SOUTH CAROLINA INFRASTRUCTURE STUDY

— REPORT #1 (REVISED) —

PROJECTION OF STATEWIDE INFRASTRUCTURE COSTS 1995–2015

STATE OF SOUTH CAROLINA
STATE BUDGET AND CONTROL BOARD
ADVISORY COMMISSION ON INTERGOVERNMENTAL RELATIONS

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3 FEBRUARY 1997

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TABLE OF CONTENTS

INTRODUCTION

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The purpose of the following report is to present a detailed estimate of current and future infrastructure costs in the state of South Carolina.

The infrastructure cost estimates are a product of The Resource Investment and Management Systems (TRIMS) model developed in the state of New Jersey and population and employment projections produced by the Data Center of the state of South Carolina. Cost estimates include planned infrastructure projects that have not yet been carried out *(backlog)*; improvements to existing and future infrastructure after they have been put in place *(rehabilitation)*; and future infrastructure projects necessitated by both population and employment growth *(new growth)*.

Infrastructure cost estimates encompass capital projects at the local level to maintain existing systems and support future growth (*local infrastructure*) as well as those at the state and regional levels, which serve regional needs even though they may be located in a single area (*regional infrastructure*).

There are seven categories of infrastructure, each composed of three to six subcategories. The categories *(transportation; commerce; public safety/administration/welfare; education; health; recreation/culture; environment)* follow standard public finance grouping procedures for the classification of capital facilities.

Infrastructure cost estimates are presented for each of the state's ten regions. Regional totals sum to the state. The sum of regional and local expenditures equals the sum of backlog, rehabilitation, and new growth expenditures.

The TRIMS model estimates future infrastructure costs by:
1) calculating by category existing per capita and per employee infrastructure costs at the state and regional levels, and 2) applying per-unit costs to projections of population and employment growth. Where possible, information has been obtained from the state of South Carolina's departmental infrastructure projections and existing Council of Governments. These data are augmented by special reports on infrastructure of particular types that have been completed within the state. Where in-state data are not normally broken out into the categories as presented, data from other states has been used to create these categories.

It must be stressed that what follows are projections of infrastructure *need*. These figures may be substantially higher than actual infrastructure *expenditures* because, in practice, backlog infrastructure projects are infrequently built; infrastructure rehabilitation is typically underfunded; and new infrastructure is reluctantly authorized.

The infrastructure projections contained herein:

- use all information available in the state of South Carolina on infrastructure needs and costs;
- are sensitive to national and state experiences with regard to infrastructure provision;
- reflect the cost of providing such infrastructure in the state of South Carolina;
- reflect current (1996) costs inflated to this year from 1990 or more recent data;
- have checks and balances between categories of infrastructure and types of infrastructure needs.

DETERMINING INFRASTRUCTURE NEED

Infrastructure need is calculated using multiple iterative processes to develop ever-more accurate approximations of infrastructure need. The first estimate of a state's infrastructure need is determined using standards on a per capita basis from other states. Prior infrastructure studies that Rutgers University has undertaken in Delaware, Kentucky, Maryland, Michigan, New Jersey, and New York contribute to a blended per capita number to calculate infrastructure need by category. Twenty-eight categories of infrastructure within seven overall infrastructure fields are projected. "Per capita" are costs expressed per new resident and per new employee.

These gross estimates of infrastructure need form the "sacks of cost" which are then filled with the planned infrastructure development expenditures of units of state and local (county and municipal) government. Thus, when numbers exist for gross need across 28 categories of infrastructure and these sum to a total for the state and are further divided by state and local subcategories, these "sacks" can be filled by planned South Carolina-specific expenditures. All of the capital facilities budgets of state and local governments, independent commissions and authorities, and private producers of public goods (utilities and telecommunications) are scrutinized to determine projected capital facilities spending. Thus the bounds of the "sacks" established by using information from other states are filled with South Carolina-specific information. This causes some infrastructure areas' expenditures to expand while others contract.

South Carolina information is provided in various formats and for varying time periods. Some data are in the form of five-year projections, whereas other data provide ten- or twenty-year projections. Some information is expressed as historical expenditures that must be projected into the future. Other information reflects just those expenditures being made "out of pocket" today. All this information must be assimilated and converted to twenty-year projections, ensuring that these costs are not underestimated because of historically low expenditure patterns in an area or because information has not been compiled in a way that captures the true outlays for a particular infrastructure category.

Once actual expenditures for each category of infrastructure have been calculated, these expenditures are divided by projections of population and employment in the state and regions to develop South Carolina-specific per capita infrastructure numbers. Thus, specific per capita infrastructure numbers are developed using South Carolina's own infrastructure projections and its own projections of population and employment.

The procedure above ensures comparable national standards of public capital expenditures yet also refines these standards to reflect the specific South Carolina experience. With the South Carolina-sensitive refinements incorporated, numbers are available to project infrastructure need using the best information on both capital facilities spending and growth in the state.

BACKGROUND

BACKGROUND

THE NATURE AND VALUE OF INFRASTRUCTURE

Infrastructure is defined as roads, bridges, mass transportation, airports, ports and waterways, water supply, waste treatment and disposal, energy supply, and communications. Infrastructure in the nation's 83,000 cities and other local jurisdictions is the underpining for the national economy. It is the foundation upon which industrial wealth is created; it is utilized by every citizen and all industries.

Despite its importance, U.S. infrastructure investment as a percentage of gross domestic product (GDP) has been declining for more than twenty years. It decreased from a 1975 high of 2.4 percent of GDP to a 1995 low of 0.3 percent. In contrast, Japan and Germany spend an average of 5.1 percent and 2.5 percent, respectively, of their GDPs on domestic infrastructure. Accordingly, they have productivity growth rates that are much greater than that of the United States.

In 1991, the Congressional Office of Technology Assessment (OTA) warned that if more investment in certain crucial infrastructure areas is not ensured soon, the negative impacts on transportation efficiency, industrial productivity, and national competitiveness will cost the country dearly. If the United States is to improve its competitiveness and sustain its economic growth, there must be continued investment in, and development of, basic local infrastructure.

Infrastructure investments also have multiplier effects especially if some investments are dedicated to high-return activities of small firms. The OTA recognized this with the admonition that immediate attention must be paid to developing programs to determine the most promising new investment areas for public works. Most of those who follow this discourse recognize that basic development infrastructure investment at the local level is key to spurring small firm growth.

Infrastructure represents an annual expenditure in the United States of approximately $140 billion, with 24 percent of this amount ($33.6 billion) coming from the federal government. Since this national investment in infrastructure is dispersed among numerous federal, state, regional, and municipal agencies, comparatively little research has been done to document the need, distribution, and impacts of such investment.

ECONOMIC DEVELOPMENT AND GROWTH

The Ideal Case

Economic development refers to the growth of residential and nonresidential structures on primarily private lands. This growth is driven, in turn, by population and job growth in geographic areas and is responded to by providers of public infrastructure there.

There is a lead-lag relationship between population and job growth in which a critical mass of population is needed before a significant amount of jobs can come on-stream; yet, with the arrival of jobs, so too comes a new increment in population. In an ideal setting, growth is a relatively orderly process, and public and private institutions facilitate growth. Infrastructure is in place where needed, and this infrastructure is neither overused nor undermaintained. Further, there are reasonable relationships between the existing economy and new growth, both in type and location. One type or location of economic growth does not dominate another. Similarly, reasonable relationships exist between residential and nonresidential development with the result that the journey to work is relatively short and efficient, and there is an equitable balance of income groups paralleling job opportunities within and across regions. In other words, growth is efficient, and the economic development of the state is maximized. All of the growth components are harmonious, and minimal conflict leads to maximum statewide fiscal health and economic prosperity.

The Real Case

Unfortunately, actual economic growth departs from ideal conditions in that (1) the competition for market share creates "haves" and "have-nots," and (2) the public-sector regulatory overlay, in attempting to better distribute statewide economic development, often sends confusing signals and misses sizable opportunities. As an example, new large-scale commercial and industrial developments are free to locate within the "prime" regions of South Carolina, causing even more infrastructure to be extended to them and placing these political entities in competition with each other.

Simultaneously, other regions within the state have managed to attract very little "blue chip" economic activity and have become home, by default, to a limited number of noxious industries and a vast majority of poorly paid residents. Economic opportunities and large areas of the state have been overlooked.

The dual costs of (1) providing new and extended infrastructure to regions that compete for and win new development, while (2) maintaining the old infrastructure in regions that are left behind, cause taxes and development costs to rise throughout the state. As a result, wage and product costs increase statewide, and businesses and the state as a whole become less competitive. The reality of this inefficient expansion and competition is economic triage, wherein a finite amount of money is distributed politically among competing entities, causing all regions and regions to go wanting economically. These are the middle-stage signs of a state that is in the process of making the wrong decisions en route to policies that will, in the end, lead to a major loss of economic tenants.

The reason these patterns continue is that, in the short run, they are not all that bad for any individual location. Firms and people are "distributed" to regions that minimize the out-of-pocket costs to the economic entities. Yet the long-run, larger state costs are not considered. The reality is that all of the projected extensions of capital facilities cannot be paid for, and very significant opportunities will be missed because of misplaced or inadequate resources.

An Alternative Case

An alternative is not to stop growth but to channel it efficiently, encouraging growth in locations where it makes the most sense for overall development of the state while at the same time ensuring that no individual region is neglected. High-growth regions must continue to grow and be provided with infrastructure, but growth in other lower-growth regions must also be encouraged. This is not "setting growth loose" within the state as some may charge. In both types of locations—those areas that have traditionally been growing and those now encouraged to grow—environmentally sensitive and other lands will be conserved to maintain the state's natural scenic qualities. Much of the growth that would have taken place in traditional growth regions will continue to be encouraged, only in more compact and efficient development patterns near already existing development. Growth in regions where there has not been much development before is now encouraged in newly formed centers attached to existing crossroads locations. Additional development in high-growth regions is handled more carefully and elegantly; development in low-growth regions is accelerated and strategically located. There is no situation of "haves" and "have-nots" and no infrastructure bankruptcy or excessive dilution. Growth is carefully channeled to maximize its impact. Billions of dollars of infrastructure monies can be redirected and not wasted on competing or non-strategically located entities.

The process above is termed "strategic economic development," and this form of development can be practiced in South Carolina. Increasingly, positive linkages have been found between economic development and quality of life. A Princeton University study found that the most significant variable associated with enhanced quality of life is an increase in the local property tax base per capita. In other words, those locations with more industrial, commercial, and residential value per capita have the highest quality of life. Crime rates are lower; educational test scores are higher; real estate resale prices are higher; recreational amenities are higher; and residency times are longer in those communities with the highest tax bases.

THE RELATIONSHIP BETWEEN STRATEGIC ECONOMIC DEVELOPMENT AND INFRASTRUCTURE DEVELOPMENT

Strategic economic development seeks to improve both the quality of life and the standard of living of a state's residents. It does this by targeting areas of critical capital spending to expand existing growth nodes and to encourage new enterprises in areas where they currently do not exist. Business location decisions are heavily influenced by factors in a state that encourage business growth. In addition to a skilled labor force, these factors include adequate public facilities and a high quality of life. The absence of water and sewer curtails the construction of businesses and housing. Increasing costs of solid waste disposal drive up industrial and commercial expenses and reduce personal disposable income. Clogged transportation arteries frustrate commuters and disrupt the delivery of goods and services. The careless use of open space and the inadequacy of recreational services make a state less attractive to businesses, residents, and tourists.

In a free enterprise economy a state's economic health depends upon growth. Growth produces jobs, housing, and commerce. Growth is needed to generate tax revenues to maintain roads, transit systems, water and wastewater systems, and other infrastructure. The best approach is to neither limit growth nor passively accept its consequences: it lies in managing public investment in infrastructure and natural resources wisely and in viewing economic development strategically. The reality is that without growth the bills can't be paid; conversely, with too much growth, infrastructure can't be provided quickly enough to consume the revenues on hand.

One way to deal with growth is to ensure that there is ample infrastructure both in place and projected for the future. In the past, this has been done primarily through public financing activities of local governments supported by existing residents.

With spiraling costs and the reduction of federal subsidies, states must be resourceful in paying for capital facilities. First, the state must now be more sure that poorly timed or inappropriately located capital facilities are minimized. Second, the state must look for an infrastructure development partner. That partner is the private sector—a sector with whom the state must maintain good relations. The private sector, as a user and provider of infrastructure, plays a key role in financing infrastructure by paying for or constructing facilities occasioned by new development, funding infrastructure developed through user-generated revenues, and/or by participating in joint infrastructure ventures with the public sector.

It must be realized that economic development and infrastructure are linked. A good environment for business translates into a high quality of life for residents.

Economic development brings benefits and costs to many. In most instances, benefits far exceed costs, but costs cannot be ignored. Excessive costs and inefficiencies must be eliminated and costs, in the form of infrastructure development, must be shared by growing and non-growing regions as well as private- and public-sector developments.

In the current climate of federal retrenchment, states cannot "give away the store" to new growth. Further, one cannot neglect existing businesses, many of which are in place and competing on a day-to-day basis without incentives, nor can one ignore current residents who are not able to pay another dime in property taxes. These mature and prime citizens of the state must be retained at all cost. Retention of the state's existing firms and long-time residents can be achieved through strategic economic development that prioritizes allocations of resources based on a carefully derived view of the future.

DEFINITIONS RELATED TO INFRASTRUCTURE

DEFINITIONS RELATED TO INFRASTRUCTURE

Basic Definitions – General

Infrastructure consists of capital investments in land and public facilities that are necessary to support development and redevelopment for the health, safety, and welfare of citizens. These investments include public or private capital to support public or private development for the general welfare of the public.

Local and community infrastructure provides site-specific public facilities and is sensitive to the degree of development and redevelopment. The facilities provided include public water supply, wastewater treatment, public transportation, and highways and streets.

Regional infrastructure provides services to support areawide development and redevelopment. Provision of regional infrastructure is less sensitive to specific locations and patterns of growth. The facilities provided include major intrastate highways, public transit, airports, energy facilities, regional solid waste management, and other systems.

Infrastructure Need

Infrastructure need is determined by the extent to which desired *levels of service* and *standards of quality* are achieved and maintained given estimates and projections of future demand and current maintenance.

Levels of service for local and community capital facilities are typically defined in terms of the relationship of demand to designed capacity. *Standards of quality* for regional infrastructure are typically defined in terms of societal objectives such as waters that are safe for fishing and swimming; the number of direct flights to, or passenger miles served by, airports within the state; or hauling times to, or cubic dimensions of, solid waste disposal sites.

Types of Need

Local and community needs reflect those capital needs that are sensitive to municipal and region growth. *Regional needs* reflect the demands of regional and statewide growth, respectively. *Backlog needs* are the capital needs required to correct deficiencies in systems that serve the existing population. *Rehabilitation needs* are the recurring periodic capital needs to make major improvements in the existing systems. *New growth needs* are the anticipated capital needs to augment the existing systems to new growth.

Infrastructure Costs and Revenues

Infrastructure *costs* are the current dollar requirements to provide infrastructure, including backlog, rehabilitation, and new growth. Cost, determined using techniques appropriate for each infrastructure system, relates needs to estimates of costs for units and/or similar systems. Infrastructure *revenues* are the sources of finance used to pay for infrastructure costs. Traditionally, revenue sources are based on projections of authorized or appropriated revenues applicable to each infrastructure system.

DETAILED DEFINITIONS

Backlog Need – an infrastructure need that corrects existing deficiencies related to infrastructure capacity or condition. Examples include improvements to bridges that do not meet federal structural safety standards and must be repaired (condition), and a commuter rail line that does not have sufficient rolling stock to adequately serve the number of commuters on its lines (capacity). In an infrastructure need projection there are no future backlog expenditures.

Capital Outlays – the direct expenditure(s) for contract or construction of buildings, roads, and other improvements; for purchase of equipment, land, and existing structures; and for payments on capital leases. This term includes expenditures for additions, replacements, and major alterations to fixed works and structures. However, repairs are classified as current operation expenditures, as are payments on operating leases.

Infrastructure and Infrastructure Systems – capital facilities and land assets under public ownership, operated or maintained for public benefit, that are necessary to support development and redevelopment and protect the public health, safety, and welfare. Infrastructure systems include transportation, energy, tele-communications, farmland retention, water supply, wastewater disposal, storm water management, shore protection, open space and recreation, solid waste management, public health care, public education, higher education, arts, historic resources, public safety, justice, public administration, and public housing.

In these respects, *infrastructure* is the overhead needed to maintain society and the economy. Investments in infrastructure are investments in the future of the economy, environment, government, and culture. The following criteria further define *infrastructure:*

- facilities and assets that are publicly owned and/or serve the public health, safety, and welfare;
- facilities and assets that may influence the form or the location of development and redevelopment;
- capital facilities with a high fixed cost (> $50,000) and a long service life (> 10 years).

Infrastructure Need –determined by the extent to which existing or desired levels of service and standards of quality for infrastructure systems are achieved and maintained given estimates and projections of demand.

Municipal and Regional (Local) Infrastructure – components and systems that provide site-specific public services commonly associated with growth. These include, but are not limited to, public water supply, wastewater treatment, public transportation, and streets.

New Growth Need – the anticipated need for new infrastructure capacity to serve projected increases in population and employment resulting from new development and redevelopment from the projection date to the horizon year, in this case 1995 to 2015.

Rehabilitation Need – an infrastructure need associated with recurring, periodic improvements and/or replacements of capital facilities necessary to keep existing and anticipated infrastructure in service, at least through the horizon year of the assessment. *Rehabilitation needs* are distinct from, and do not include, routine operations and maintenance costs. For example, rehabilitation needs would include a roadway resurfacing project that may take place every ten years but would not include routine street cleaning and patching.

Scale of Service Delivery – Projected costs for infrastructure may be differentiated based on the *scale of service delivery* provided by the infrastructure. This assessment has two classifications, *regional* and *local*.

Regional – Infrastructure that may be categorized as *multiple region or statewide infrastructure*, and certain land assets that possess characteristics of regional or statewide infrastructure, are generally considered to be of a *regional* scale.

Local – Municipal and regional infrastructure and land assets sensitive to *local* patterns of growth and development are generally classified as *local* in scale.

Statewide (Regional) Infrastructure– services to support development and redevelopment throughout the state or its subregions that are not especially sensitive to local sites and patterns of growth and development. These include freeways, airports, energy facilities, solid waste management, higher education facilities, and other systems not elsewhere classified.

Trends or Current Conditions – the probable development patterns and associated demands for infrastructure arising from current trends projected into the future, patterns and projected magnitudes of population and employment growth, based, in turn, on current private and public practices regarding land development.

EXAMPLES OF INFRASTRUCTURE NEED

FIGURE 1.
EXAMPLES OF INFRASTRUCTURE NEED

Transportation

	Regional	Local	Backlog	Rehab	New Growth
Roads	Interstate and state highways	Local roads	Deferred highway construction	Ten-year road resurfacing	State road construction
Bridges/ Tunnels	Major bridges linking regions or states	Bridges across streams, railroads, or roads	Deferred bridge construction	Replacement of bridge superstructure or undercarriage	New or expanded bridge capacity
Public Transport	Commuter rail stations or bus parking lots	Bus stations	Deferred rail station construction	Bus terminal rehabilitation	Passenger rail car or bus purchase
Freight	Rail line addition	Rail sidings for region industrial parks	Deferred port freight handling facilities	Major service road upgrades	New rest stops for road freight
Ports	Digging, dredging, providing docks, or commercial buildings	Docks or buildings for recreational boating	Deferred projects for links to road or rail access from water-based facilities	Regular dredging or building alteration	New docks, buildings, cranes, etc.
Aviation	Metropolitan airports	County airports	Deferred metropolitan airport	Air traffic control or other equipment upgrade	New metropolitan airport construction
Other Transport	Statewide bicycle path program	Local walking and jogging paths	Deferred bicycle path improvement	Resurfacing jogging paths	New right-of-way purchase

Commerce

	Regional	Local	Backlog	Rehab	New Growth
Economic Develop-ment	Science park or regional public works project	Industrial park	Deferred computer laboratory construction	Agricultural research laboratory upgrade	New industrial park
Farmland Retention	State purchase of significant regional farm	Farmland purchases in county	Deferred farmland purchase	Purchase of adjacent farmland	Farmland purchase
Energy	Pipeline	Utility lines	Deferred pipeline construction	Electrical generating station conversion	Electrical generating station construction
Telecom-munications	Telephone communica-tions network	Cable television	Deferred telephone switching station construction	Fiber optic installation	Cable television installation

FIGURE 1.
EXAMPLES OF INFRASTRUCTURE NEED (Continued)

Public Safety, Administration and Welfare

	Regional	Local	Backlog	Rehab	New Growth
Public Safety	State or regional prison	County jail	Deferred state prison construction	Prison electrical improvements	Increased prison bed capacity
Justice	State justice complex	County courthouse	Deferred courthouse construction	Upgrading of courthouse security systems	New or expanded courthouse construction
Public Housing	Public housing complexes	County homeless shelters	Deferred construction of halfway houses	Structural repair to shelters	Construction to meet demand for scattered-site housing

Education

	Regional	Local	Backlog	Rehab	New Growth
Public Education	High schools and junior high schools	Elementary schools	Deferred construction of school buildings	Major roof or structural repair of schools	Expansion of classroom space
Higher Education	State universities and technical colleges	County colleges	Deferred construction of academic buildings	Major roof or structural repair of university buildings	Additional dormitory or recreational facilities

Health

	Regional	Local	Backlog	Rehab	New Growth
Public Health Care	Major research hospital or trauma center	County hospital or clinic	Deferred construction of children's hospital	Public space upgrades in state psychiatric care facilities	New construction of state forensic center
Water Supply	Regional reservoir	County pumping station	Deferred linkage of water supply systems	Repair of reservoir	Construction of new local pumping stations
Waste Water Disposal	Major sewage treatment facility	Home and neighborhood sewer lines	Deferred construction of sewage treat-facility	Upgrade to sewage treatment facility	Addition to sewage treatment capacity
Solid Waste	Regional landfill	County recycling center	Deferred purchase of regional solid waste facility	Environmental upgrade to existing landfill	Construction of additional recycling facilities

FIGURE 1.
EXAMPLES OF INFRASTRUCTURE NEED (Continued)

Recreation and Culture

	Regional	Local	Backlog	Rehab	New Growth
Recreation Facilities	Major state nature preserve	County park system	Deferred purchase of additional park-land	Upgrading of public marinas	Acquisition and construction of additional parks
Arts/ Libraries	State art center	County library	Deferred construction of state record storage center	Remodeling state library	Construction of regional special purpose library
Historic Resources	State museum	Locally significant historic buildings	Deferred construction of geological museum	Painting and upgrading visitors' center at state historic site	Refurbishing state and local buildings in rural locations

Environment

	Regional	Local	Backlog	Rehab	New Growth
Storm Water Manage-ment	Flood basin control	Drainage culverts	Deferred flood control project	Major dam repair	New regional water containment facilities
Shore Protection	State beach replenishment	Groins and jetties	Deferred breakwater construction	Groin and jetty repair	New breakwater construction
Sensitive Land and Water	Major wetland recovery operation	Wetland mitigation efforts	Deferred wetland recovery	Hazardous waste cleanup	Purchase of watershed development rights
Open Space and Recreation	State park system purchase	County park system purchase	Deferred purchase of parkland	Park improvements at various sites	New purchases of parkland statewide
Air Pollution	Electrical generating station scrubbers	Nonresidential monitoring devices	Deferred purchase of major improvements to technology	Refurbishment of air pollution monitoring equipment	Purchase of new technology to limit generating station pollution

STATE, REGIONAL, AND COUNTY GROWTH

STATE, REGIONAL, AND COUNTY GROWTH

State Growth

South Carolina is a state whose 1995 3.7 million population and 1.6 million jobs have increased by one-third and one-half, respectively, since 1970. In twenty years, by the year 2015, South Carolina will increase its population by about 23%, or almost 850,000, and will increase its job base by 30%, or 480,000. (See Figure 2.) It is a state that attracted $5.4 billion in nonresidential development investment in 1995, exceeding the previous yearly record by 45 percent. The jobs emerging from this growth—the largest number of jobs created in three decades (nearly 24,000)—paid an average wage of $28,500, $6,000 higher than the state average, and $2,000 higher than the national average.

Regional Growth—The "Known Five"

The vast majority of the new growth is occurring in five of the state's ten regions. (See Figures 2 and 3 [map].) The Appalachian (Greenville-Spartanburg) Region in the northwestern portion of the state is the home of BMW's domestic production facilities. In 1995 this region had the largest share of population (26%) and employment (29%) in the state. It is within the I-85 corridor from Atlanta to Washington, D.C., and is home to most of the "blue-chip" plants and manufacturing facilities that come to South Carolina. This area has the greatest diversity of employment across SIC sectors, the highest median income, and the highest number of automobile registrations. By 2015 its population will increase by 23 percent and its employment by 24 percent.

The Central Midlands Region is the home of the state's capital (Columbia) and is the center of the state's white-collar growth in the form of private-sector professionals, government workers, and university faculty, students, and staff. This region, which is cross-cut by Interstates 20 and 26, has 15 percent of the state's population and 18 percent of its job base. Population is expected to grow in this region by 24 percent and employment by 30 percent by the year 2015.

Charleston, on the eastern coast toward the middle of the state, is the home of port-oriented activities, the military, and cultural tourism. It is part of the Berkeley-Charleston-Dorchester Region, which is accessed from the north and south via Interstates 95 and 26. It has a slightly smaller population (7%) than the Central Midlands Region and about 26 percent less employment. It will grow by 22 percent in population and 50 percent in employment over the 20-year period 1995–2015.

The Myrtle Beach area, or the Grand Strand, is part of the Waccamaw Region, located along U.S. Highway 13 in the northeastern part of the state. This region, known for beach-oriented tourism and golf, is one of the fastest-growing regions in the state. Twenty years of growth will increase population by 41 percent and employment by 32 percent.

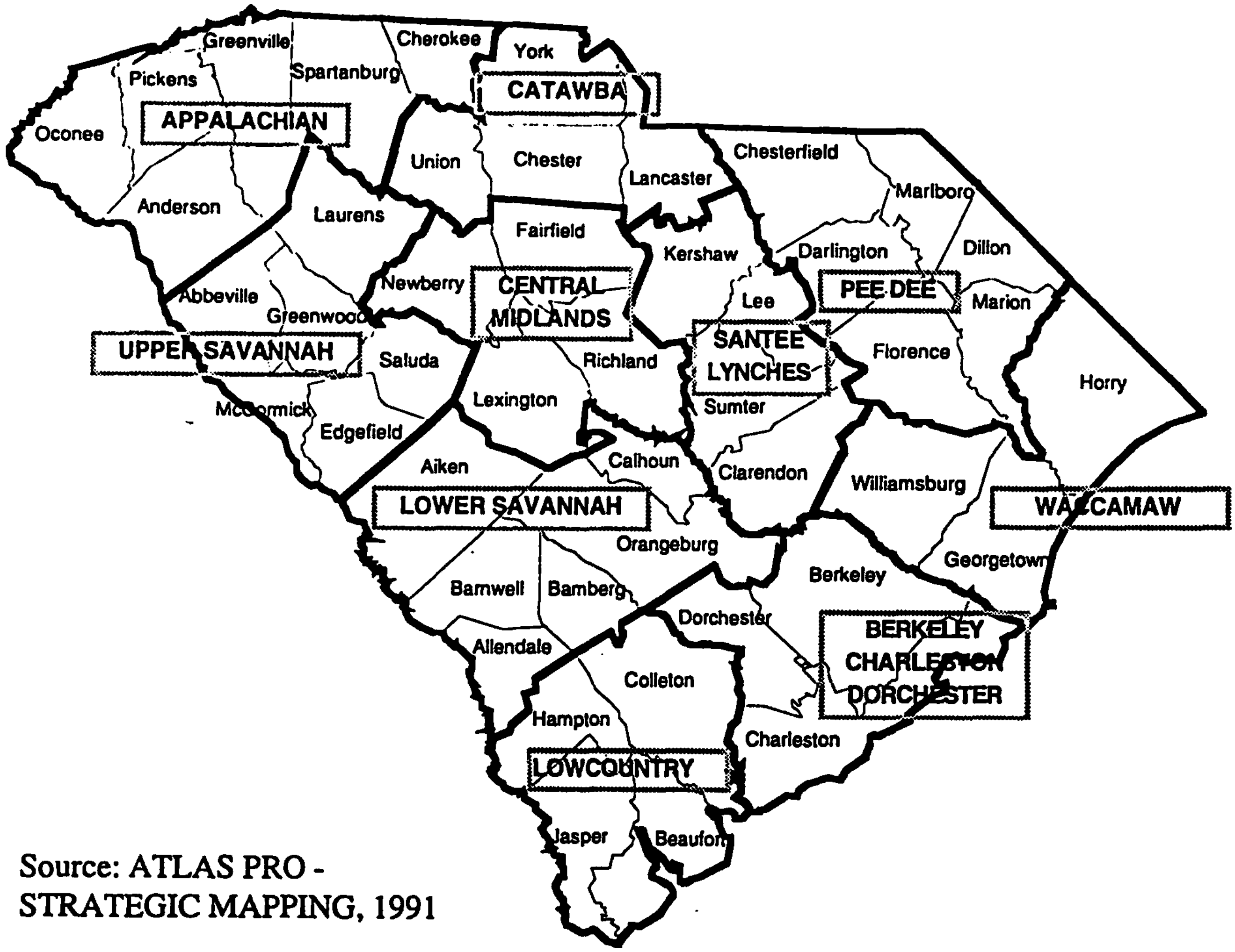
Hilton Head is part of the Lowcountry Region and is accessed via Interstate 95 in the extreme southern part of the state. This area, once known primarily for retirement or second-home development on Hilton Head Island, is now experiencing significant off-island

FIGURE 2.
POPULATION AND EMPLOYMENT GROWTH IN SOUTH CAROLINA

1995-2015

	Population				*Employment*			
Region	*1995*	*2015*	*Change #*	*Change %*	*1995*	*2015*	*Change #*	*Change %*
S.C. State Total	3,684,715	4,525,852	841,127	23%	1,609,678	2,090,258	480,570	30%
Upper Savannah	193,100	217,500	24,400	13%	74,410	85,250	10,840	15%
Pee Dee	322,700	346,100	23,400	7%	127,770	156,550	28,780	23%
Catawba	263,900	346,844	82,944	31%	94,530	120,750	26,220	28%
Waccamaw	246,300	346,600	100,300	41%	111,380	146,700	35,320	32%
Lowcountry	167,500	226,000	58,500	35%	62,970	94,200	31,230	50%
Lower Savannah	284,200	344,500	60,300	21%	111,440	137,900	26,460	24%
Central Midlands	548,300	680,300	132,000	24%	284,970	369,850	84,880	30%
Santee Lynches	203,300	234,100	30,800	15%	65,280	87,100	21,820	33%
Appalachian	946,100	1,163,400	217,300	23%	466,330	576,250	109,920	24%
Berkeley-Charleston-Dorchester	508,317	619,500	111,183	22%	209,600	314,700	105,100	50%

FIGURE 3.
COUNTIES (46) AND COG REGIONS IN THE STATE OF SOUTH CAROLINA



Source: ATLAS PRO - STRATEGIC MAPPING, 1991 population and employment growth. It is the smallest region in both aggregate population and employment, but it is the second fastest-growing region in population growth and is tied for first in employment growth.

Regional Growth – The "Comers"

The above five regions represent 66 and 71 percent of the state's population and employment, respectively; they represent about 74 and 76 percent of projected growth in these two sectors. This means that significant new growth will be taking place in other regions of the state, which is reason enough to begin to consider how infrastructure monies will be raised and allocated throughout the state. Historical patterns of South Carolina growth are still very evident, but there are also emerging activities in regions whose needs require attention.

Of the earlier-mentioned "Known Five" regions, the Lowcountry Region has the smallest projected population growth, estimated at about 59,000 over the twenty-year period.

Of the remaining regions, the Upper Savannah Region, while embraced by Interstates 20, 26, 385 and State Road 72, lacks an interstate in and around Greenwood. The Upper Savannah Region has more employment than the Lowcountry Region, but its employment will grow by a much smaller amount. (The growth in employment change will be only about a third of the growth in the Lowcountry Region.) The Upper Savannah Region, surrounding the Sumter National Forest, is and will continue to be a significant tourist destination and has been discovered by such national and international firms as Sara Lee (baked goods) and Fuji (film production).

The Catawba Region in the north-central part of the state is bisected in a north-south direction by Interstate 77 running from Columbia, SC to Charlotte, NC. Its population will grow by about 83,000 or 31 percent over the period 1995-2015. Employment growth of about 26,000 for this region will be nearly two and a half times the rate of the Upper Savannah Region. The Catawba Region is largely influenced by the growth of Charlotte, NC. Charlotte has excellent airport facilities and is only 90 miles north of Columbia.

The Lower Savannah Region, surrounded by Interstates 20 and 26 in the north and the US Route 301/I-95 corridor in the south, will grow by 60,000 in population (21%) and 26,000 in jobs (24%). A new solid waste facility has been developed at the U.S. Department of Energy, Savannah River Plant. This will answer the region's solid waste needs.

The Santee Lynches Region, the region immediately east of the region containing the state's capital, will grow by 31,000 in population or about 15 percent, and by 22,000 in employment, or about one-third. The region is traversed by Interstate 20 in an east-west direction in its northern half and by I-95 in a north-south direction in its lower half. The changing military priorities of the U.S. government continue to heavily influence the economy of this region.

The Pee Dee Region, northwest of Myrtle Beach and bordering North Carolina, will be the slowest growth region in the state in population but will still grow by about 23,000 in population and 29,000 employment. The region is divided by Interstate 95 in a north-south direction but lacks an equivalent east-west thoroughfare. State Road 501 is underdeveloped in this region.

OVERVIEW OF INFRASTRUCTURE NEEDS

OVERVIEW OF INFRASTRUCTURE NEEDS

INTRODUCTION

Table I–1 shows infrastructure needs for the state of South Carolina and Tables I–2 through I–11 for its ten Council of Governments (COG) regions. Infrastructure need is presented by seven major categories and includes 28 different areas of growth-related capital outlays. The major categories of expenditure are:

- Transportation
- Commerce
- Public Safety, Administration and Welfare
- Education
- Health
- Recreation and Culture
- Environment

Infrastructure is divided into *regional* need (state- or COG-required) and *local* need (region- or municipality-required). It is also divided into *backlog* (deferred from completion), *rehabilitation* (system repair and improvement), and *new growth* needs (additional capital facilities required).

STATE INFRASTRUCTURE NEEDS

State infrastructure needs for South Carolina will amount to about $57 billion over the twenty-year period 1995 to 2015. More than 58 percent of this infrastructure need is related to new growth ($33 billion); about 25 percent is related to rehabilitation needs, and approximately 17 percent is related to backlog. (See Table I–1.) It is assumed that backlog will be met during the twenty-year period and that it will not reoccur over the period. It is further assumed that system upgrading (rehabilitation) will take place continuously, including that required for new growth infrastructure as it ages over time.

By far the most significant category of statewide infrastructure need relates to transportation. This category alone amounts to 51 percent of the state's projected infrastructure need. Expenditures on roads, in turn, constitute three-quarters of this amount.

Other significant statewide categories of infrastructure requirements are: education (18% of total); health (14%); commerce (7%); public safety, administration and welfare (5%); the environment (3%); and recreation and culture (3%).

In terms of *both* existing development and new growth, the most significant capital expenditures will be for roads, bridges, public education and higher education, water, sewer, and economic development. On a per capita basis (including all residents and employees), new growth infrastructure need amounts to about $5,000 per new state resident over the next twenty years, and backlog/rehabilitation costs (system maintenance) amount to $3,600 per existing resident. (See Figure 4.) These are daunting levels by anyone's estimate.

INFRASTRUCTURE NEED BY REGION

Projected infrastructure needs within the state's ten region ranges from a high of $12 billion to a low of $2 billion. (See individual region tabulations, pp. 29–39.) The region with the highest projected need is the Appalachian; the region with the lowest is Santee Lynches. The highest-spending regions contain the growth nodes of Greenville-Spartanburg and Charleston; the lowest-spending region is comprised of slower-growth regions in a region west of the state's capital. Two regions that fall toward the upper end of the infrastructure need distribution are the Central Midlands Region, at $8 billion, and the Waccamaw Region, at $5 billion. These regions contain the cities of Columbia and Myrtle Beach, respectively. Columbia is receiving considerable public building investment, whereas Myrtle Beach is experiencing a significant amount of tourism-related infrastructure outlays.

The remaining five regions (Upper Savannah, Pee Dee, Catawba, Low-country, and Lower Savannah) have projected infrastructure needs in the $2–$4 billion range. With the exception of Pee Dee and Upper Savannah, these are all regions that will grow by between 55,000 and 85,000 in population over the upcoming twenty-year period. Pee Dee, larger than most of these other regions, will grow by only about 23,000 over the period and Upper Savannah by 24,000.

FIGURE 4.
EXISTING AND NEW GROWTH INFRASTRUCTURE COSTS IN SOUTH CAROLINA

1995–2015

Region	*Backlog and Rehab Costs (in $ millions)*	*Backlog and Rehab Costs per Capita ($)*	*New Growth Costs (in $ millions)*	*New Growth Costs per Capita ($)*	*Total Costs (in $ millions)*	*Total Costs per Capita ($)*
S.C. State Total	23,606	3,568	33,072	4,999	56,678	8,567
Upper Savannah	1,188	3,926	1,476	4,874	2,664	8,800
Pee Dee	1,816	3,614	1,748	3,478	3,565	7,092
Catawba	1,533	3,279	2,332	4,987	3,865	8,265
Waccamaw	1,662	3,369	3,242	6,572	4,904	9,941
Lowcountry	1,486	4,642	2,216	6,919	3,702	11,561
Lower Savannah	1,854	3,844	2,024	4,196	3,878	8,040
Central Midlands	3,438	3,274	5,028	4,788	8,466	8,061
Santee Lynches	1,018	3,169	1,229	3,825	2,246	6,994
Appalachian	5,462	3,140	6,610	3,800	12,072	6,940
Berkeley-Charleston-Dorchester	4,148	4,440	7,168	7,673	11,316	12,113

GROSS INFRASTRUCTURE NEED

STATEWIDE INFRASTRUCTURE COSTS

Table I-1
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
STATE TOTAL

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	13,426	8,320	3,098	5,488	13,160	21,746
Bridges	2,933	116	185	287	2,577	3,048
Public Transportation	857	330	216	428	543	1,187
Freight (Rail and Road)	245	71	68	146	102	316
Ports/Maritime Activities	1,471	215	338	674	674	1,686
Aviation (Including Air Freight)	427	380	164	239	404	808
Other Transportation Facilities	16	5	4	4	13	20
Total	**19,375**	**9,437**	**4,073**	**7,265**	**17,473**	**28,811**
COMMERCE						
Economic Development	1,699	370	229	85	1,754	2,069
Farmland Retention	52	21	53	9	10	72
Energy	309	85	23	221	150	394
Telecommunications	1,286	31	52	456	809	1,317
Total	**3,346**	**506**	**357**	**772**	**2,723**	**3,852**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	547	1,020	272	245	1,051	1,567
Justice (Courts)	146	339	94	157	234	485
Public Admin./ Instit./ Hsg.	180	401	145	137	298	581
Total	**873**	**1,760**	**511**	**539**	**1,584**	**2,634**
EDUCATION						
Public Education	697	6,346	1,893	1,943	3,207	7,043
Higher Education	2,629	546	152	487	2,536	3,175
Total	**3,326**	**6,892**	**2,045**	**2,430**	**5,743**	**10,218**
HEALTH						
Public Health Care	814	580	382	391	621	1,394
Water Supply	85	2,265	341	585	1,424	2,350
Waste Water Disposal	816	2,176	530	781	1,681	2,992
Solid Waste Management	259	788	540	352	155	1,047
Total	**1,973**	**5,810**	**1,794**	**2,109**	**3,880**	**7,783**
RECREATION AND CULTURE						
Recreational Facilities	155	456	104	172	335	611
Arts / Library	225	252	159	85	233	477
Historic Resources	243	186	98	152	178	427
Total	**623**	**893**	**361**	**408**	**746**	**1,516**
ENVIRONMENT						
Storm Water Management	230	666	141	254	501	896
Shore and River Protection	242	183	64	204	158	426
Sensitive Land and Water	123	140	49	23	191	263
Open Space	66	167	115	56	61	233
Air Pollution	32	15	8	27	12	48
Total	**693**	**1,172**	**378**	**564**	**923**	**1,865**
OVERALL TOTAL	**30,208**	**26,470**	**9,518**	**14,088**	**33,072**	**56,678**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

REGIONAL INFRASTRUCTURE COSTS

UPPER SAVANNAH REGION
PEE DEE REGION
CATAWBA REGION
WACCAMAW REGION
LOWCOUNTRY REGION
LOWER SAVANNAH REGION
CENTRAL MIDLANDS REGION
SANTEE LYNCHES REGION
APPALACHIAN REGION
BERKELEY-CHARLESTON-DORCHESTER REGION

Table I-2
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
UPPER SAVANNAH REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	908	333	121	454	666	1,241
Bridges	131	15	17	15	114	146
Public Transportation	50	7	10	17	30	57
Freight (Rail and Road)	9	2	3	6	2	11
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	-	14	3	3	8	14
Other Transportation Facilities	-	-	-	-	-	-
Total	**1,097**	**372**	**153**	**495**	**821**	**1,469**
COMMERCE						
Economic Development	153	33	16	4	166	186
Farmland Retention	3	1	3	1	-	4
Energy	24	5	2	16	11	29
Telecommunications	37	5	3	13	27	42
Total	**216**	**45**	**23**	**34**	**204**	**261**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	38	78	25	9	83	116
Justice (Courts)	9	21	5	10	14	29
Public Admin./ Instit./ Hsg.	8	26	8	8	18	34
Total	**55**	**124**	**38**	**27**	**114**	**179**
EDUCATION						
Public Education	20	204	65	65	94	224
Higher Education	40	-	2	6	32	40
Total	**60**	**204**	**67**	**71**	**126**	**264**
HEALTH						
Public Health Care	25	19	14	14	16	44
Water Supply	4	82	18	30	39	86
Waste Water Disposal	56	85	28	43	71	141
Solid Waste Management	13	43	31	20	5	56
Total	**98**	**229**	**90**	**106**	**131**	**328**
RECREATION AND CULTURE						
Recreational Facilities	8	21	4	8	18	30
Arts / Library	6	8	6	4	5	14
Historic Resources	12	16	4	9	13	27
Total	**26**	**45**	**14**	**21**	**36**	**71**
ENVIRONMENT						
Storm Water Management	11	26	7	14	17	37
Shore and River Protection	5	17	2	12	8	22
Sensitive Land and Water	6	11	2	1	13	17
Open Space	4	10	6	3	6	14
Air Pollution	1	1	-	2	-	2
Total	**28**	**65**	**18**	**31**	**44**	**93**
OVERALL TOTAL	**1,580**	**1,084**	**403**	**785**	**1,476**	**2,664**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-3
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
PEE DEE REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	1,063	410	201	507	765	1,473
Bridges	225	3	11	30	188	228
Public Transportation	46	6	13	24	15	52
Freight (Rail and Road)	15	4	5	11	4	20
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	15	18	7	8	18	33
Other Transportation Facilities	-	-	-	-	-	-
Total	**1,365**	**442**	**236**	**580**	**991**	**1,807**
COMMERCE						
Economic Development	180	39	29	6	184	219
Farmland Retention	4	2	5	1	-	5
Energy	20	5	1	17	6	24
Telecommunications	95	1	7	57	32	96
Total	**298**	**47**	**43**	**80**	**222**	**345**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	71	78	41	23	84	149
Justice (Courts)	11	26	9	17	10	37
Public Admin./ Instit./ Hsg.	16	36	20	12	20	51
Total	**98**	**139**	**70**	**52**	**114**	**236**
EDUCATION						
Public Education	40	260	100	100	100	300
Higher Education	98	7	5	15	85	105
Total	**138**	**267**	**105**	**115**	**185**	**405**
HEALTH						
Public Health Care	34	25	23	14	21	59
Water Supply	6	115	27	37	58	121
Waste Water Disposal	82	155	58	94	85	237
Solid Waste Management	31	160	108	74	9	191
Total	**152**	**455**	**216**	**219**	**173**	**608**
RECREATION AND CULTURE						
Recreational Facilities	10	31	8	15	18	41
Arts / Library	10	12	10	5	6	22
Historic Resources	10	13	7	10	6	23
Total	**29**	**56**	**25**	**31**	**30**	**85**
ENVIRONMENT						
Storm Water Management	14	30	10	13	21	44
Shore and River Protection	-	7	-	1	6	7
Sensitive Land and Water	3	5	3	2	3	8
Open Space	4	11	9	4	3	16
Air Pollution	2	1	-	2	-	3
Total	**23**	**55**	**22**	**22**	**34**	**78**
OVERALL TOTAL	**2,104**	**1,461**	**717**	**1,100**	**1,748**	**3,565**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-4
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
CATAWBA REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	911	608	169	526	824	1,519
Bridges	155	5	23	20	117	159
Public Transportation	53	30	16	30	37	83
Freight (Rail and Road)	11	4	4	7	4	15
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	2	11	3	5	5	13
Other Transportation Facilities	1	-	-	-	1	1
Total	**1,133**	**656**	**215**	**587**	**988**	**1,790**
COMMERCE						
Economic Development	137	30	15	6	146	167
Farmland Retention	4	1	4	1	1	5
Energy	19	4	2	13	9	23
Telecommunications	43	-	2	15	26	43
Total	**202**	**36**	**23**	**34**	**181**	**238**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	61	117	31	12	136	178
Justice (Courts)	11	22	8	4	21	33
Public Admin./ Instit./ Hsg.	14	29	10	5	29	43
Total	**86**	**168**	**48**	**21**	**186**	**255**
EDUCATION						
Public Education	22	383	55	55	295	405
Higher Education	313	47	18	54	288	360
Total	**335**	**430**	**73**	**109**	**583**	**765**
HEALTH						
Public Health Care	47	35	19	22	42	83
Water Supply	21	179	23	45	131	200
Waste Water Disposal	30	253	59	108	116	283
Solid Waste Management	14	47	31	19	11	61
Total	**112**	**515**	**133**	**193**	**300**	**627**
RECREATION AND CULTURE						
Recreational Facilities	11	29	7	12	21	40
Arts / Library	23	4	11	5	11	26
Historic Resources	9	11	5	7	8	20
Total	**43**	**43**	**23**	**24**	**40**	**86**
ENVIRONMENT						
Storm Water Management	14	49	10	15	38	63
Shore and River Protection	5	6	3	6	2	12
Sensitive Land and Water	6	6	3	1	8	12
Open Space	4	10	7	4	3	14
Air Pollution	2	1	-	2	1	3
Total	**31**	**73**	**24**	**28**	**53**	**104**
OVERALL TOTAL	1,943	1,922	537	996	2,332	3,865

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-5
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
WACCAMAW REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	1,413	759	185	408	1,579	2,172
Bridges	152	6	3	15	140	158
Public Transportation	97	33	15	34	81	130
Freight (Rail and Road)	16	4	3	9	8	20
Ports/Maritime Activities	8	2	2	4	4	10
Aviation (Including Air Freight)	-	68	13	20	35	68
Other Transportation Facilities	1	-	-	-	1	1
Total	**1,687**	**872**	**221**	**490**	**1,847**	**2,559**
COMMERCE						
Economic Development	147	32	20	6	153	179
Farmland Retention	4	1	3	1	1	5
Energy	17	7	1	10	12	23
Telecommunications	62	-	2	16	44	62
Total	**229**	**40**	**27**	**32**	**210**	**269**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	45	88	17	12	104	133
Justice (Courts)	6	23	5	10	14	29
Public Admin./ Instit./ Hsg.	12	34	8	7	32	47
Total	**63**	**145**	**29**	**28**	**150**	**208**
EDUCATION						
Public Education	91	737	201	236	391	828
Higher Education	11	80	4	14	73	91
Total	**102**	**817**	**205**	**250**	**464**	**919**
HEALTH						
Public Health Care	48	36	18	22	44	83
Water Supply	8	195	21	37	146	203
Waste Water Disposal	57	192	24	61	164	248
Solid Waste Management	15	37	21	15	16	52
Total	**127**	**459**	**84**	**134**	**368**	**586**
RECREATION AND CULTURE						
Recreational Facilities	14	36	5	11	34	50
Arts / Library	27	3	10	4	17	30
Historic Resources	14	21	4	9	22	35
Total	**55**	**60**	**19**	**23**	**73**	**115**
ENVIRONMENT						
Storm Water Management	22	59	9	19	53	81
Shore and River Protection	88	20	15	58	35	108
Sensitive Land and Water	15	21	3	1	32	36
Open Space	4	14	7	4	8	18
Air Pollution	1	2	1	1	1	4
Total	**131**	**117**	**35**	**84**	**129**	**247**
OVERALL TOTAL	**2,394**	**2,510**	**620**	**1,042**	**3,242**	**4,904**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-6
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
LOWCOUNTRY REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	674	469	107	329	707	1,143
Bridges	183	-	18	18	147	183
Public Transportation	52	5	9	16	32	57
Freight (Rail and Road)	8	3	3	5	3	11
Ports/Maritime Activities	137	19	32	62	62	156
Aviation (Including Air Freight)	242	137	77	114	188	379
Other Transportation Facilities	1	-	-	-	1	1
Total	**1,297**	**633**	**246**	**544**	**1,140**	**1,930**
COMMERCE						
Economic Development	125	27	11	15	126	152
Farmland Retention	4	2	3	1	2	6
Energy	11	3	1	7	6	14
Telecommunications	37	3	2	13	25	40
Total	**177**	**35**	**17**	**36**	**159**	**212**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	26	49	13	10	52	75
Justice (Courts)	7	18	5	3	17	25
Public Admin./ Instit./ Hsg.	9	26	7	4	24	34
Total	**42**	**93**	**25**	**17**	**93**	**135**
EDUCATION						
Public Education	48	417	120	120	225	465
Higher Education	34	46	4	12	64	80
Total	**82**	**463**	**124**	**132**	**289**	**545**
HEALTH						
Public Health Care	50	38	12	13	63	88
Water Supply	6	129	14	24	97	135
Waste Water Disposal	141	116	34	55	168	257
Solid Waste Management	11	34	21	15	9	45
Total	**208**	**317**	**81**	**107**	**337**	**525**
RECREATION AND CULTURE						
Recreational Facilities	25	63	14	18	56	87
Arts / Library	5	9	4	2	8	14
Historic Resources	8	9	4	6	8	17
Total	**38**	**81**	**22**	**26**	**71**	**119**
ENVIRONMENT						
Storm Water Management	12	37	6	11	32	49
Shore and River Protection	81	40	18	62	40	120
Sensitive Land and Water	22	33	2	2	51	55
Open Space	2	7	5	2	3	10
Air Pollution	1	1	-	1	1	2
Total	**119**	**119**	**31**	**78**	**127**	**236**
OVERALL TOTAL	**1,963**	**1,740**	**546**	**940**	**2,216**	**3,702**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-7
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
LOWER SAVANNAH REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	959	614	201	644	728	1,573
Bridges	144	2	17	18	111	146
Public Transportation	48	6	12	22	19	54
Freight (Rail and Road)	19	6	4	10	10	24
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	-	14	3	3	8	14
Other Transportation Facilities	1	-	-	-	1	1
Total	**1,171**	**641**	**237**	**697**	**878**	**1,812**
COMMERCE						
Economic Development	63	18	8	6	66	81
Farmland Retention	4	1	4	1	1	5
Energy	48	4	4	28	20	52
Telecommunications	58	-	3	19	36	58
Total	**172**	**24**	**19**	**54**	**123**	**196**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	62	124	19	11	156	186
Justice (Courts)	12	36	5	12	30	48
Public Admin./ Instit./ Hsg.	9	27	6	13	17	36
Total	**83**	**186**	**31**	**36**	**203**	**270**
EDUCATION						
Public Education	56	459	140	140	235	515
Higher Education	241	81	16	60	246	322
Total	**297**	**540**	**156**	**200**	**481**	**837**
HEALTH						
Public Health Care	57	42	25	32	42	99
Water Supply	2	164	28	48	90	166
Waste Water Disposal	37	167	48	55	101	204
Solid Waste Management	19	57	42	22	12	76
Total	**115**	**430**	**144**	**157**	**244**	**545**
RECREATION AND CULTURE						
Recreational Facilities	13	42	7	21	27	55
Arts / Library	11	14	8	4	11	24
Historic Resources	12	14	6	13	8	27
Total	**36**	**70**	**21**	**38**	**46**	**106**
ENVIRONMENT						
Storm Water Management	20	54	11	29	35	74
Shore and River Protection	1	10	1	4	6	11
Sensitive Land and Water	4	5	4	2	4	9
Open Space	4	10	8	4	3	14
Air Pollution	3	2	1	2	1	5
Total	**32**	**81**	**24**	**41**	**48**	**113**
OVERALL TOTAL	**1,906**	**1,972**	**632**	**1,223**	**2,024**	**3,878**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-8
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
CENTRAL MIDLANDS REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	1,829	1,228	547	640	1,870	3,057
Bridges	153	11	17	35	113	164
Public Transportation	150	61	38	75	98	211
Freight (Rail and Road)	49	14	13	30	20	63
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	42	17	12	17	30	59
Other Transportation Facilities	2	1	1	-	2	3
Total	**2,225**	**1,332**	**627**	**797**	**2,133**	**3,557**
COMMERCE						
Economic Development	133	29	15	11	135	161
Farmland Retention	7	3	8	1	1	10
Energy	47	16	2	36	25	64
Telecommunications	280	2	12	88	182	282
Total	**467**	**50**	**37**	**136**	**344**	**517**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	66	124	29	24	136	189
Justice (Courts)	35	50	19	18	48	85
Public Admin./ Instit./ Hsg.	50	70	26	17	77	120
Total	**151**	**244**	**74**	**59**	**261**	**395**
EDUCATION						
Public Education	118	984	295	295	512	1,102
Higher Education	1,113	67	59	177	944	1,180
Total	**1,231**	**1,051**	**354**	**472**	**1,456**	**2,282**
HEALTH						
Public Health Care	134	89	46	52	125	223
Water Supply	6	423	64	137	228	429
Waste Water Disposal	34	400	94	114	225	434
Solid Waste Management	42	95	65	47	25	137
Total	**215**	**1,007**	**269**	**351**	**603**	**1,223**
RECREATION AND CULTURE						
Recreational Facilities	19	65	14	27	43	84
Arts / Library	22	95	38	21	58	117
Historic Resources	45	12	18	24	15	58
Total	**86**	**172**	**70**	**72**	**116**	**258**
ENVIRONMENT						
Storm Water Management	46	107	24	41	88	153
Shore and River Protection	4	10	2	7	5	14
Sensitive Land and Water	17	9	9	3	14	26
Open Space	12	22	21	8	5	34
Air Pollution	5	2	1	3	2	7
Total	**83**	**151**	**57**	**63**	**114**	**234**
OVERALL TOTAL	**4,459**	**4,006**	**1,488**	**1,950**	**5,028**	**8,466**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-9
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
SANTEE LYNCHES REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	633	322	124	307	524	955
Bridges	108	2	2	17	92	110
Public Transportation	36	5	9	17	14	40
Freight (Rail and Road)	10	3	3	6	3	13
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	4	6	2	5	3	10
Other Transportation Facilities	-	-	-	-	-	-
Total	**790**	**337**	**140**	**352**	**636**	**1,128**
COMMERCE						
Economic Development	77	13	9	3	78	90
Farmland Retention	3	1	3	-	-	4
Energy	16	4	1	14	5	20
Telecommunications	29	-	2	13	14	30
Total	**125**	**18**	**15**	**31**	**97**	**143**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	32	64	18	6	71	96
Justice (Courts)	8	23	3	5	22	31
Public Admin./ Instit./ Hsg.	4	12	6	5	4	15
Total	**43**	**98**	**27**	**17**	**98**	**142**
EDUCATION						
Public Education	32	250	80	80	122	282
Higher Education	47	13	3	9	48	60
Total	**79**	**263**	**83**	**89**	**170**	**342**
HEALTH						
Public Health Care	25	19	15	15	15	44
Water Supply	2	107	20	33	56	109
Waste Water Disposal	57	95	30	42	79	151
Solid Waste Management	11	40	27	18	6	51
Total	**95**	**261**	**92**	**108**	**156**	**356**
RECREATION AND CULTURE						
Recreational Facilities	5	14	4	7	9	20
Arts / Library	13	16	4	3	22	28
Historic Resources	7	10	4	7	6	17
Total	**26**	**40**	**12**	**16**	**37**	**65**
ENVIRONMENT						
Storm Water Management	9	27	6	11	19	36
Shore and River Protection	4	6	1	3	6	10
Sensitive Land and Water	3	7	3	2	6	10
Open Space	4	8	6	3	3	12
Air Pollution	1	1	-	2	-	2
Total	**21**	**49**	**16**	**20**	**34**	**70**
OVERALL TOTAL	**1,179**	**1,067**	**386**	**632**	**1,229**	**2,246**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-10
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
APPALACHIAN REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	2,394	2,360	951	1,141	2,662	4,754
Bridges	371	72	47	60	336	443
Public Transportation	184	115	61	126	112	299
Freight (Rail and Road)	64	18	19	38	26	83
Ports/Maritime Activities	-	-	-	-	-	-
Aviation (Including Air Freight)	91	82	35	52	86	173
Other Transportation Facilities	4	2	2	1	2	5
Total	**3,108**	**2,649**	**1,114**	**1,418**	**3,224**	**5,757**
COMMERCE						
Economic Development	506	110	86	19	511	616
Farmland Retention	13	5	13	2	2	18
Energy	64	22	6	52	28	86
Telecommunications	342	3	10	131	205	346
Total	**925**	**140**	**114**	**204**	**746**	**1,065**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	90	185	46	67	162	275
Justice (Courts)	13	45	13	34	11	58
Public Admin./ Instit./ Hsg.	14	46	18	19	23	60
Total	**118**	**276**	**78**	**120**	**195**	**393**
EDUCATION						
Public Education	155	1,763	562	562	794	1,918
Higher Education	381	154	27	79	429	535
Total	**536**	**1,917**	**589**	**641**	**1,223**	**2,453**
HEALTH						
Public Health Care	175	130	92	90	123	305
Water Supply	16	547	84	133	347	563
Waste Water Disposal	167	463	105	135	390	630
Solid Waste Management	65	188	137	80	36	253
Total	**423**	**1,329**	**417**	**438**	**896**	**1,751**
RECREATION AND CULTURE						
Recreational Facilities	13	52	13	24	28	65
Arts / Library	82	33	40	22	52	114
Historic Resources	36	62	19	21	58	98
Total	**130**	**147**	**73**	**67**	**138**	**277**
ENVIRONMENT						
Storm Water Management	55	166	38	64	119	221
Shore and River Protection	6	14	5	8	7	20
Sensitive Land and Water	27	28	12	6	37	55
Open Space	17	49	30	15	22	67
Air Pollution	10	4	2	8	3	13
Total	**114**	**261**	**87**	**101**	**188**	**376**
OVERALL TOTAL	**5,354**	**6,719**	**2,473**	**2,989**	**6,610**	**12,072**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

Table I-11
SOUTH CAROLINA INFRASTRUCTURE NEEDS (1995-2015)
(in millions of current dollars)
BERKELEY-CHARLESTON-DORCHESTER REGION

Service Area	*Regional*	*Local*	*Backlog*	*Rehab*	*New Growth*	*Total*
TRANSPORTATION						
Roads	2,642	1,217	492	532	2,835	3,859
Bridges	1,313	2	33	60	1,221	1,314
Public Transportation	141	63	33	67	104	204
Freight (Rail and Road)	43	13	11	24	20	55
Ports/Maritime Activities	1,326	194	304	608	608	1,520
Aviation (Including Air Freight)	32	13	9	13	23	45
Other Transportation Facilities	5	1	1	1	4	6
Total	**5,501**	**1,502**	**883**	**1,305**	**4,815**	**7,003**
COMMERCE						
Economic Development	179	39	19	10	189	218
Farmland Retention	7	3	7	1	1	9
Energy	44	15	3	28	27	58
Telecommunications	304	15	10	91	218	319
Total	**534**	**71**	**40**	**130**	**435**	**605**
PUBLIC SAFETY, ADMINISTRATION AND WELFARE						
Public Safety (Jails)	57	114	32	71	67	170
Justice (Courts)	35	76	21	43	47	111
Public Admin./ Instit./ Hsg.	43	97	38	47	55	140
Total	**135**	**286**	**91**	**161**	**169**	**421**
EDUCATION						
Public Education	115	890	275	290	440	1,005
Higher Education	351	51	14	61	327	402
Total	**466**	**940**	**289**	**351**	**767**	**1,407**
HEALTH						
Public Health Care	218	147	117	117	131	365
Water Supply	15	323	42	63	233	338
Waste Water Disposal	155	252	50	74	283	407
Solid Waste Management	39	86	57	42	26	125
Total	**427**	**807**	**266**	**296**	**672**	**1,234**
RECREATION AND CULTURE						
Recreational Facilities	37	103	29	29	82	140
Arts / Library	28	60	28	16	44	87
Historic Resources	89	17	27	46	34	106
Total	**154**	**180**	**83**	**91**	**159**	**333**
ENVIRONMENT						
Storm Water Management	27	109	21	37	78	136
Shore and River Protection	48	53	16	43	42	101
Sensitive Land and Water	19	15	8	4	22	34
Open Space	11	24	19	9	8	35
Air Pollution	5	2	1	4	2	7
Total	**110**	**203**	**65**	**97**	**151**	**313**
OVERALL TOTAL	**7,327**	**3,989**	**1,716**	**2,431**	**7,168**	**11,316**

Source: Rutgers CUPR; Wilbur Smith Associates; Siemon, Larsen & Marsh; Sandstone Environmental Associates - Projections, August 1996

SOURCES OF INFRASTRUCTURE INFORMATION

SOURCES OF INFRASTRUCTURE INFORMATION

TRANSPORTATION

Aviation (Including Air Freight)

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