

Piedmont Atlantic Megaregion



U.S. Department of Transportation
Federal Highway Administration

Introduction

This paper describes megaregion-level transportation infrastructure planning considerations linking the six Piedmont Atlantic Megaregion states, including Georgia, North Carolina, South Carolina, Tennessee, Mississippi, and Alabama. The region includes major cities that attract large populations and employment. This area comprises critical highway infrastructure, passenger and freight rail, and seaports that go beyond state and agency boundaries to support the national economy. Effective transportation infrastructure, which links together neighborhoods, towns, and cities to regions – and regions to megaregions – is essential to economic growth in a global economy.

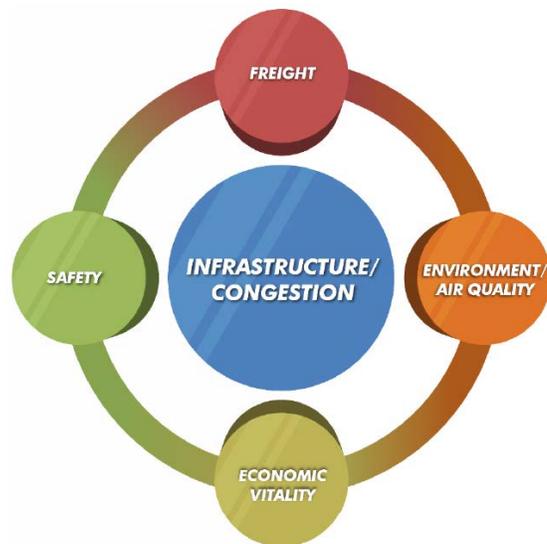
At workshops conducted around the country, transportation officials are joining together to identify how states and MPOs can better connect with each other, coordinate statewide freight and rail plan development, and identify common approaches to address traffic congestion and aging infrastructure at a megaregion level.

Megaregions are networks of urban centers and their surrounding areas, connected by existing economic, social, and infrastructure relationships. Transportation infrastructure provides the structure within and between cities and metropolitan areas in the region. There are many Metropolitan Planning Organizations in the Piedmont Atlantic Megaregion, each of which plays an important role with regard to coordinated, comprehensive transportation planning activities.

Importance of Megaregions

Potential benefits of megaregions planning include enhancing economic development across jurisdictional boundaries, sharing best practices, promoting the collection, sharing, and use of data and information, and addressing projects or services that enhance the mobility of people and goods. A megaregional approach provides opportunities to identify common tracking and performance metrics to understand regional needs and challenges and to meet peer staff and partners from other states and agencies to advance coordination.

Population growth and expansion of economic activities within the region are already placing stress on roadway, airport, transit, and shipping infrastructures. Key aspects of planning for megaregions include strategic planning, technical analysis, coordinating funding mechanisms, and identifying common approaches to address freight planning and needs at a megaregional level. The megaregion approach offers a framework for inter-jurisdictional cooperation, rather than state or local government competition for funds and projects.



Population and Employment

The Piedmont Atlantic megaregion includes two of the nation’s 40 largest metropolitan areas in terms of population located within 10 or 25 miles of the downtown (Atlanta and Charlotte). When looking at employment, this rises to four of the 40 largest concentrations of jobs within 10 or 25 miles of downtown (adding Greensboro and Raleigh). Metropolitan areas in the megaregion also tend to be relatively low density and fast growing, with relatively low populations in their urban cores (when compared with other large metropolitan areas in other megaregions) (RPA, 2011).

The megaregion is experiencing tremendous population growth, driven primarily by domestic immigration. Regarding domestic in-migration rates, all of the MSAs in PAM’s urban core (with the exception of Birmingham) are in the top fifteen MSAs in the country. The low cost of living and the high quality of life in PAM are two of the reasons for a high rate of projected population growth between now and 2050 (Ross, 2008).

PAM Summary Statistics

Population 2010: 17,611,162
Percent of U.S. Population: 6%

Population 2025: 21,687,449
Population 2050: 31,342,393

Projected Growth (2010 - 2050):
78.0% (13,731,231)

2005 GDP: \$485,753,000,000
Percent of US GDP: 4%

Source: www.america2050.org

Table 1: Population Profile for Major Cities in the Piedmont Atlantic Megaregion

City	2 Mile Population	10 Mile Population	25 Mile Population	Projected 2040 Growth
Atlanta	70,000	1,090,000	3,800,000	46%
Charlotte	50,000	670,000	1,600,000	63%
Raleigh	50,000	590,000	1,300,000	69%
Greensboro	50,000	350,000	1,000,000	27%
Birmingham	40,000	450,000	900,000	30%
Greenville	40,000	330,000	700,000	28%

Source: RPA, "High-Speed Rail in America Megaregion Piedmont", 2011

Table 2: Employment Profile for Major Cities in the Piedmont Atlantic Megaregion

City	2 Mile Employment	10 Mile Employment	25 Mile Employment	Projected 2040 Growth
Birmingham	90,000	330,000	500,000	39%
Atlanta	80,000	800,000	1,900,000	46%
Charlotte	70,000	430,000	800,000	62%
Greensboro	60,000	510,000	1,000,000	27%
Raleigh	50,000	570,000	1,100,000	66%
Greenville	20,000	330,000	600,000	33%

Source: RPA, "High-Speed Rail in America Megaregion Piedmont", 2011

Major Transportation Freight Flows

Freight traffic relies heavily on rail and roadway connectivity, which is challenged by an aging infrastructure that has expanded more slowly than freight volumes have increased. Major freight routes include the I-85 corridor, connecting Alabama, Georgia, and North Carolina, and the I-20 corridor, connecting Alabama, Georgia, and South Carolina. The Piedmont Atlanta Megaregion is bisected by major freight corridors that run north to south, such as I-95, I-77, and I-65. Within the region, freight nodes are areas with concentrated freight activity such as port, trucking, rail, manufacturing, warehouse, and distribution and support facilities. The gateway cities of Savannah, Charleston, and Mobile serve as seaports for the Piedmont Atlantic Region (Ross et al., 2014).

The biggest attractors (by county) for truck freight trips in the Piedmont Atlantic Megaregion are in and around the metropolitan areas of Birmingham, AL; Nashville, TN; Huntsville, AL; Atlanta, GA; Charlotte, NC; Greenville, NC; Raleigh, NC; and Fayetteville, NC (Figure 1). Most of these metropolitan areas are also the megaregion's largest producers of truck trips (Figure 2). The data suggests that there are heavy truck traffic flows both within the megaregion and across PAM boundaries to locations outside the megaregion. Port areas in relative close proximity to PAM, such as Savannah, Charleston, and Mobile are major truck trip producers as well as attractors (Ross et al., 2016).

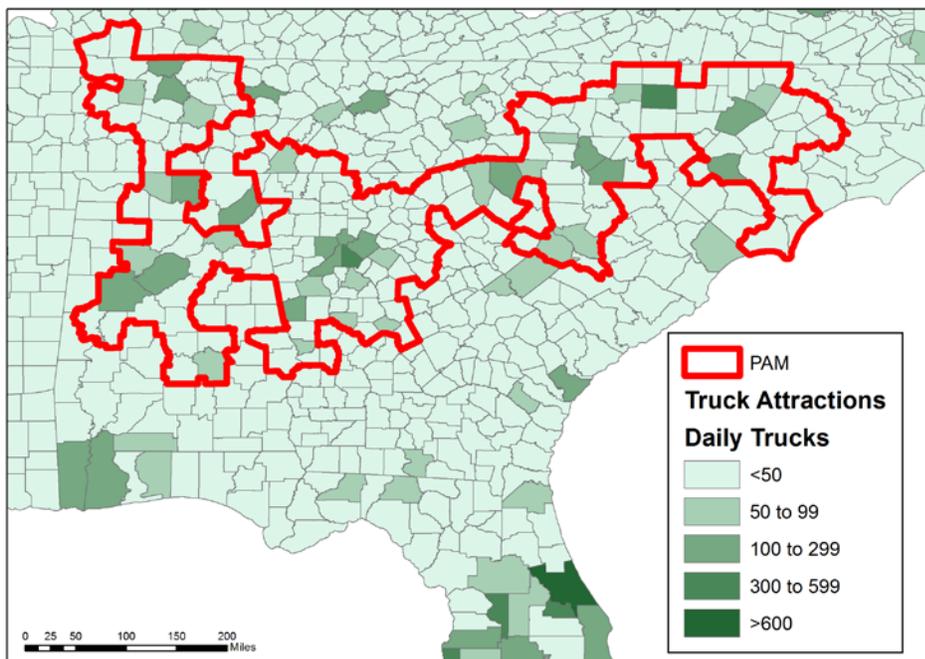


Figure 1: PAM Truck Attractions (Ross et al., 2016)

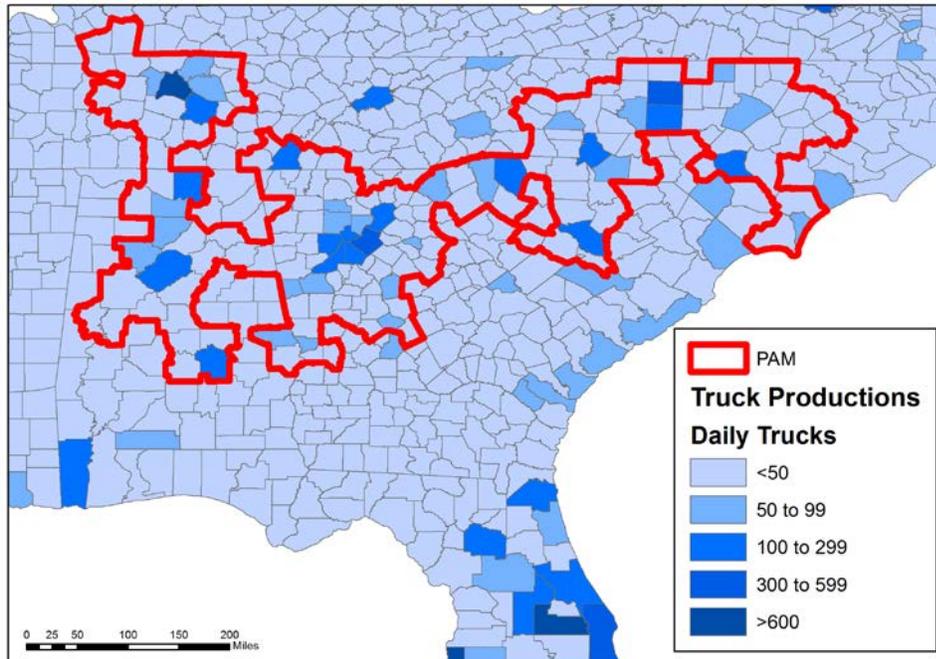


Figure 2: PAM Truck Productions (Ross et al., 2016)

Highways

Nationwide, Vehicle Miles Traveled (VMT) have increased significantly due to increased average personal trip length, population growth, decreased vehicle occupancy, lack of sufficient transit services, and longer commutes due to highly dispersed regional development patterns. The I-95 corridor is projected to experience a 208 percent increase in demand for freight capacity by 2035 from intra-region commodity movement alone. By 2035, the amount of freight moved by truck is projected to decrease slightly to 86 percent of total commodity flows (from more than 90 percent as of 2002), while the shares of freight movement by pipeline and water increase (Cambridge Systematics, 2009). The Federal Highway Administration expects that future transportation revenues will only be able to maintain current roadways and not add significant capacity (Cambridge Systematics, 2009). Road congestion on the intercity corridors connecting the Piedmont Megaregion is about average for major metropolitan areas. In the Atlanta-Birmingham corridor, 46 percent of the highways operate at over 75 percent design capacity in the peak hour. The northern half of the corridor is more congested. This same figure is 54 percent in the Atlanta-Charlotte corridor (RPA, 2011).

Railroads

Freight rail plays an important role in the megaregion's economy. For example, rail comprises a quarter of total freight tonnage in Georgia. The rail mode share is slightly higher than other areas of the U.S., since Atlanta is freight rail hub of the southeast (GDOT, 2011). Despite the importance of rail for freight movement, passenger rail has not been a prominent form of passenger travel in the megaregion.

Intercity rail service is extremely limited throughout the Piedmont Atlantic Megaregion, because there is a lack of service and, closely related, an almost nonexistent rail market. Intercity ridership is higher in the northeastern half of the corridor connecting Charlotte, Raleigh, and Richmond to Washington, DC. Plans for high-speed rail in the corridor are in development and are currently more developed in the northeastern end of the corridor (RPA, 2011).

Seaports

The Atlantic coast seaports and Gulf coast seaports facilitate freight flow and international trade for the Piedmont Atlantic Megaregion. Containerships and containerized cargo comprise the bulk of vessel calls and most of the vessel value at these seaports. Atlantic coast U.S. seaports and Gulf coast seaports have prepared for the increase in cargo that is expected after the recent expansion of the Panama Canal. Port preparations included installation of larger cranes and dredging channels to accommodate container ships with nearly two and one-half times the capacity of current Panamax vessels, the largest ships that now transit the canal. Commodities transiting the canal to the Atlantic ports include auto parts, bananas, chemicals, canned and frozen fish, and pulpwood, among others. The seaport cities primarily serving the Piedmont Atlantic Megaregion include Charleston, Savannah, Jacksonville, and Mobile (Georgia Tech Global Learning Center, 2009). Preparations are also underway in Savannah to accommodate the larger ships. The Savannah Harbor Expansion Project (SHEP) is currently under construction, and could be completed as soon as 2019 (GA Ports, 2017).

Infrastructure Challenges

The nation's highway infrastructure is now more than 50 years old and rail infrastructure is much older. The demand for transportation, particularly freight, will continue to rise, which will lead to high levels of congestion, and additional demand is likely to increase delays even further. This megaregion is growing quickly with auto-oriented development patterns. For example, Atlanta is the Southeast's largest metropolitan area and home to the nation's busiest airport and some of the worst traffic congestion. Charlotte is the second largest metropolitan area in the PAM and the only other city in the megaregion with a rail transit system (RPA, 2011). If VMT grew to keep pace with population growth, the region would still require new highway lane-miles to maintain today's ratio of travel demand to available roadway space. The I-95 corridor stretches along the eastern side of this megaregion and has seen growth in congestion. The I-95 Corridor Coalition estimates that, without capacity improvements, urban Interstate delay (hours per 1,000 VMT) will increase by 84 percent and delay across all Federal-aid systems will increase by almost 50 percent by 2035 (Cambridge Systematics, 2009).

Megaregion challenges

The concept of megaregions provides a framework for identifying, prioritizing, and addressing mobility challenges and opportunities. However, planning and political boundaries do not account for natural resource extents or political, economic, and cultural relationships within regions, which may form a foundation for addressing mobility needs and priorities. Critical transportation needs do not respect these formal boundaries of states, MPOs, and public transit service areas. Planning across these boundaries to address freight and passenger transportation needs is a major challenge, receiving increasing attention at Federal, state, and local levels. Ideally, megaregions should be defined with a balance of planning and political boundaries along with the economic, environmental, and cultural links within and between regions.

The PAM is the fastest growing megaregion in the United States (see Table 1) and is facing challenges with its growing population, increased traffic congestion, and inadequate infrastructure in and around major cities. In addition to highway congestion, other issues faced by this megaregion include lack of coordination in planning for railways linking cities and conflicts over shared natural resources such as water among the states.

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