

EMERGING MegaRegions:

studying the Southeastern United States

Between now and the year 2050, more than half of the nation's population growth, and perhaps as much as two-thirds of its economic growth, will occur in several "MegaRegions." These MegaRegions are extended networks of metropolitan centers and the surrounding areas. They often cross county and state lines and are linked by transportation and communication networks. The southeastern United States has been identified as an emerging MegaRegion, where recent and projected settlement patterns and infrastructure systems are enhancing important social, economic, and environmental links between the many parts of the region.

Why MegaRegions?

Population growth. Increasing urbanization. Traffic congestion. Growing inequalities. A struggling educational system. Water wars. Declining air quality. Ecosystem degradation. An economy in transition. Increasing global competition. These issues share several traits:

- *They are spatial.* When Mercedes-Benz opened an auto plant in Vance, AL (outside of Birmingham) in 1997 it was not just an economic development issue. It also meant locating housing for 1,900 workers and their families, upgrading regional infrastructure and municipal services, evaluating the impact of the truck routes for the delivery of parts and supplies, and monitoring the implications of a continuing trend that has shifted jobs from the urban core to suburban locations.
- *They are not confined by political boundaries.* Water supply is certainly not a local issue, as exemplified in the water wars between Alabama, Georgia, and Florida. Water scarcity pits industry against agriculture, residential development against ecosystem preservation, and state against state. Watersheds do not follow city, county, or state lines, and yet what happens upstream affects everyone downstream regardless of political voice.
- *They affect future generations.* Just 20 years ago a high school graduate in North Carolina could make a living wage in furniture manufacturing. Today, as more products are made abroad, a growing number of workers throughout the country face minimum-wage jobs in the service sector.
- *They are related to each other.* The Atlanta Metropolitan Area understands the interrelatedness of various challenges. For example, the interconnectedness of transportation, the environment, and economic development became evident in 1998 when the federal government began withholding transportation funds until the region identified a plan to conform to the Clean Air Act. As air quality problems put a halt to road expansion, the economic prospects of the region became uncertain.

These issues and their common characteristics call for a new framework for planning and public investment, one that is cross-disciplinary, regional, and farsighted. It is for these reasons, as well as lessons from abroad, that the MegaRegions concept has emerged. While it is relatively new to the United States, other countries have successfully adopted a large-scale regional planning framework to build economic competitiveness and improve the quality of life of their citizens.

Identifying a Southeastern MegaRegion

A MegaRegion is defined by the intensity of social, economic, and environmental linkages that create relationships and a shared sense of identity. The southeastern MegaRegion, and its component parts, can be defined by several key characteristics, including natural features and systems, transportation networks, and economic relationships.



Charlotte, NC



Charleston, SC



Tifton, GA



Birmingham, AL



Atlanta, GA



Jacksonville, FL



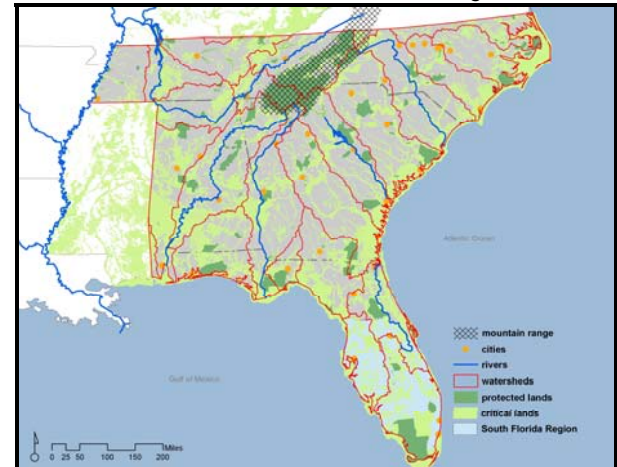
Chattanooga, TN

Natural Features: The southeastern region is defined, in part, by its physical and geographic features. The northwestern boundary is composed of the Appalachian Mountains, which terminates in the vicinity of Birmingham, Alabama. The southeastern and southern boundaries are oceanic, the South Atlantic and the Gulf of Mexico. A sloping area of land falls from the mountains to the coast throughout the region in a southeasterly and southern direction. Along this slope is the Piedmont region, immediately adjacent to the Appalachian chain proper. At the fall line, a distinctive drop-off in elevation that stretches across the region, the terrain drops off to the coastal plain, which in turn extends to the sea. Together, these physiographic features act as natural boundaries in the southeast.

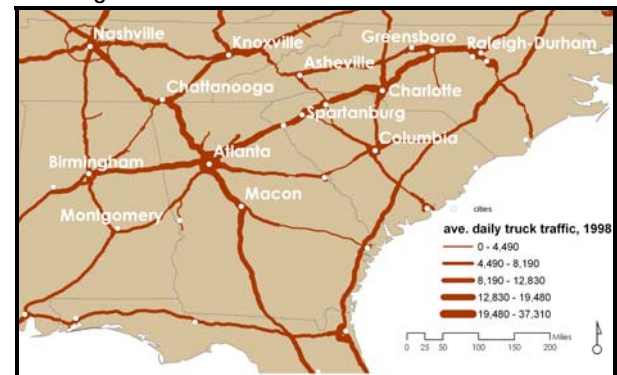
Transportation Networks and Economic Relationships: The southeastern region of the United States is articulated through a system of highways. Interstates 85, 20, and 40 are the primary corridors of intense freight traffic. I-85 passes through Alabama, Georgia, South Carolina, and North Carolina, connecting Montgomery, Alabama with Petersburg, Virginia. It crosses some of the major cities in the core area of the six states—Mobile, Montgomery, Atlanta, Greenville, and Charlotte—where it connects to I-40. Interstate 40 passes through Raleigh-Durham, and merges with I-95, which connects the region to the northeast.

The movement of goods by truck, the most prevalent mode, throughout the six-state southeastern region and beyond shows strong flows along the I-85 and I-20 corridor connecting Birmingham and Raleigh-Durham and along the I-75 corridor from Macon, GA to Atlanta, continuing through Chattanooga to Nashville. There is a corridor of economic activity and transportation networks existing along the I-40, I-85, and I-20 corridors.

Natural Features Influence Southeastern Region



Truck Traffic Illustrates Economic Spine from Birmingham to Raleigh-Durham



The Piedmont Atlantic MegaRegion

The aforementioned characteristics of the southeastern United States provide a working study area for the southeastern MegaRegion. It has been named the Piedmont Atlantic MegaRegion (PAM) for the geographic features that shape its boundaries.

PAM is composed of **core metropolitan areas**, including Birmingham, Atlanta, Charlotte, and Raleigh-Durham. The core is characterized by the greatest density of people and highest intensity of travel and economic interaction. PAM also contains numerous **major cities**; many of them are important government, academic, and business centers. There are also several **gateway cities**, including the sea port cities of Charleston, Savannah, Jacksonville, and Mobile; and major rail and airport cities, like Nashville and Atlanta. These gateway cities provide important domestic and international links that facilitate the flow of goods, people, information, and culture. All of the cities are connected not only to each other, but also to the numerous small cities and large swaths of rural and undeveloped land that surround them.

Piedmont Atlantic MegaRegion



As of 2000, almost 34 million people lived in the Piedmont Atlantic MegaRegion. Of these 34 million, approximately 40 percent, or 13.3 million people, lived in the urban core, and 60 percent, or 20.6 million, lived in the remainder of the MegaRegion. Combined, PAM represents over 12 percent of the total United States population and covers over 243,000 square miles of land, which is almost seven percent of the total land area of the United States.

PAM hosts more than 15 million jobs.¹ Employment in PAM is driven by seven primary industries, including construction, manufacturing, retail trade, real estate and rental and leasing, administrative and waste services, other services, and government and government enterprise. PAM's gross regional product is approximately \$1.1 trillion.² This figure represents just over 10 percent of the nation's GDP.

Key Issues

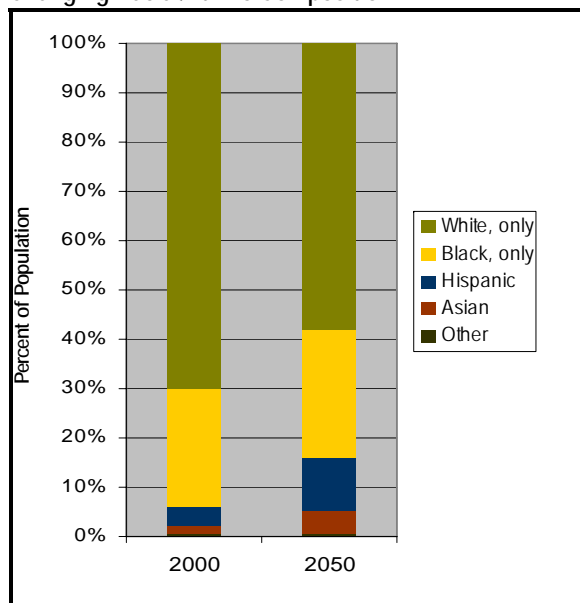
Several key issues are presenting future opportunities and challenges for PAM. These issues are related to growth, consumption and degradation, disparities, infrastructure, fragmentation, and competitiveness.

Growth: population and the built environment

Population: For every five persons in the region now, there will be almost nine by 2050. Growth of this magnitude brings both dynamic advantages and opportunities, but also many challenges for the region. Extrapolating from the growth trend experienced by PAM in the last three decades, the region is expected to grow 68 percent, from 34 million people in 2000, to over 57.2 million in 2050. This projection indicates future challenges regarding land consumption, resource depletion, infrastructure shortages, traffic congestion, and increased need for economic development and social services. But growth also indicates the potential for positive economic development and the means to improve the quality of life for current and future residents.

There are several recent demographic trends that are projected to continue, including the transition to an increasingly diverse and older population and smaller household sizes. For example, in 2000 Hispanic residents represented 3.7 percent of the total PAM population. By 2050, that number is expected to increase to over 10 percent (a result of 4.7 million people moving to the region). Furthermore, as baby boomers reach 65 years of age and more people seek warmer climates for retirement, the southeast is expected to see a much greater portion of its population over 55. In 2000, approximately 22 percent of the PAM population was 55 and older. By 2050 that number is expected to reach almost 32 percent. In addition to changes in age and race/ethnicity composition, average household size has been steadily decreasing. In 1970, average household size was approximately 3.2, but by 2050 the average number of people per household is expected to be 2.2. Combined, these demographic changes, along with the expected overall population growth, will require different development patterns, housing options, and public infrastructure and services.

Changing Racial/Ethnic Composition



Built Environment: The expected population increase makes possible a drastic alteration of PAM's existing built environment. For example, projections estimate that between 2000 and 2030 the southeast will build 84.4 billion square feet of new construction, including residential, commercial, and industrial spaces. This represents a 54 percent increase in the total square feet of buildings in this 30-year period, and an opportunity to reshape communities throughout the region. With policy interventions and innovative construction practices and financing, new construction can be developed to suit the needs of a shifting population. Greater variety in housing options, construction

¹ This represents the number of nonfarm labor jobs in the states of Alabama, Georgia, North Carolina, South Carolina, and Tennessee, and the metropolitan statistical areas of northern Florida in 2004.

² PAM's 2004 gross regional product includes the gross state products of Alabama, Georgia, North Carolina, South Carolina, and Tennessee, and the gross metropolitan product of the metropolitan statistical areas in the northern portion of Florida.

practices that reduce negative environmental impacts, and land use planning that links transportation systems to development patterns can allow PAM to accommodate more residents without sacrificing the characteristics that make the region a desirable place to live.

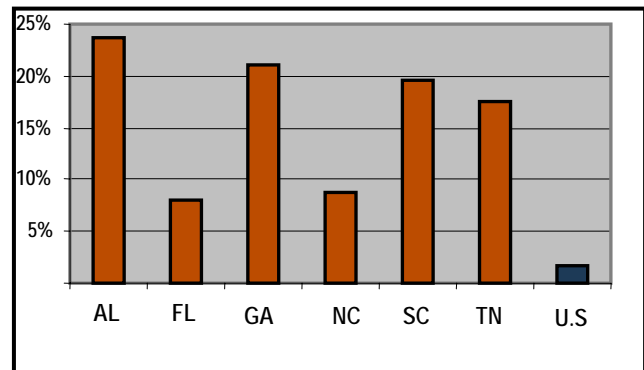
Consumption and Degradation: water, land, and air quality

Water: The Piedmont area of PAM relies heavily on surface water, while the coastal plains and coastal areas rely on groundwater. In both instances, signs of overuse are emerging as more intensive water consumption practices become commonplace. The 1998 to 2002 drought brought attention to the issue for many jurisdictions in the region, and yet it appears the problem will continue. Projections of the water consumption rates for the region's six states show a rapid rise in consumption, especially when compared to the country as a whole. Despite receiving nearly 50 inches of rain annually, Atlanta already has an acute problem. The Atlanta metropolitan region is estimated to have adequate water supply for its population growth until 2030, but only if water conservation increases (to an 11 percent reduction below today's levels) and re-allocation of water use occurs in the two primary water reservoirs that serve the area. Other major metropolitan areas in PAM are encountering the same issue. Estimates show that 25 percent of North Carolina's public water supply systems are expected to reach their limit by 2010.

Coastal and rural areas that rely more heavily on groundwater systems are not immune to water supply issues. In rural areas there is an increasing demand for water for agricultural purposes. In coastal urbanized areas, over-pumping from the local aquifers has led to saltwater intrusion into the groundwater. This is a problem in Beaufort, SC; Savannah and Brunswick, GA; and Pensacola, FL, but is likely to spread to other coastal communities experiencing growth.

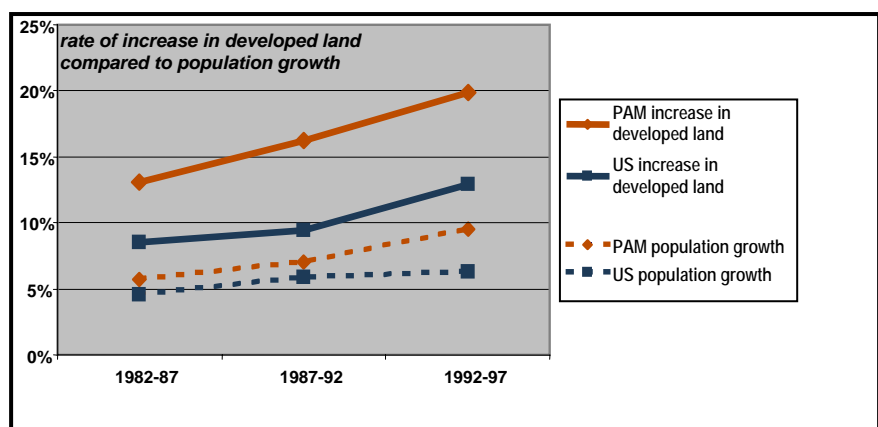
The great need for water has created a tension resulting in PAM states facing intra-regional conflicts over water allocation and a definitive need for water conservation policies, treatment and re-use of water, and the environmental protection of recharge areas. Thus, providing for an adequate water supply to meet the diverse needs of the region is likely to become one of the most important issues in the coming years.

Increases in Water Consumption, 1990-2000



Land: The six PAM states are each ranked in the top 15 states in the nation in the conversion of land from undeveloped to developed. In an average year, more than 650,000 acres of land are converted. While it is expected that as population increases, so too will the amount of developed land, it appears that in PAM this is not a one-to-one growth rate. In fact, studies show that PAM's land consumption rate exceeds population increases. More specifically, between 1982 and 1997, Atlanta increased its urbanized land by 81 percent to accommodate a population growth of 61 percent, while Charlotte increased its urbanized land by 74 percent to accommodate a population increase of only 39 percent, and Birmingham increased its urbanized land by 30 percent to accommodate a population increase of 10 percent. The trend in land consumption is not only stressing fiscal resources due to the higher costs to provide services and infrastructure to low-density development, but also threatening habitat and ecological biodiversity.

Land Consumption Exceeding Population Growth



Air Quality: Major markers of PAM's growth are the rapid increase in automobile usage and industrial development and their relation to air quality in the region. If current trends continue, air quality will continue to deteriorate. Air quality is closely tied to transportation and economic issues, since some of the primary sources for air pollution in PAM are industrial and vehicular. The majority of major metropolitan areas experience non-attainment periods regularly. The smaller metropolitan areas are also experiencing increasing problems with non-attainment. With the projected dramatic increase in population and few non-automobile transportation alternatives, air quality will continue to deteriorate and produce increasing non-attainment levels in the major and minor metro areas.

Disparities: poverty and education

Poverty: Most counties in PAM face poverty rates of 21 percent and greater. In fact, according to the 2000 Census, more than 8.9 million people in PAM were living in poverty. Poverty is a difficult challenge for those counties that are farther from the core cities of the region, where poverty rates typically range from 41 to 80 percent, as the adjacent map illustrates. This is especially difficult for counties that have historically relied on manufacturing and agriculture, industries that have been declining due to increasing competition from abroad.

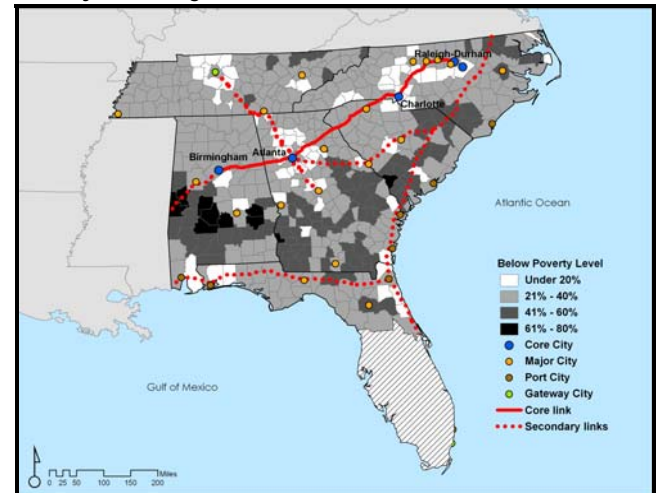
It is also important to recognize that poverty is also an inner-city challenge. Even though poverty rates are greatest beyond the metropolitan regions, the highest concentrations of people living in poverty rest in and around the largest cities.

Education: Investment in the education system in PAM falls below national rates. For example, teachers and educators in PAM are paid at the lowest rate of any region of the country. Furthermore, the total revenue collected per student in PAM is consistently below the national average. This lack of emphasis on education has resulted in lower test scores and rankings in national polls for region. In addition, the region suffers from lower than average educational attainment. As the chart below shows, the southeast falls below the national average in the categories of some college, and college graduate or advanced degree.

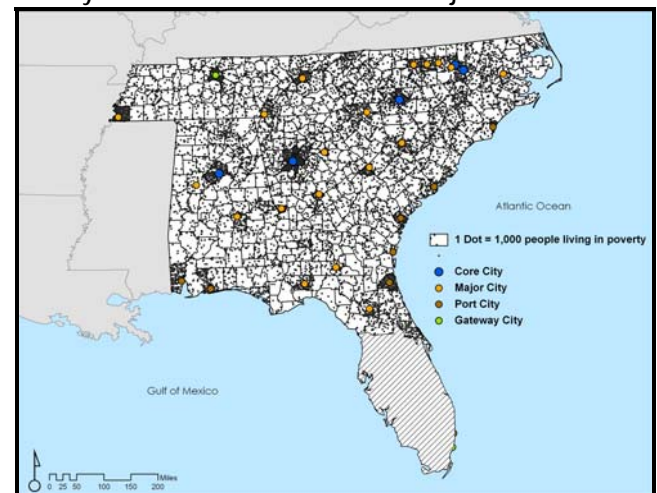
Infrastructure: transportation, water, energy

Transportation: PAM is a highly car-dependent region. Because it developed rapidly after World War II, land uses were rigidly separated and freeway construction was the primary transportation policy initiative. These factors have resulted in low-density development patterns with urbanized centers often located at great distances from each other. The effect of these settlement patterns is greater driving distances and times, mostly made by private automobile. In metropolitan Atlanta, for example, residents drive about 125 million miles per day. Work trip data from major metropolitan areas in the region shows that 92 percent of work trips are made by car (79 percent in single-occupancy vehicles and 13 percent in carpools).

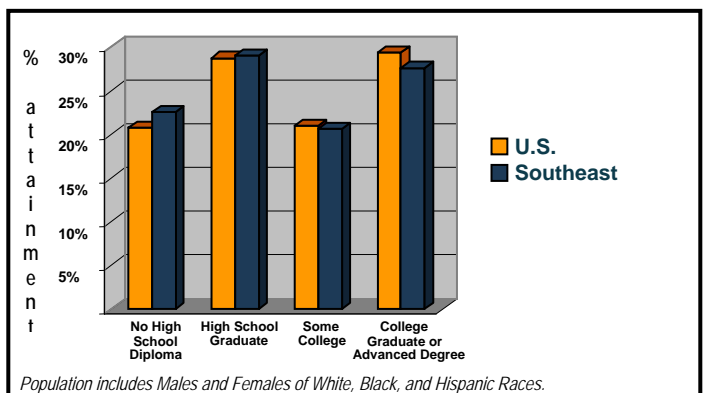
Poverty Rates Highest Outside the Core



Poverty Concentration in the Core and Major Cities



Educational Attainment Lower than the National Rates



These factors have resulted in increasing congestion. In PAM's core cities, traffic congestion has increased anywhere from 15 to 45 percent between 1982 and 2002.

Due to current policies and infrastructure, travelers in PAM metropolitan areas will have to rely almost exclusively on auto travel for access to work, shopping, and other destinations. This creates a host of sustainability concerns including pollution, marginalization of non-drivers, injuries (or death), costs from crashes, and further congestion. If the region's near-total reliance on trucking for freight transportation continues, there will be many of the same issues as with passenger commuting traffic patterns.

Water and Energy: Rapid population growth will put new pressures on the funding for infrastructure in coming decades just as aging existing wastewater infrastructure is requiring expensive retrofits. In addition, PAM's energy use is growing faster than the national average, reflecting population growth. Heavy reliance on fossil-fuel power plants will continue to cause environmental problems, including emissions of particulate matter, mercury and greenhouse gases, and the environmentally damaging extraction of coal from Appalachia. New supply methods, new sources, and conservation strategies must be considered.

Competitiveness

The growing economies in the urban core paint a very positive image of the area. Since 1992, the economies of the four core metropolitan areas—Birmingham, Atlanta, Charlotte, and Raleigh-Durham—have experienced an average annual growth rate of between 5.2 and 8.4 percent. Unfortunately, these economic achievements have not been experienced throughout the entire region. Some medium-sized cities and the more rural areas have struggled to ensure their fiscal solvency.

To prepare for the future, the region must study several important trends, including decreasing economic advantages, a lack of industry diversity, the decline of manufacturing, and alternatives for economically struggling rural areas. For example, the longtime advantages of doing business in the South have been the availability of a low-cost workforce, the low cost of living compared to other parts of the country, and fewer regulatory concerns. This had made locating in PAM more enticing to businesses. Recent trends show an increasing cost of living, as demand increases land and housing prices. Furthermore, the lower cost labor is also becoming an increasingly smaller advantage as the region is no longer competing against other regions of the U.S., but against international workforces that are able and willing to accept much lower wages.

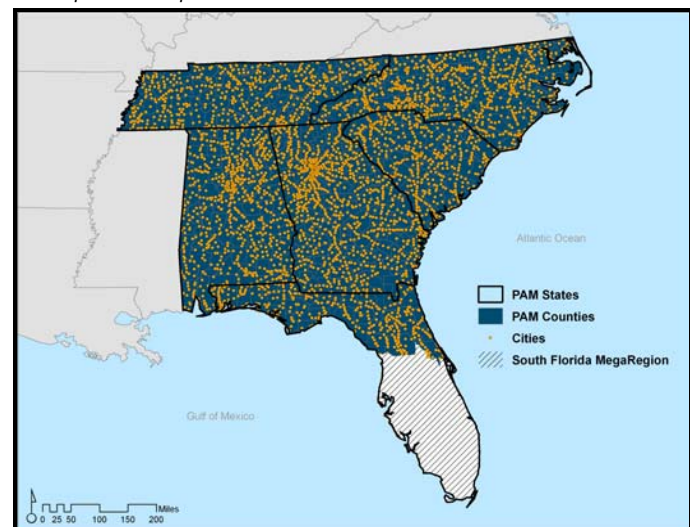
The national decline of manufacturing and agricultural businesses is also of concern to the region. Currently, six major metropolitan areas in PAM rely on manufacturing as their leading industry. Furthermore, many rural areas are also heavily reliant on these shrinking industries, resulting in higher poverty and unemployment rates than the core.

Fragmentation

Throughout PAM there are numerous layers of government, including six states, 504 counties, and 3,839 cities and towns. These entities vary in scale, from Charlotte, with over 540,828 people, to Mountain Park, GA, with 506 people. However, each entity has powers and responsibilities given to it by the state. These powers and responsibilities include but are not limited to: public safety, taxation, and planning. Each state grants different powers to their counties and municipalities. The differences in these systems among the states increase the complexity.

The very number of government jurisdictions in PAM creates greater challenges when seeking consensus and cooperation on regional issues, and yet such action can lead to complementary policies and regulations to achieve a more economically competitive and livable region.

Cities, Counties, and States of PAM



MegaRegion Strategies

A MegaRegion framework can enable the region to more effectively deal with the challenges and opportunities facing PAM. Following are three possible strategies that respond to the issues presented. The strategies outlined here are not innovative based on their individual merits, but combined they create a unique and holistic regional approach that is future-looking and that links environmental protection and social equity to the achievement of long-term economic competitiveness. Furthermore, these strategies are not intended to be exhaustive, but instead starting points for a continued dialogue regarding what it means to move forward as a MegaRegion.

Green Infrastructure

The elements of man-made infrastructure that facilitate the movement of people, goods and information have created a network of barriers to our natural systems. These barriers are in conflict with the natural landscape, impede natural processes, fragment land uses, and isolate open space. The establishment, planning, and implementation of a “green infrastructure” could offset these losses and systematically protect the ecosystems within PAM. Green infrastructure is a network of open space, woodlands, wildlife habitat, parks and other natural areas that sustains clean air, water, and natural ecological processes, and enriches our quality of life. Much like transportation infrastructure, green infrastructures links together places for ecological sustainability, as well as for mobility and recreation. A region-wide green infrastructure system can improve and protect natural system, create a framework for future development patterns, and connect flora, fauna, and people throughout PAM.

Transportation Options

The provision of transportation and infrastructure poses many sustainability challenges both today and in coming decades as population increases. In response to this challenge, solutions that explore transportation mode choices are necessary to allow for greater energy efficiency, less negative impacts on air quality, and the management of traffic congestion. This strategy does not simply advocate for “increased mobility.” PAM is already a hyper-mobile region, traveling billions of miles a year by car. Instead, increased transportation options should go hand-in-hand with land use and urban design reforms to minimize the need for travel.

Reframing the way we accommodate transportation requires prioritizing transportation investments that improve access to destinations; designing transportation right-of-ways that allow for multiple forms of transportation, including pedestrian and bicycle; promoting conjoined land use and transportation planning; and expanding transportation options, especially rail. There are already efforts to enhance rail infrastructure. Since 1992 the federal government and four southeastern states have been advancing a proposal to create a Southeastern High Speed Rail Corridor that would link major PAM cities to Washington, with rail speeds of up to 110 mph. Such a network would draw traffic from highways and even from short-hop air flights. The Southeast High Speed Rail Corridor, which is now under study, began with links between Washington and Charlotte (red), but has expanded to include PAM (blue).

Proposed Passenger Rail



Source: Southeast High Speed Rail, www.sehsrc.org

Spatial Planning

The United States is on the horizon of our third century of growth and development. Our first century was founded on Thomas Jefferson's national plan calling for westward expansion, and the second century was stimulated by Theodore Roosevelt's vision for an improved and expanded energy and natural resource infrastructure designed to encourage and support industrial expansion. A Third Century Strategy is needed to contend with the expected population growth and the challenges of competing in an increasingly global economy. This third century of planning argues for a new national framework that supports spatial planning through policies and federal funding.

Simply put, to plan spatially is to overcome traditional jurisdictional boundaries in favor of planning at an appropriate scale to respond to the challenges and opportunities faced by PAM. As studies of PAM show, there are ever-increasing relationships among the many cities, counties, and states. The problems posed by diminishing water resources, degraded wildlife habitat, inadequate transportation, and impaired air quality are the most obvious common challenges facing the Piedmont Atlantic MegaRegion. By planning spatially, real solutions can emerge to solve these long-standing issues. By studying alternative forms of governance, innovative financing strategies, and pioneering approaches to development, this new paradigm can connect metropolitan and non-metropolitan places for the advancement of all.

Similar networks of inter-jurisdictional metropolitan areas have emerged as globally competitive units in the European Union and Asia. They have used major public and private infrastructure investments to strengthen transportation, communication, cultural, and economic connections between their major cities. Without similar investments, MegaRegions in the United States will fail to capitalize on their potential for economic growth, social enrichment, and environmental preservation as they encounter challenges commonly associated with the accelerating population growth.

This is the beginning of a nascent, grassroots national initiative to develop a framework for the future. This vision aims to meet the challenges of accommodating growth in metropolitan areas that are stifled by congestion, as well as those places that have lost population and become economically distressed under current trends and policies. Strategic nationwide investments at the MegaRegions level will enhance capacity for growth and ensure competitiveness in a global environment.

SOURCES:

AMTRAK
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January 2006