establish a framework for launching the region toward sustainable growth and development. These objectives derive from an understanding that land use and development patterns have enormous impacts on the responsibilities of local governments in services as diverse as road construction, water and wastewater infrastructure, installation and maintenance, environmental protection, school construction, public safety, and taxation.

Unlike the other sections of this report, this chapter was developed by BRAC Regional Task Force staff and other stakeholders rather than by Training and Development, Inc. The content is based upon nearly eighteen months of interviews, discussions, and correspondence with hundreds of people, including government and military officials, consultants, business executives, community organizers, artists,

5. Benedict, M. A., and McMahon, E. T. (2006) *Green Infrastructure: Linking Landscapes and Communities*. Island Press, p. 1.

educators, merchants, farmers, and citizens from every walk of life. The recommendations presented in this report draw on independent research conducted by the Fort Bragg / Pope Air Force Base Regional Land Use Advisory Commission (RLUAC). In addition, the Sustainable Sandhills Land Use Team served as a forum through which the region’s planners, geographers, conservationists, economic developers, and other professionals, both civilian and military, shared their knowledge and their vision of the region’s future.

A. Current Conditions

1. Planning Capacity

Presently, ten of the region’s eleven counties have planning departments. In Scotland County, the County Engineer also serves as the County Planner. Hoke County’s Planning Director position has been vacant since November, 2007.

Eighteen of the region’s seventy-three incorporated municipalities have a planner on staff.⁶ In Harnett County, Lillington has recently hired its first Town Planner, and the Town of Angier contracts for planning services from a private sector firm. Lee and Sampson County have consolidated county/city planning departments.

While the region possesses a capable and dedicated cadre of planners, the lack of planning capacity is of particular concern. Only the more populous counties and municipalities (i.e., Cumberland, Moore, and Harnett) have staff dedicated to long-range or strategic planning. Some counties have a single Planner on their staff, and in some municipalities, these Planners perform multiple functions. County and municipal planning functions in these areas can be augmented by professional planning staff from the Lumber River, Piedmont Triad, Triangle J, and Mid-Carolina Councils of Government, and the NC Division of Community Assistance.

6. Based on scan of municipal staff directories where a position lists ‘planner’ or ‘planning’ in its title; therefore other staff (town manager, building inspector, code enforcement officer, etc.) that may perform one or more functions of land planning may not be included in this estimate.

Zoning and permitting regulations vary greatly across the region. Regional-level planning efforts (beyond the Joint Land Use Study) are in their infancy; however, the Sustainable Sandhills Land Use Team recently started a project to compare the zoning regulations and land use plans of each county to demonstrate the need to consider events and conditions beyond individual jurisdictional boundaries when making planning decisions.

B. Land Use Patterns

1. Farmland and Forests

Farmland and forests are being converted to residential development at a high rate in the Fort Bragg region, although not at as high a rate as the Triangle area. A study looking at changes in land cover (vegetation) in the area between 1995-2000⁷ found that the largest change was an increase in the amount of Bare Land, primarily due to clearing of Forested Land; Bare Land increased by 52,560 acres (21,270 hectares) while Forested Land decreased by a

total of 25,904 acres (10,483 hectares), out of a total of 1,306,945 acres (528,902 hectares).

Over the past decade, the number of farms and the amount of land being farmed has decreased across most of the Fort Bragg region and in the state as a whole, while the estimated market value of the land has risen (**Table 1**). The loss of farmland has been greatest in Cumberland and Montgomery Counties, with Hoke, Moore, and Richmond Counties also losing farmland. There has been an increase in the amount of land being farmed in Bladen, Sampson, and Scotland Counties. The estimated market value of farms has increased throughout the region and in the state as a whole. A greater increase in land values than in farm values indicates areas where farmland is particularly under pressure from development; Table 1 shows that this has occurred in Cumberland, Richmond, Montgomery, and Scotland Counties.

2. Compatible Use Adjacent to Fort Bragg

Residential and commercial development patterns surrounding Fort Bragg are largely incompatible with the installation’s mission and pose a threat to public safety and livability, potentially exposing residents to artillery fire, aircraft noise, dust, and accidents.

7. Cheshire, H. M., 2005. Habitat Change Analysis using Landsat TM: Final Report. Submitted to USGS Biological Resources Division, NC Cooperative Fish & Wildlife Research Unit. The study area included half or more of Moore, Hoke, Richmond, and Scotland Counties, and large parts of Cumberland, Harnett, Montgomery, and Anson Counties.

Table 1. 2002 values, stated as a percentage of 1997 values, for the number and acreage of farms, and the estimated market value of farms in the Fort Bragg Region.

Red arrows indicate a decrease from 1997 to 2002, and green arrows indicate an increase. Red text indicates values that are lower than for the state as a whole, and green text indicates values higher than for the state as a whole.

* Estimated market value of land and buildings, based on a sample of farms
Source: http://www.nass.usda.gov/census/census02/volume1/nc/st37_2_008_008.pdf

	Number of farms	Land in farms	Average size of farm	Estimated market value/acre*	Estimated market value/farm*
NC	0.91 ↓	0.96 ↓	1.05 ↑	1.45 ↑	1.48 ↑
Cumberland	0.89 ↓	0.85 ↓	0.96 ↓	1.13 ↑	1.06 ↑
Harnett	0.99 ↓	0.97 ↓	0.99 ↓	1.36 ↑	1.37 ↑
Hoke	1.01 ↑	0.91 ↓	0.91 ↓	1.70 ↑	1.69 ↑
Lee	0.80 ↓	0.96 ↓	1.20 ↑	1.01 ↑	1.14 ↑
Moore	0.98 ↓	0.95 ↓	0.97 ↓	1.38 ↑	1.36 ↑
Richmond	0.87 ↓	0.91 ↓	1.04 ↑	1.64 ↑	1.41 ↑
Robeson	0.72 ↓	0.99 ↓	1.37 ↑	1.42 ↑	1.95 ↑
Bladen	0.86 ↓	1.12 ↑	1.29 ↑	1.90 ↑	2.73 ↑
Montgomery	0.94 ↑	0.89 ↓	0.84 ↓	2.11 ↑	1.40 ↑
Sampson	0.91 ↓	1.10 ↑	1.21 ↑	1.56 ↑	1.70 ↑
Scotland	1.10 ↑	1.09 ↑	0.99 ↓	1.85 ↑	1.57 ↑

Joint Land Use Studies (JLUS) conducted by the Fort Bragg / Pope Air Force Base Regional Land Use Advisory Commission (RLUAC)⁸ have found that the most notable examples of encroachment adjacent to Fort Bragg have occurred in Cumberland County as a result of the expanding populations of Spring Lake and Fayetteville. This infringement has not created much of a problem for the base because the military cantonment (or built area) is located at the eastern edge of the military reservation. However, development pressure has been growing in Harnett County and along the southern boundary of the base in Hoke County, largely in anticipation of military-related growth. Residential development near the base in these areas could negatively impact training activities at Fort Bragg. If encroachment is not effectively controlled, it could ultimately lead to the closing of the installation and the relocation of its training missions.⁹

In order to preempt potential encroachment, Fort Bragg has been working with organizations such as The Nature Conservancy, the Sandhills Area Land Trust, and North Carolina's Clean Water Management and Natural Heritage Trust Funds to conserve natural lands, forests, and farmland. Since 2003 nearly 6,000 acres of land identified in the JLUS as "critically important" have been permanently protected. Following enactment of Session Law 2004-75 "*An Act to Require Counties and Cities Near Military Bases to Give Notice of the Land Use Planning Changes to the Military Bases,*" the RLUAC began a program to review and comment on the appropriateness of proposed rezoning requests and subdivisions on land within five miles of Fort Bragg, Pope Air Force Base, and Camp Mackall. Since the summer of 2006, participating member governments, which include Cumberland, Harnett, Hoke, and Scotland Counties, have regularly submitted their requests to the RLUAC staff for a non-binding review

and recommendations. Fort Bragg has recently contracted with the RLUAC to conduct a review and to make non-binding recommendations concerning all rezoning requests and subdivisions proposed for the five mile boundary surrounding the post.

3. Ecosystem Fragmentation

The accelerating development of farmland and forests is fragmenting the Sandhills' unique longleaf pine ecosystem, threatening the survival of this once widespread system that helped to shape the history and character of the region. Through an innovative partnership between Fort Bragg and the conservation community, a recovery program was developed for the Red-Cockaded Woodpecker (RCW), an endangered species whose condition is indicative of the health of the longleaf pine ecosystem. This innovative program is considered a model for military-community cooperation, and it represents one of the 'success stories' of the Endangered Species Act: the red-cockaded woodpecker was declared 'recovered' in the North Carolina Sandhills by the US Fish and Wildlife Service in 2006.¹⁰ However, many other threatened species are at risk in the region, an indication of the fragile state of the region's important ecosystems.

4. Infill Development

The closing of textile mills and other industries in the region over the past two decades has left behind unused industrial properties. Some of these properties may qualify as *brownfields*, defined as abandoned or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contaminations. Abandoned industrial facilities within many small towns in the region could lower local property values and reduce the perceived attractiveness of the communities as places to live and work. The redevelopment of brownfield sites presents a formidable challenge for local developers and their communities because of the presence of contaminants and pollutants; however,

8. The full text of the 2008 Draft JLUS can be downloaded at: <http://www.rluac.com/projects.html>

9. Lachman, B., Wong, A., and S. Resatar. (2007) *The Thin Green Line: An Assessment of DoD's Readiness And Environmental Protection Initiative To Buffer Installation Encroachment*. RAND National Defense Research Institute, Washington, DC, p. 14.

10. "Fort Bragg Marks Recovery of Woodpecker". The Nature Conservancy in North Carolina, 2006 <http://www.nature.org/wherework/northamerica/states/northcarolina/press/press2500.html>

resources are available to aid communities in remediating and redeveloping these sites. Brownfield redevelopment is a key element in revitalizing downtowns and taking advantage of ‘infill’ development opportunities. A comprehensive survey of potential brownfield sites has not been conducted for the region, and southeastern North Carolina appears to be underrepresented in participating in the State’s brownfield remediation program.¹¹

Downtown revitalization, which can go hand-in-hand with an infill development strategy, has been achieved to varying degrees by municipalities throughout the region. The major successes – downtown Fayetteville and Southern Pines, among others – are overshadowed by the lack of progress in other communities. Ironically, many of these communities possess the essential physical attributes for successful revitalization in the ‘neotraditional’ or New Urbanism model: historic architecture within the downtown core containing a mix of land uses, residential areas built upon a grid street system with diverse housing stock, walkability, and the potential for future passenger rail access. These assets could be better capitalized through participation in programs like the North Carolina Main Street Program. North Carolina Main Street has been nationally recognized for its success in revitalizing downtowns in many of the state’s smaller municipalities. However, the central southeastern region of North Carolina has lagged behind in the numbers of participating communities.

C. Future Needs

As the region experiences population growth and economic development resulting from the growth at Fort Bragg, there will be increasing development pressure on the region’s natural lands, farmland, and working forests. Development pressure will be felt across the region, and is expected to be greatest in Cumberland, Harnett, Hoke, and Moore Counties.¹²

In the absence of long-term, integrative regional

11. Project Inventory, 9/30/2007, NC Brownfields Program, NC Division of Waste Management (<http://www.ncbrownfields.org>)

12. The expected growth in the K-12 student population is a proxy for development pressure, as it indicates areas in which the population is expected to increase. Each County chapter of this report contains a map showing how the expected growth in the K-12 student population will be distributed throughout the county.

planning, this development has the potential to cause irreversible damage to the region’s green infrastructure, and to alter the character and culture of the region in undesirable ways. In addition, development which negatively impacts the ability of Fort Bragg to achieve its mission has large potential negative impacts on the region’s economy. Actions need to be taken now to preserve the installation’s training and operations capability.

Among the impacts of ‘incompatible’ development is ambient light encroachment, described in the RLUAC report *Light Pollution in the Fort Bragg Region of North Carolina*. The Joint Land Use Study (JLUS) recognized the growing issue of ambient light encroachment and its potentially negative impact on the future integrity of Fort Bragg as a viable military training facility and on the region as a whole. Fortunately, according to the report,¹³ this impact can be relatively easily and quickly mitigated, and the JLUS report offers practical suggestions for mitigation actions.

In order to assist the region in achieving more positive outcomes, Sustainable Sandhills has developed a detailed land-use suitability model (LSM) for the eleven county Fort Bragg region. This work was funded by a major grant from the federal Environmental Protection Agency and assisted by the North Carolina Center for Geographic and Information Analysis (CGIA). The LSM is a decision support tool designed for use by elected officials, planners, developers, and property owners to assist with their important land development decisions. The model identifies areas within the region that are most suitable for residential, commercial, industrial, conservation, working farmlands, and managed forests.¹⁴ The current version of the LSM was presented to the region’s planners on September 14, 2007 in Pinehurst, NC.

Of particular interest with regards to regional planning are areas that are suitable for both developed

13. See <http://www.bractrf.com/documents/LightPollutionStudy.pdf>

14. Information about the growth suitability model and access to growth suitability maps can be found at the Sustainable Sandhills website (<http://www.sustainablesandhills.org/>). The LSM is derived from the Land Use Conflict Identification Strategy (LUCIS) a form of GIS suitability modeling developed at the University of Florida.

and undeveloped land uses. Termed ‘areas of competing values’ by LSM developer Jeff Brown of NC CGIA, these areas provide a useful starting point for community discussions on growth suitability, resource protection, and urban form.

Another growing challenge that the region is facing is the need to deal with air quality issues related to motor vehicles. Air quality issues were brought to the attention of the region’s planners when Cumberland County was designated by the Environmental Protection Agency as a non-attainment deferred area for the ground-level ozone in 2002. Ground-level ozone is formed when pollutants emitted from motor vehicles and industrial sources react chemically with NO₂ in the presence of sunlight. Unlike ozone in the upper atmosphere, ground-level ozone is a health hazard. Breathing ozone can trigger a variety of respiratory health problems, and can worsen bronchitis, emphysema, and asthma.¹⁵ Children and the elderly are particularly vulnerable. Even in otherwise healthy people, repeated exposure may permanently scar lung tissue.

In response to the EPA’s non-attainment decision, Cumberland County formed the Air Quality Stakeholders Group, a consortium of local government agencies, non-profit organizations, businesses, and citizens to develop a plan for reducing ground-level ozone levels. Currently, the Fayetteville Area Metropolitan Planning Organization (FAMPO) staff is implementing an Early Action Compact¹⁶ to address and prevent high ozone levels in Cumberland County. In order to maintain attainment status, they are required to submit a Bi-Annual Progress Report¹⁷ to EPA, which outlines the progress made towards attaining permissible ozone standards.

Mobile sources, mainly emissions from cars and trucks, are the major contributor to ground-level

ozone in the Fort Bragg region. Significant progress has been made (the region has met ozone standards for last three years¹⁸), but air quality could worsen as the region’s population (and number of vehicles) increases. Reduction in vehicle miles traveled (VMT) needs to be a focus of regional transportation planning.

D. Gaps

1. Planning

The Fort Bragg region is facing important challenges and opportunities that cross municipal and county boundaries. There is a need for municipalities and counties to cooperate in integrative regional planning, and mechanisms are needed to incorporate agreed-upon regional priorities and goals into local zoning ordinances and planning processes. However, much of the region lacks sufficient planning staff and other resources to conduct long-term strategic planning, and thus cannot effectively participate in a region-wide cooperative effort. Local planning capacity needs to be enhanced in order for the region as a whole to achieve its sustainable development objectives.

Many regional planners have come to favor a *center-corridor-wedge* (CCW) approach in deciding what uses are appropriate for different areas.¹⁹ *Centers*, or nodes, typically represent urban centers of sufficient density to concentrate a mix of development types (commercial, retail, office, light industrial), centralize public facilities, enable a diversity of housing, and support multi-modal transportation, especially regional rapid transit. *Corridors* generally follow transportation arterials (rail or highways) that emanate from the Center. *Wedges* refer to the expanses of land between corridors, where population densities decrease as a function of distance from the center. A center-corridor-wedge model is particularly well suited to the Fort Bragg region due to the existing network of Interstate, State and U.S. Highways, railroad, and population centers. Small towns

15. <http://www.epa.gov/groundlevelozone/health.html>

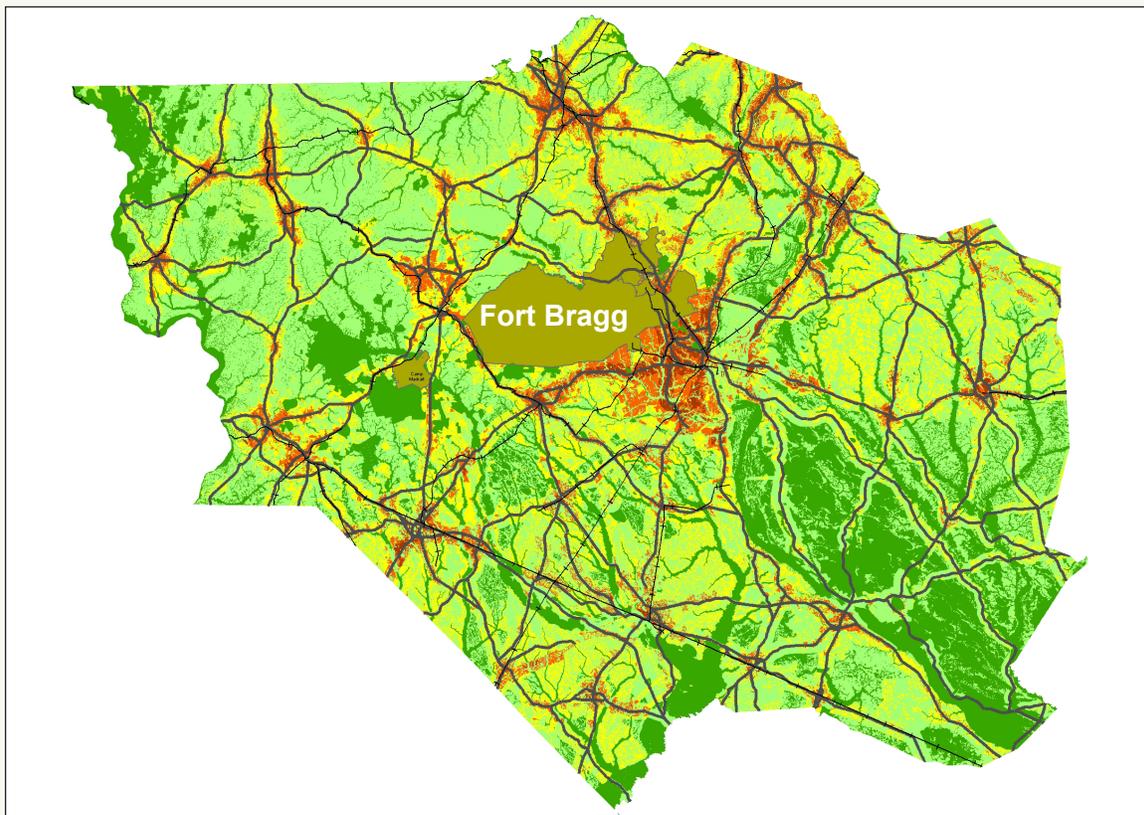
16. The Early Action Compact (see http://www.epa.gov/ttn/naaqs/ozone/eac/eac_r4.htm#NC_Fayetteville) is a Memorandum of Agreement between Cumberland County, the NC Department of Environment and Natural Resources and the USEPA that gives the local area the flexibility to develop its own approach to meeting the 8-hour ozone standard, provided the community controls emissions from local sources earlier than the Clean Air Act would otherwise require (see <http://www.fampo.org/PDF/OzonePress.pdf>).

17. See report at http://www.fampo.org/PDF/Bi-Annual_Progress.pdf

18. Bi-Annual Progress Report of the Early Action Compact, Fayetteville MSA (see http://www.fampo.org/PDF/Bi-Annual_Progress.pdf)

19. For an in-depth discussion of the Center-Corridor-Wedge model, see <http://www.bractrf.com/documents/PlanningModelfortheFortBraggRegion.pdf>

Figure 1. Prototype for Center-Corridor-Wedge Regional Planning Model based on Land Use Suitability Model developed by NC CGIA by Sustainable Sandhills



(centers), commonly located at the intersection of highways and/or railroads (corridors), are where the highest densities of population and built infrastructure are congregated. Wedges (represented in **Figure 1** in varying shades of green) represent the largely rural areas of the region where agriculture, forestry, and scattered residential communities are the predominant land use. Wedges also contain the greatest expanse of the region’s natural resources.

This model can serve as the basis for a cooperative regional planning process, with individual county and municipal planners and decision makers using it as a guide for local plans. The region’s centers and many of its corridors are already configured for sustainable growth, with “hard infrastructure” (water and sewer lines, road network, etc.) that serve relatively compact areas as well as distinctive, human-scaled urban neighborhoods in proximity to natural resources and agricultural lands. Collective use of the model can help the region’s planners to maintain this desirable

configuration while facilitating re-development and shaping expansion of the region’s infrastructure, a critical building block of rural economic development.²⁰ In their present form, the region’s centers are well-positioned for new development based on Smart Growth Principles.²¹

Regional cooperation among local planners could assist local jurisdictions in making more effective use of limited resources, and can enhance the region’s ability to obtain additional resources. Such cooperation would have positive impacts well beyond land use planning. For example, sharing of knowledge and expertise could enhance each jurisdiction’s ability to conduct coordinated decision making about public investments in infrastructure, schools, and the entire of range of services that

20. “The Building Blocks of Community Development” 2002, MDC, Inc., Chapel Hill, NC. (See http://www.mdcinc.org/docs/building_blocks.pdf)

21. From: The Smart Growth Network: Ten Principles (see <http://www.smartgrowth.org/about/principles/default.asp>)

local governments provide. Counterproductive decisions and costly duplication of effort can be avoided if county school system administrators, transportation agencies, public health providers, parks and recreation professionals, city public works departments, and others work together to coordinate capital facilities planning with land development. Proponents assert that this approach can introduce sustainable business practices, spur investment and entrepreneurship, provide jobs for local citizens, foster ‘social cohesion’, propel markets and opportunities for farmers to diversify, keep agricultural and forestry land in production, and help preserve native ecosystems, local traditions, and historic architecture in both rural and urban communities.²²

The ‘Smart Schools’ movement²³ is an increasingly common example of integrative capital improvements planning as a regional planning strategy for sustainable growth. This application involves centralization of public infrastructure investments around public schools, creating community centers in both urban and rural areas. Changes to building and development codes are commonly required to permit the design elements and new practices needed to achieve health, resource conservation, and social interaction goals.

2. Green Infrastructure, Agriculture, and Tourism,

The region’s green infrastructure – the interconnected network of undeveloped land –serves a number of very important functions in the region, and contributes significantly to the region’s quality of life. Forests and fields remove toxic materials from the air and water, as well as providing food, wood products, and recreational opportunities for the region’s residents and visitors. Undeveloped lands provide a necessary buffer between mission-critical activities on Fort Bragg and residential areas. Safeguarding these valuable functions depends not only on the amount of undeveloped land, but also on how that land is distributed across the landscape. It is important to maintain the critical connections (corridors) between the patches of land with particularly high value for

things like wildlife habitat, stormwater management and groundwater recharge.

Planning and management of the region’s green infrastructure will require both the appropriate tools and the commitment of local jurisdictions to cooperate in regional planning efforts. The Sustainable Sandhills Land Suitability Model provides a useful tool, and should be incorporated more extensively into local planning processes. Sustainable Sandhills has begun the process of informing local jurisdictions of the needs and possibilities, but additional resources are needed.

A healthy and fully functional green infrastructure requires a contiguous and interconnected system of undeveloped lands. It is not economically feasible to purchase and permanently preserve such vast acreages land; therefore, conservation of the region’s green infrastructure will require economic incentives that can counter development pressures. Incentive strategies that could be applied in the region are (1) enhancement of the economic returns for agricultural products, and (2) development of an eco-tourism industry in the region.

Agriculture can and should play an important role in the region’s future. By integrating green infrastructure concepts into county or municipal land use planning, communities can steer new growth into those areas most suited for it, maximizing their infrastructure investments. New growth, in turn, can enable farmers and supporting businesses to capture a larger share of the local food dollar, strengthening the local agricultural economy and addressing growing concerns about consumer health, food safety, and reducing our dependence of foreign goods and commodities. The burgeoning ‘Buy Local’ movement provides a window of opportunity for the region’s communities to leverage military-related growth into a greater diversification of the economy while addressing a host of other growth-related issues and concerns.

The public and fiscal benefits from a healthy agricultural economy are now generally accepted by planners and public administrators. Research into the cost of public services in five North Carolina counties has determined that residential properties actually

22. Smart Growth and Schools, USEPA (See <http://www.epa.gov/dced/schools.htm>)

23. <http://www.smart-schools.org/>

cost each county more in needed services than they provide in revenue, while farm and forest landowners pay more than their fair share of taxes.²⁴ Farms typically demand much less of county and municipal services than the equivalent acreage of a residential subdivision. New housing developments, especially low-density, large-lot subdivisions distributed across broad swaths of land, require much greater investments of public funds for new infrastructure and services.

Tourism is one of NC's fastest growing industries, and the Fort Bragg region is blessed with a wealth of tourism assets. The region is rich in unique heritage and cultural themes. The area is home to the Lumbee Tribe, the largest Native American population in the eastern U.S., and there is a rich fabric of the African-American experience in the region focused on agriculture and entrepreneurship. The region is also notable for the early settlement of the area by Highland Scots, the Home of American Golf in Moore County; and the Sand Hill Board of Trade's prominence in the early 20th Century "Country Life" movement. The region is recognized nationally for the potters of the Seagrove community. Performance and visual arts thrive at all scales in communities across the region. The military's imprint on the region is an overarching theme that includes threads from Revolutionary War battles to the valiant exploits of the Army's 'All American' 82nd Airborne Division.

Ecotourism assets abound and include the rare and threatened Sandhills Longleaf Pine ecosystem, the Cape Fear River, the Carolina Bay Lakes, the Uwharrie Mountain range, and the Lumber River a designated wild and scenic river. These assets and access to them are under-publicized, and would benefit from a coordinated regional tourism initiative.

The region has not fully capitalized on these assets, despite the advantages of Fort Bragg's rotating population, interstate highway access, and the growing interest in exploring local attractions due to the rising cost of automobile and air transportation. While there are several sophisticated tourism programs in the region, most efforts are not

coordinated and in many cases compete with, instead of complimenting each other.

Agritourism is another industry segment that can expand within the region. Moore, Montgomery, and Richmond Counties are members of the Sandhills Agricultural Tourism Board. Agritourism figures prominently in the Regional Agriculture Sustainability Program (RASP) initiated by BRAC Regional Task Force in 2007, as well as the Working Lands Protection Strategy funded by a grant from the North Carolina Agricultural Development and Farmland Preservation Trust Fund.

24. See Farmland Information Center fact sheet, "Cost of Community Services" (Northampton, Mass.: American Farmland Trust, 2006), http://www.farmlandinfo.org/farmland_preservation_literature/index.cfm?function=article_view&articleID=31721.

E. Recommended Actions

Critical Action RP- I: Develop a coordinated, regional growth management strategy.

The Region should build upon the previous efforts of Fort Bragg and surrounding communities to preserve the mission operability of the installation through a concerted Growth Planning and Management strategy. The Strategy will encompass a range of ‘best practices’ which may include but are not limited to: revisions to a county or municipal comprehensive plan, traditional land use and development controls, e.g., zoning ordinances and subdivision regulations, structural height restrictions, design standards, and the promotion of planned development concepts. The Regional Land-Use Suitability Model developed by Sustainable Sandhills will provide the conceptual basis for the strategy.

The BRAC Regional Task Force, in cooperation with Sustainable Sandhills, will initiate a thorough review of local land use plans and zoning regulations to reflect the findings of the Land Use Suitability Model. Concurrently, the BRAC Regional Task Force will coordinate with local governments to provide training workshops that demonstrate the utility of the model in land-use decision-making. This training will be designed to help landowners, developers, planners and other stakeholders involved in the design and submittal of new development plans to better understand and fully utilize the suitability model prior to plan submittal.

Other actions toward a coordinated growth management strategy may include amending local building codes to require increased sound attenuation in existing and new buildings, land exchanges, transfer of development rights, and real estate disclosure requirements, as recommended in the 2008 Joint Land Use Study (JLUS).

Community involvement in regional planning efforts will be a major emphasis, particularly with owners of properties deemed ‘critical’ as defined in the 2008 JLUS. The BRAC Regional Task Force will engage with RLUAC, Fort Bragg, Sandhills Conservation Partnership, and other stakeholders to conduct public educational forums and workshops through previously established ‘landowner councils.’ In addition to traditional land use and development controls, voluntary, incentive-based measures and economic opportunities arising through BRAC Regional Task Force’s working lands protection initiatives will also be leveraged toward acquisition of critical parcels identified in the JLUS. This unified and cohesive approach to protecting land around the installation will tie together several parallel efforts in land planning, growth management, and land preservation, including the Readiness and Environmental Protection Initiative (REPI), the Army Compatible Use Buffers program (ACUB), the

Southeastern Partnership for Planning and Sustainability (SERPPAS), the Strategic Sustainability Assessment (SSA) and others.

Critical to the success of a coordinated, regional growth management strategy is to solidify the role of agriculture in municipal, county and regional land-use decision-making processes. Toward this end, as proposed to the NC Agricultural Development and Farmland Preservation Trust Fund, The BRAC Regional Task Force will coordinate and provide oversight as each county prepares a Working Lands Protection Plan as an element of their local comprehensive planning effort. Each county plan will include draft ordinance language and procedures for establishing Voluntary Agricultural Districts (or ‘enhanced’ districts, if Voluntary Agricultural Districts already exist). The plans will also outline the development of sustainable agriculture or forestry ‘pilot projects’ as exemplars for meeting the growing demand for locally-produced commodities, provisioning the military installations, and ensuring a sustainable food supply. The BRAC Regional Task Force, in conjunction with its County partners, will integrate this planning effort with the ongoing Regional Agriculture Sustainability Program (RASP) and coordinate efforts to acquire additional funding.

Optimizing the use of land is an essential element of a growth management strategy. Toward this goal, BRAC Regional Task Force will work in collaboration with its member counties, other regional partners, and a qualified consultant to develop a Strategic Lands Inventory for the Fort Bragg region.

The BRAC Regional Task Force will contract with a qualified consultant or team to delineate a strategically-planned and managed network of open spaces, working lands, parks, greenways, and conservation easements that help ensure compatible land uses around and near the Installation (the region’s economic engine) and contribute to the health and quality of life for the Fort Bragg region’s communities and people. This inventory of the regional ‘green infrastructure’ will help communities meet the goals and objectives of the JLUS and will facilitate the management and/or acquisition of critical ‘compatible use’ areas.

The inventory also includes a regional analysis of land supply. This analysis will determine the areal extent of vacant and under-developed sites within existing urban service areas, and propose a regional ‘infill’ redevelopment strategy. The outcome of this effort would give the region’s communities a planning tool and re-development framework from which to pursue more detailed planning and funding to develop, re-develop, rehabilitate, and ultimately reuse vacant, under-utilized, or contaminated Brownfield sites. When implemented, this strategy can create reinvestment, jobs, and infill development opportunities in areas where water and sewer infrastructure is readily available.

The land supply analysis will also assess the potential negative economic impact of incompatible development in the ‘critical’ and ‘important’ areas surrounding Fort Bragg.

The BRAC Regional Task Force will (1) coordinate with its regional partners and use the Land Use Suitability Model as a basis for preparing the Strategic Land Inventory; and, (2) coordinate a regional proposal to obtain grants from various NC Trust Funds to help acquire critical lands to ensure the long-term sustainability of Fort Bragg.

As stated previously, a central objective of the CRGP is to advance sustainable development in the region. BRAC Regional Task Force will leverage its established collaborations, including those of the All-American Center for Workforce Innovation and Sustainable Fort Bragg, to facilitate region-wide efforts to identify the most effective ways of integrating sustainability into decision making and practice at federal, state, and local governance scales. The BRAC Regional Task Force will expand upon its working relationships with North Carolina State University, Sustainable Fort Bragg, US Army Installations Management Command, and other agencies to formulate a system of measurement, analysis, and implementation of sustainable practices suitable for federal, state, and municipal agencies.

Critical Action RP-2: Conduct further investigations on the impact of ambient light encroachment and telecommunications towers on military training operations.

The Region should build upon the previous studies of RLUAC that surveyed and provided mitigation recommendations in two critical topical areas. The study Light Pollution in the Fort Bragg Region of North Carolina considered ambient light encroachment upon the night sky at Fort Bragg. A second report, Telecommunications Tower Study, Fort Bragg Region, inventoried telecommunications towers within the JLUS study area. The CRGP cited these studies and recommended that the action items in both be implemented as part of BRAC Regional Task Force’s follow-on implementation strategy. BRAC Regional Task Force will engage qualified consultants to conduct further investigations on the impact of ambient light encroachment and telecom towers on military training operations to: (1) determine the most problematic sources and locations of light pollution and towers; (2) assess the impact of these sources on night training standards and flight patterns; (3) recommend specific mitigation actions at the source or location of these impediments; (4) recommend changes in military and training operations if mitigation measures are not feasible, and (5) evaluate the impact to the overall training mission, such as potential losses in readiness and operability, and provide recommendations for alleviating the impact.

Critical Action RP-3: Derive new geospatial datasets based on data generated during the development of the Comprehensive Regional Assessment.

The BRAC Regional Task Force will contract with a geographic information systems (GIS) specialist to derive new geospatial datasets based on data generated during the development of the Comprehensive Regional Growth Plan, including population projections, economic growth, and locations of school-aged populations. This effort will build upon the Land Use Suitability Model and incorporate the findings of the CRGP. These datasets will enable local government land planners to provide growth projections and deliver optimal, ‘smart’ land use recommendations to decision makers. The contractor will also prepare a ‘needs analysis’ to determine shortfalls in seamless regional GIS capability.

Critical Action RP-4: Develop a ‘School-Centered Community’ pilot project in a high-impact Tier One county as an exemplar for the region.

BRAC Regional Task Force will coordinate with Tier One County School Superintendents and facilities planners, county and municipal staff, the Center for Sustainable Community Design at UNC Chapel Hill, and the Operations Research/Education Laboratory at NC State University to develop a conceptual framework and scope of work for the design of a school-centered community or ‘smart school’. BRAC Regional Task Force will take the lead role in crafting a Request for Proposals for this project, which will integrate infrastructure, land planning, and urban design for human-scaled, mixed use communities that implement Smart Growth Principles from conception. The project scope will include development of a public-private partnership and financing strategies.

Critical Action RP-5: Design and conduct a process evaluation of the comprehensive regional planning process conducted by the BRAC Regional Task Force and TDA, Inc.

Successful regional transformation is a social process through which key stakeholders experience shifts in perspectives, awareness, relationships, and capacity. Social scientists refer to this process as community readiness and capacity for change. The BRAC Regional Task Force will work cooperatively with researchers at NC State University to establish a system to monitor readiness and capacity for change among the region’s stakeholders and to evaluate the extent to which the BRAC Regional Task Force’s efforts have been effective at fostering this readiness. This process evaluation will provide two major benefits to the BRAC Regional Task Force: (1) provide feedback

designed to enable organizational learning and improve performance; and (2) demonstrate the effectiveness of efforts to date in order to gain support from key partners for future efforts. In addition, it can be used to develop “lessons learned” that can be readily adapted to BRAC Growth Communities elsewhere, providing a model for both BRAC and regional sustainability programs across the nation.

Critical Action RP-6: Develop ‘Guide for Integrated Capital Investment Planning’ to integrate infrastructure planning with future land use predictions.

The BRAC Regional Task Force will work corroboratively with county and municipal governments and a consultant to develop the guide, which will provide a template for the region’s local governments to initiate integrated capital planning. The guide will be used to: (1) direct growth and development toward areas that have adequate availability and capacity of water and sewer infrastructure to support proposed development densities and uses; and (2) allow county or municipal staff to provide guidance to the development community during the conceptual design stages of any proposed development. The guide will benefit other development-related efforts including delineation of urban service areas, capital project budgeting, school system growth, and transportation planning. This OEA-funded guide will be a model for other BRAC growth communities to utilize.

Critical Action RP-7: Assess the requirements for Fort Bragg and the Region to achieve energy self-sufficiency.

In the event of a national emergency, large segments of the U.S. electrical power grid could become disabled. Fort Bragg, like other DoD installations, is almost completely dependent on electricity from the national grid to power critical missions at fixed installations and on petroleum to sustain combat training and operations. Both sources of energy and their distribution systems are susceptible to damage from extreme weather. One approach to securing energy supplies to DoD installations involves a combination of applying energy efficiency technologies to reduce the critical load (more mission, less energy); deploying renewable energy sources; and “islanding” the installation from the national grid. Islanding allows power generated on the installations to flow two ways—onto the grid when there is excess production and from the grid when the load exceeds local generation. By pursuing these actions to improve resiliency of mission, DoD would become an early adopter of technologies that would help transform the grid, reduce our load, and expand the use of renewable energy. BRAC Regional Task Force will engage with a qualified energy consultant to: (1) measure the energy outputs (fuel for vehicles and power generation, electric power requirements) of the

Installation; (2) estimate the capacity of the eleven-county region to provide renewable sources of energy to the installation; and (3) outline a development strategy to provide Fort Bragg's energy needs locally.

Critical Action RP-8: Develop a regional tourism initiative.

Support the Sustainable Sandhills regional tourism initiative and the funding proposal to Golden LEAF. Seek additional project funding through NC Division of Tourism grants. This effort could engender strong support from diverse stakeholders, including economic development commissions, chambers of commerce, conservation groups, heritage organizations (ranging from Civil War re-enactors, for example to groups like the Sandhills Family Heritage Association), and the Lumbee Tribe.

Important Action RP-9: Promote participation of the region's municipalities in the North Carolina Main Street Program.

Description. BRAC Regional Task Force will engage cities and towns in a regional, collaborative effort with the NC Main Street program to leverage opportunities and resources for downtown revitalization. Topical areas of consideration may include the Complete Streets concepts, Context-Sensitive Design, Incorporating Multi-Modal Transit, Efficient Parking Strategies, and Pedestrian-Friendly Streetscapes.