

# Appalachian Regional Transit Plan



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and



*for the*

South Carolina Department of Transportation

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# Table of Contents

<b>TABLE OF CONTENTS.....</b>	<b>II</b>
<b>LIST OF TABLES .....</b>	<b>IV</b>
<b>LIST OF FIGURES.....</b>	<b>IV</b>
<b>SECTION 1: INTRODUCTION.....</b>	<b>1</b>
1.1 PURPOSE OF STATEWIDE MULTIMODAL TRANSPORTATION PLAN .....	1
1.2 PURPOSE OF REGIONAL PLAN .....	1
<b>SECTION 2: OVERVIEW OF TRANSIT IN THE REGION.....</b>	<b>3</b>
2.1 EXISTING CONDITIONS .....	3
2.1.1 Overall Population .....	3
2.1.2 Elderly Population.....	3
2.1.3 Persons Below the Poverty Level.....	3
2.1.4 Median Household Income.....	4
2.1.5 Change in Daytime Population .....	4
2.1.6 Demographic Summary.....	4
2.2 FUTURE CONDITIONS .....	4
2.3 LOCAL / REGIONAL TRANSIT SERVICES .....	5
2.3.1 Regional Overview.....	5
2.3.2 Trends in Ridership and Amount of Service Provided.....	6
2.3.3 Trends in Efficiency and Effectiveness.....	8
2.4 STRATEGIC PLANNING EFFORTS .....	10
2.5 STAKEHOLDER INPUT .....	11
2.5.1 List of Interviewees.....	11
2.5.2 Interview Questions .....	11
2.5.3 Summary of Input .....	12
2.6 SUMMARY.....	16
<b>SECTION 3: TRANSIT PERCEPTIONS &amp; ATTITUDES .....</b>	<b>17</b>
3.1 FOCUS GROUPS.....	17
3.1.1 Who Should Be Served by Public Transportation .....	17
3.1.2 Preferred Funding Mechanisms for Public Transportation .....	17
3.2 STATEWIDE SURVEY REPORT – APPALACHIAN REGION RESULTS .....	17
3.2.1 Purpose.....	17
3.2.2 Major Findings .....	17
3.2.3 Other Findings .....	19
<b>SECTION 4: VISION FOR TRANSIT IN SOUTH CAROLINA .....</b>	<b>20</b>
4.1 PURPOSE OF VISION .....	20
4.2 VISION.....	20
<b>SECTION 5: REGIONAL TRANSIT NEEDS .....</b>	<b>22</b>
5.1 METHODS SELECTION FOR SOUTH CAROLINA.....	22
5.2 APPLICATION OF METHODS.....	22
5.2.1 Arkansas Public Transportation Needs Assessment (APTNA) Method.....	23
5.2.2 Mobility Gap Method.....	25
5.2.3 Comparison of Results .....	28



5.3 TRANSIT DEMAND VALIDATION ..... 30

    5.3.1 *Modal Split Analysis*..... 30

    5.3.2 *Recommended Demand Estimation Methodology*..... 32

5.4 QUANTIFYING TRANSIT NEED..... 32

    5.4.1 *Transit Need in the Region*..... 32

    5.4.2 *Transit Net Operating Costs* ..... 34

    5.4.3 *Capital Needs* ..... 36

    5.4.4 *Total Capital and Operating Costs* ..... 40

5.5 INTERCITY / INTERREGIONAL TRANSIT NEEDS ..... 41

    5.5.1 *Intercity High Speed and Passenger Rail Assessment*..... 42

5.6 CRITICAL AND POTENTIAL TRANSIT CORRIDORS ..... 42

    5.6.1 *Potential Transit Technologies* ..... 43

    5.6.2 *Corridor Evaluation Criteria* ..... 44

    5.6.3 *Appalachian Region Corridors*..... 46

5.6.4 OTHER POTENTIAL TRANSIT CORRIDORS ..... 50

**SECTION 6: TRANSIT FUNDING NEEDS ..... 55**

6.1 DISCUSSION OF FUNDING ISSUES FOR THE APPALACHIAN REGION..... 55

6.2 POTENTIAL NEW FUNDING SOURCES ..... 55

    6.2.1 *Possible Funding Mechanisms*..... 56

**SECTION 7: ACTION PLANS ..... 58**

7.1 CLOSE THE GAP BETWEEN FUNDING NEEDS AND AVAILABLE FUNDING LEVELS ..... 58

    7.1.1 *Improve Efforts to Leverage Federal Dollars*..... 59

    7.1.2 *Allow Greater Flexibility for Local Jurisdictions to Generate Funds*..... 59

    7.1.3 *Increase State Funding for Transit*..... 60

    7.1.4 *Engage Non-Traditional Partners*..... 60

7.2 INCREASE COORDINATION AMONG PROVIDERS ..... 61

7.3 EXPAND TRANSIT SERVICE ..... 61

    7.3.1 *Need to Accommodate the In-Flux of Elderly*..... 62

    7.3.2 *Target Gaps in Rural Areas*..... 62

    7.3.3 *“Right Size” Urban Systems* ..... 62

    7.3.4 *Increase in Commuter Based Services* ..... 63

    7.3.5 *Needs Incremental Approach with Sustainability* ..... 64

7.4 OTHER ACTION ITEMS ..... 64

    7.4.1 *Coordinating Transportation and Land Use Decisions*..... 64

    7.4.2 *Upgrade Passenger Rail Service* ..... 65

7.5 CONCLUSION ..... 65



**List of Tables**

Table 1: Appalachian Regional Population Growth Rates ..... 4  
 Table 2: Appalachian Regional Population Projections by County ..... 5  
 Table 3: Appalachian Composite Vehicles in Maximum Service (FY 2002 to FT 2005) ..... 6  
 Table 4: Appalachian Composite Passengers (FY 2002 to FY 2005) ..... 7  
 Table 5: Appalachian Composite Vehicle Miles (FY 2002 to FTY 2005) ..... 7  
 Table 6: Appalachian Composite Vehicle Hours (FY 2002 to FY 2005) ..... 8  
 Table 7: Rural & Urban Population Groups Used in APTNA Method ..... 23  
 Table 8: 2001 National Household Transportation Survey (APTNA) Data ..... 24  
 Table 9: Estimated Annual & Daily Transit Demand: APTNA Method ..... 25  
 Table 10: Households With No Vehicle Available: 2010 to 2030 ..... 26  
 Table 11: 2001 National Household Travel Survey Mobility Gap Data ..... 26  
 Table 12: Mobility Gap Calculations ..... 27  
 Table 13: Estimated Annual & Daily Transit Demand: Mobility Gap ..... 28  
 Table 14: Estimated Annual & Daily Transit Demand: Adjusted Needs (Per Formula) ..... 29  
 Table 15: Comparison of Results for Estimated Rural & Urban Transit Demand ..... 30  
 Table 16: Estimated Rural & Urban Transit Demand by Appalachian Region Total ..... 31  
 Table 17: 2005 and 2030 Transit Need ..... 33  
 Table 18: Transit Subsidy for 2005 & 2030 ..... 35  
 Table 19: Vehicle Needs for 2008 & 2030 ..... 38  
 Table 20: Vehicle Needs & Cost Over 25 Years ..... 38  
 Table 21: Facility Needs Assumptions Based Upon Fleet Size ..... 39  
 Table 22: Total Operating, Vehicle & Facility Capital Costs: 2005 to 2030 ..... 40  
 Table 23: Total Operating, Vehicle and Facility Costs: 2005 to 2030 ..... 40  
 Table 24: Potential Transit Options ..... 63

**List of Figures**

Figure 1: Location of Appalachian Region ..... 2  
 Figure 2: Annual Operating Expenses (Region Totals FY 2002 to FY 2005) ..... 6  
 Figure 3: Ridership per Vehicle Mile (FY 2002 to FY 2005) ..... 9  
 Figure 4: Ridership per Vehicle Hour (FY 2002 to FY 2005) ..... 9  
 Figure 5: Operating Cost per Passenger, per Vehicle Mile and per Vehicle Hour ..... 10  
 Figure 6: Respondents' Attitudes towards Funding Public Transportation ..... 19  
 Figure 7: Existing Service & Transit Need ..... 33  
 Figure 8: Transit Need and Strategy to Meet: 2005 to 2030 ..... 34  
 Figure 9: Estimate of Subsidy Needed for 2005 ..... 35  
 Figure 10: Transit Subsidy & Strategy to Meet: 2005 to 2030 ..... 36  
 Figure 11: Vehicle Needs for 2008 ..... 37  
 Figure 12: Vehicle Capital Expenditures Over 25 Years ..... 39  
 Figure 13: Potential Transit Corridors ..... 54



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## Section 1: Introduction

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### **1.1 Purpose of Statewide Multimodal Transportation Plan**

The South Carolina Statewide Multimodal Transportation Plan is being developed to set a course for future transportation investments in South Carolina. It is a long-range planning effort intended to establish a strategic statewide transportation vision, focusing on the mobility of people and the efficient movement of freight and goods. The overall plan consists of three major components that are connected and coordinated:

- Statewide Corridor Plan;
- Statewide Transit Plan; and
- Statewide Railroad Right-of-Way Preservation Plan.

These elements will be linked to provide a cohesive strategy and vision for transportation investments in the state.

### **1.2 Purpose of Regional Plan**

Public transit is an integral part of the region's transportation network. Transit provides mobility to thousands of residents in the region, and is an important tool to foster personal independence and promote economic development. Transit is more than just buses in cities; some form of transit is available in many parts of the state in both rural and urban areas. However, the extent of service varies greatly from region to region.

The Statewide Plan compiles findings developed throughout the study process, focusing on strategies and action items for South Carolina transit in general. The following elements have been included:

- Service needs and strategies – General descriptions for transit service improvements to meet the identified needs;
- Financial needs and strategies – Funding projections for existing services, as well as proposed services. These costs are compared to funding estimates using existing sources as well as potential new sources.
- Capital / technology needs and strategies – Projections of vehicle needs, technology needs (e.g. ITS applications), and facility needs (e.g. multimodal centers) are given.
- Policy needs and strategies – Suggested policy revisions and general planning guidelines are addressed. Transportation coordination issues regarding human service agencies are included in this discussion.

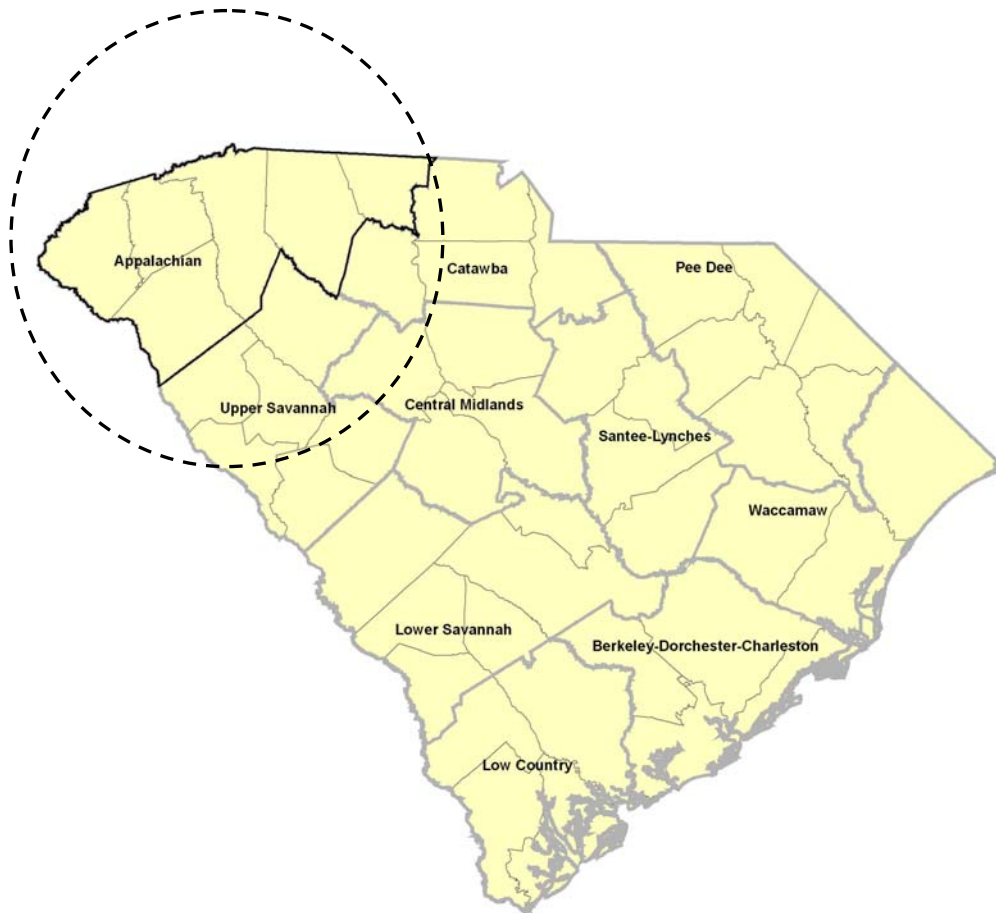
A goal of the transit element of the overall Statewide Plan was to produce recommendations that are geared toward both “statewide” and “regional” interests. At the regional level, strategies and action items were defined that local planners (including



COGs, MPOs, and municipalities) and transit agencies can support and use. These action items vary from region to region, depending on the pertinent concerns and needs in each area. For the purposes of this study, the “regions” are defined as the ten planning regions in South Carolina as defined by COG boundaries. This document is the Appalachian Regional Transit Plan. A separate overall Statewide Plan and nine other Regional Plan documents that are tied to the overall statewide transit plan examine each of the other regions of the state.

A map showing the location of the Appalachian Council of Governments, along with the other nine regions, is included as Figure 1.

Figure 1: Location of Appalachian Region



Source: South Carolina Department of Transportation



## **Section 2: Overview of Transit in the Region**

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South Carolina is primarily a rural state, but one that is rapidly growing and urbanizing in many areas. Although transit needs are significant in both rural and urban areas, existing transit services vary widely in terms of the availability and scope of services. In urban areas, fixed-route services operate on set schedules and routes, and demand-response services operate according to demand within a defined service area. In rural areas, demand-response services cover a wide area, and commuter services enable connections to urban areas in some regions.

### **2.1 Existing Conditions**

Each of the state's ten planning regions has unique conditions and demands related to transit. Key demographic characteristics for the Appalachian region are presented in this section, along with an overview of current transit operations. The Appalachian region consists of six counties in northwestern South Carolina: Anderson, Cherokee, Greenville, Oconee, Pickens, and Spartanburg. Key demographic information is summarized below.

#### **2.1.1 Overall Population**

In 2005, the combined population of the Appalachian region was about 1.1 million people. Three counties (Anderson, Greenville, and Spartanburg) have about 850,000 people in combined population, with Greenville alone having over 425,000 people. With the exception of Greenville County, all counties grew from 2000 to 2005 at a rate less than the state average of 6.1 percent. Greenville County, at a rate of 7.3 percent, grew faster than the state as a whole during the five year period. The entire region had a population growth rate of 5.6 percent from 2000 to 2005, only slightly less than the state as a whole.

#### **2.1.2 Elderly Population**

Overall, in 2005, 12.4 percent of the South Carolina's population was aged 65 years and older. Anderson, Spartanburg, and Oconee counties had a higher proportion of elderly people than the state as a whole. Oconee has 16.7 percent of its population aged 65 years of age and older. The remaining three counties have much younger populations, with elderly proportions below the overall state average. For the region as a whole, 12.7 percent of the population is elderly, which is consistent with the state's average.

#### **2.1.3 Persons Below the Poverty Level**

About 13.8 percent of the state's population (in 2003) was considered at or below the poverty level. Of Appalachian's six counties, only Cherokee County, at 14.8 percent, is above this level with a relatively higher level of poverty. The remaining five counties are below the state average with Pickens the lowest at 11.5 percent of its population. On the whole, the region is relatively affluent.



### 2.1.4 Median Household Income

The median South Carolina household had an annual income (in 2003) of \$38,003. Four of the region's counties are above this level while Cherokee and Pickens Counties are below. Greenville County has the highest income level at \$41,984 with Cherokee County having the lowest at \$34,274.

### 2.1.5 Change in Daytime Population

Spartanburg and Greenville Counties experience an increase in daytime population while remaining counties in the region have decreases. Greenville County gains about 9.5 percent in daytime population while Pickens County loses just over 10 percent of its population and Anderson County loses about 6.5 percent.

### 2.1.6 Demographic Summary

The Appalachian region is experiencing notable growth in its urban areas, and as a whole, is fairly consistent with state averages in most demographic statistics. However, several counties are somewhat atypical, including Greenville County's rapid growth rate, Oconee County's high elderly population, and Cherokee County's relatively high poverty rate. Thus, both urban and rural-based transit services are likely to grow in importance over the coming years. Spartanburg and Greenville Counties are the focus areas for jobs in the region, illustrating potential support for commuter-oriented transit services to these areas.

## 2.2 Future Conditions

Table 1 shows the projected changes in the region's population. The region as a whole is expected to grow faster than the rest of the state, with some counties outpacing the state's average in 2020 and 2030. Table 2 shows the projections in absolute numbers. By 2030, four of the six counties will have populations greater than 150,000 people, indicating an increasingly urban region.

Table 1: Appalachian Regional Population Growth Rates

County	2000 to 2005 (%)	2005 to 2010 (%)	2005 to 2020 (%)	2005 to 2030 (%)
Anderson	5.9	3.9	13.3	22.7
Cherokee	2.5	6.8	18.2	28.9
Greenville	7.3	4.7	16.5	28.1
Oconee	5.1	7.7	20.7	33.5
Pickens	2.5	9.1	23.0	36.1
Spartanburg	5.1	4.9	14.8	24.6
Appalachian COG	5.6%	5.4%	16.6%	27.6%
South Carolina	6.1%	4.7%	15.5%	26.2%

Source: Data by SCDOT



Table 2: Appalachian Regional Population Projections by County

County	2000	2005	2010	2020	2030
Anderson	165,740	175,514	182,340	198,840	215,380
Cherokee	52,537	53,844	57,510	63,660	69,420
Greenville	379,616	407,383	426,570	474,430	521,990
Oconee	66,215	69,577	74,920	83,980	92,920
Pickens	110,757	113,575	123,960	139,710	154,610
Spartanburg	253,791	266,809	279,870	306,210	332,450
Appalachian COG	1,028,656	1,086,702	1,145,170	1,266,830	1,386,770
South Carolina	4,012,012	4,255,083	4,458,920	4,916,900	5,371,150

Source: Data by SCDOT

### 2.3 Local / Regional Transit Services

There are five public transit providers in the Appalachian region, as summarized below.

- City of Anderson (Electric City Transit) provides deviated fixed route service and downtown shuttle service in the Anderson urbanized area.
- Clemson Area Transit (CAT) provides fixed route services to the Clemson University campus and City of Clemson, as well as several surrounding communities.
- Greenville Transit Authority (GTA) provides fixed route and complementary paratransit service as well as medical transport service in the Greenville urbanized area.
- Spartanburg Area Regional Transit Authority (SPARTA) provides fixed route service in the Spartanburg urbanized area.
- Spartanburg County Transportation Services Board (SCTSB) provides demand response service in Spartanburg County.

#### 2.3.1 Regional Overview

Collectively, the five public transit providers in the Appalachian region had 93 vehicles actively providing service in FY 2005, continuing a growth trend from previous years. In FY 2005, the combined systems provided almost 3 million passenger trips. About half of these trips are from the Clemson Area Transit system, which offers service to students as well as the general public, and is funded largely through a portion of Clemson University student fees.

Table 3 illustrates the trends in the number of active vehicles providing service. The number of vehicles in service has been steadily increasing, due to fixed route growth in the CAT and GTA systems (more recently, however, GTA has been forced to reduce services due to budget constraints). Likewise, there has been an increase in the number of active demand-response vehicles, driven by growth in the services provided by SCTSB.



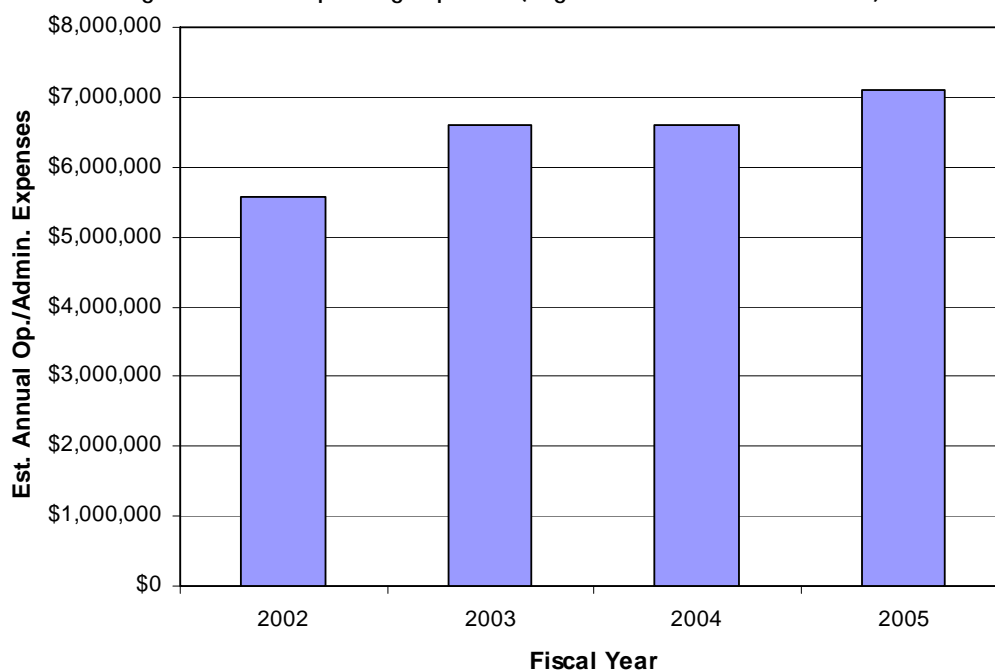
Table 3: Appalachian Composite Vehicles in Maximum Service (FY 2002 to FT 2005)

Area	Fiscal Year			
	2002	2003	2004	2005
Fixed Route	32	34	38	42
Demand Response	34	31	37	40
Other	14	14	10	11
Totals	80	79	85	93

Source: Data by SCDOT

Estimated annual operating costs of the public transit systems in the region totaled slightly over \$7 million in FY 2005. As shown in Figure 2, operating costs have been increasing for most systems in recent years, due largely to costs associated with the provision of additional services, along with escalating fuel and insurance costs.

Figure 2: Annual Operating Expenses (Region Totals FY 2002 to FY 2005)



Source: Data by SCDOT

### 2.3.2 Trends in Ridership and Amount of Service Provided

Transit is expanding in the Appalachian region, in terms of ridership as well as the amount of service provided. Tables 4 through 6 illustrate composite data for ridership, vehicle miles of service, and vehicle hours of service, broken down by type of service as well as by urban and rural setting. These charts illustrate the steady growth in amount and usage of transit, which is led by the continuing expansion of the Clemson Area Transit system.

Table 4 shows ridership by type of service (fixed route, demand response, other) as well as by geographic area (urban versus rural). The service is almost equally divided



among urban and rural riders though fixed route operations carry significant levels of people. The high ridership in rural areas is due to the fact that the area served by CAT is classified as rural.

Table 4: Appalachian Composite Passengers (FY 2002 to FY 2005)

Service Type	Fiscal Year			
	2002	2003	2004	2005
Fixed Route	2,038,424	2,240,985	2,506,830	2,713,430
Demand Response	225,005	229,103	161,048	161,659
Other	70,212	93,381	89,679	88,991
<b>Totals</b>	<b>2,333,641</b>	<b>2,563,469</b>	<b>2,757,557</b>	<b>2,964,080</b>

Area	Fiscal Year			
	2002	2003	2004	2005
Urban	1,385,834	1,393,712	1,376,422	1,407,513
Rural	947,807	1,169,757	1,381,135	1,556,567
<b>Totals</b>	<b>2,333,641</b>	<b>2,563,469</b>	<b>2,757,557</b>	<b>2,964,080</b>

Source: Data by SCDOT

Tables 5 and 6 show the amount of service provided in terms of vehicle miles and hours, respectively. Service provided is shown both for type of service (fixed route, demand response, other) and geographic area (urban versus rural). Rural services appear to have grown significantly during the FY 2002 to FY 2005 period, although growth has occurred in both fixed route and demand response operations in rural and urban areas.

Table 5: Appalachian Composite Vehicle Miles (FY 2002 to FTY 2005)

Area	Fiscal Year			
	2002	2003	2004	2005
Fixed Route	1,252,761	1,273,494	1,430,415	1,560,815
Demand Response	749,779	795,197	703,885	938,634
Other	294,865	402,942	363,964	227,103
<b>Totals</b>	<b>2,297,405</b>	<b>2,471,633</b>	<b>2,498,264</b>	<b>2,726,552</b>

Area	Fiscal Year			
	2002	2003	2004	2005
Urban	1,469,997	1,467,679	1,428,170	1,554,436
Rural	827,408	1,003,954	1,070,094	1,172,116
<b>Totals</b>	<b>2,297,405</b>	<b>2,471,633</b>	<b>2,498,264</b>	<b>2,726,552</b>

Source: Data by SCDOT



Table 6: Appalachian Composite Vehicle Hours (FY 2002 to FY 2005)

Area	Fiscal Year			
	2002	2003	2004	2005
Fixed Route	90,387	97,271	108,545	119,207
Demand Response	53,162	55,904	49,624	65,862
Other	20,638	28,091	25,564	15,897
<b>Totals</b>	<b>164,187</b>	<b>181,266</b>	<b>183,733</b>	<b>200,966</b>

Area	Fiscal Year			
	2002	2003	2004	2005
Urban	99,024	103,518	100,857	108,784
Rural	65,163	77,748	82,876	92,182
<b>Totals</b>	<b>164,187</b>	<b>181,266</b>	<b>183,733</b>	<b>200,966</b>

Source: Data by SCDOT

### 2.3.3 Trends in Efficiency and Effectiveness

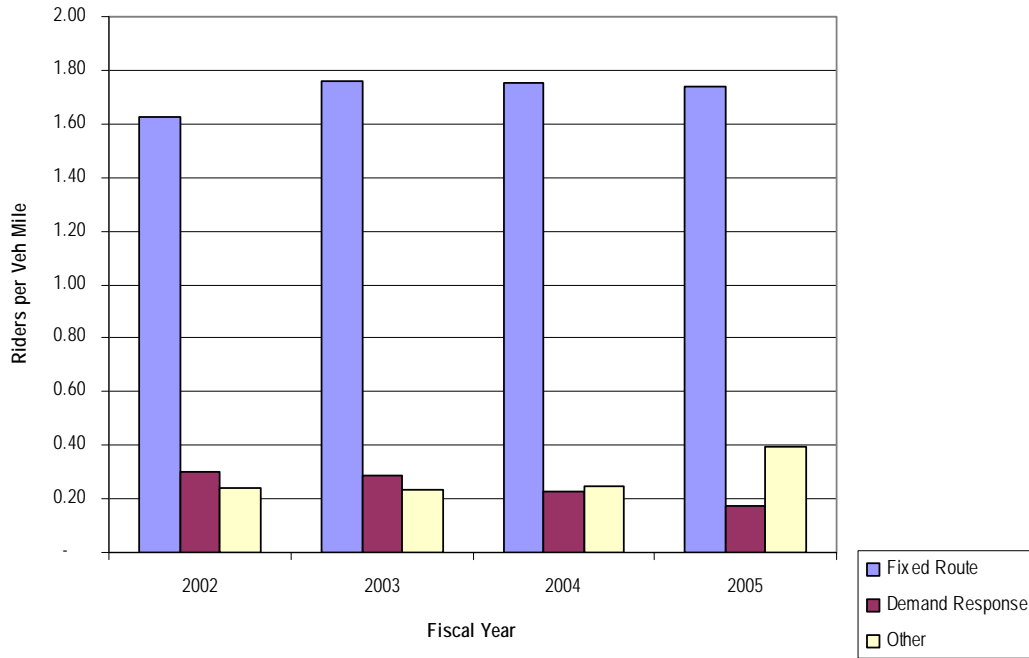
Figures 3 through 5 present regional trends in measures of key cost efficiency and service effectiveness. These measures include the following:

- Ridership per vehicle mile;
- Ridership per vehicle hour; and
- Operating cost per rider, per mile, and per hour.

As shown in Figures 3 and 4, ridership per mile and per hour, respectively, has largely remained steady for fixed route, demand response and “other” services, though “other” increased significantly in FY 2005.

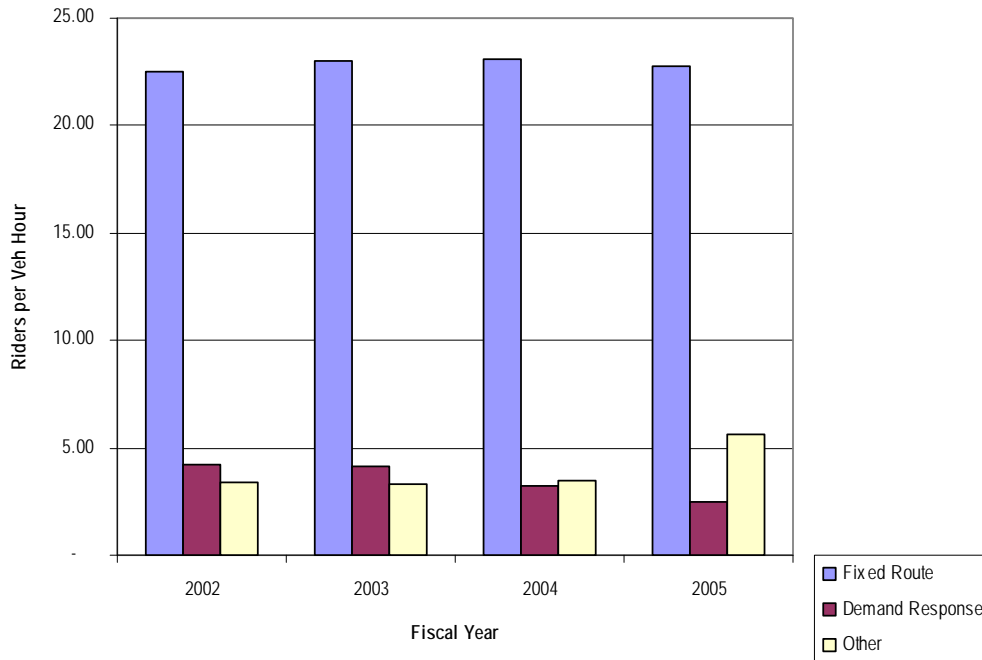


Figure 3: Ridership per Vehicle Mile (FY 2002 to FY 2005)



Source: Data by SCDOT

Figure 4: Ridership per Vehicle Hour (FY 2002 to FY 2005)

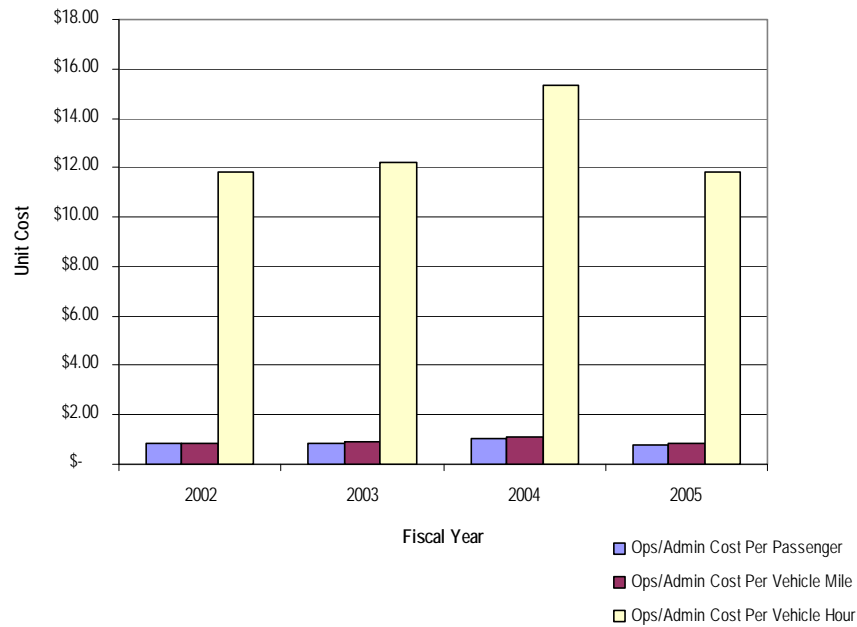


Source: Data by SCDOT

Finally, Figure 5 shows a similarly stable trend in cost per passenger, per mile and per hour, though FY 2004 saw a spike in operating cost per hour.



Figure 5: Operating Cost per Passenger, per Vehicle Mile and per Vehicle Hour (FY 2002 to FY 2005)



Source: Data by SCDOT

### 2.4 Strategic Planning Efforts

The Appalachian region is served by a Council of Governments, two Metropolitan Planning Organizations (MPOs), as well as three urban transit systems (Greenville Transit Authority, Spartanburg Area Regional Transit Authority, and Clemson Area Transit).

Serving as the MPO for the Greenville urbanized area, the Greenville-Pickens Area Transportation Study has developed conceptual transitway plans as part of its Long Range Transportation Plan (LRTP). Two regional bus rapid transit (BRT) lines would converge on a dedicated bus-only roadway between downtown Greenville and the International Center for Automotive Research (ICAR). The east-west BRT line would serve the communities of Clemson, Liberty, Easley, and Verdae, as well as the ICAR and the Greenville-Spartanburg International Airport. The north-south BRT lines would connect Fountain Inn, Simpsonville, Mauldin, the ICAR campus, Verdae, Greenville, Furman University and Travelers Rest. The BRT would be supported by regional feeder bus routes and a timed transfer network in the City of Greenville. The LRTP also developed a concept plan for light rail transit in the north-south corridor as well as commuter rail in the east-west corridor. Stable funding sources have not been secured for transit improvements in these corridors.

Furthermore, the Greenville Transit Authority recently completed a Transit Development Plan to examine five-year transit needs, and Spartanburg recently formed a study committee to rationalize the future of transit in the area including some kind of



coordination among various providers. Also, the cities of Clemson and Anderson have begun preliminary planning for light rail, and several years ago a commuter rail feasibility was studied in the region, supplemented by a 2005 Clemson University survey of on-campus travel patterns and demand for commuter rail between Clemson and Greenville. Stable funding sources for existing and proposed transit services will be necessary in order to move these various transit concepts forward from feasibility to implementation in the Appalachian region.

Currently, the region is working on a study of regional transit coordination strategies, in response to the Federal Transit Administration's emphasis on increased coordination of transit services.

## **2.5 Stakeholder Input**

A series of interviews was conducted with key regional leaders in the planning community to understand the needs, issues, and goals related to transit in each region from the individual perspectives of the stakeholders. This input is a valuable tool in the assessment of existing attitudes toward transit and the potential roles of transit in the future. The information from these interviews will be considered along with the results of the focus group sessions and public survey effort to develop a more complete picture of issues and needs from the local perspective of the region.

### **2.5.1 List of Interviewees**

Personal interviews were conducted with several community leaders, including representatives of the following agencies and organizations:

- Anderson Transit System;
- Clemson Area Transit;
- SPARTA (City of Spartanburg Transit);
- Spartanburg Area Transportation Study (SPATS MPO);
- Spartanburg County Transportation Services Board; and
- Spartanburg Regional Healthcare System.

Additional telephone interviews were conducted with representatives of Anderson County, Greenville Area Transportation Study (GRATS MPO), and New Day, Inc. (a psychiatric rehabilitation agency).

### **2.5.2 Interview Questions**

Each of the interviewees was asked the same set of questions:

1. What is your agency's role in public transportation?
2. How is transit perceived in your community?
3. What are the primary mobility issues in your region? How can transit help improve the situation?
4. What are major gaps in transit service locally?



5. What are the top opportunities facing transit in your area – now, over the next five years, and long-term (10 to 20 years)?
6. What are the top challenges / potential barriers facing transit in your area - now, over the next five years, and long-term (10 to 20 years)?
7. What is the level of local support for transit (financially, politically, and otherwise)?
8. What should the role of transit be in your community in the next twenty years? How does transit fit into the region’s vision for the future?
9. What steps can be taken to help meet regional goals for transit?
10. What should the role of the State of South Carolina be in transit?
  - i. Is the state doing enough? If not, what should it be doing? If yes, is it doing too much?
  - ii. What are examples of positives coming from State? What are areas in need of improvement?

### 2.5.3 Summary of Input

General responses to each of the questions are summarized below. The paraphrased comments are not linked to specific individuals, but are indicative of the array of comments received.

- **How is transit perceived in your community?**

Transit is viewed mainly as a social service, with taxpayers reluctantly assisting in providing funding. In some areas, the image of transit has improved due to the acquisition of a new fleet of buses, with transit viewed as an indicator of being a “real” city. The perception of the transit services that are offered by some agencies is narrower in focus than what is actually provided. Some local stakeholders have indicated an interest in rail transit, though it is thought that people may not be aware of the cost associated with rail transit.

- **What are the primary mobility issues in your region? How can transit help improve the situation?**

Mobility concerns associated with the growing population are prevalent. Traffic congestion will continue to increase, due to the increasing number of people moving into the area. This growth does not necessarily translate into more riders, but transit demand may increase. Increasing gas prices were also cited as a potentially impacting mobility.

- **What are major gaps in transit service locally?**

Several notable geographic gaps in service were mentioned by stakeholders:

- Services are lacking in suburban areas outside of Greenville, including Easley, Greer, Simpsonville, and Mauldin.



- Need a transit connection between Greenville and Spartanburg.
- Need transit service outside the city limits of Anderson. The south area, Belton, and Honea Path have low-income residents and a need to access jobs and services in the city.

In addition to these geographic gaps, stakeholders also mentioned the need for more evening and night service to enable 2nd and 3rd shift workers to get to their jobs.



- **What are the top opportunities facing transit in your area – now, over the next five years, and long-term (10 to 20 years)?**

Stakeholders expressed a variety of opinions regarding future transit opportunities in the area, with a primary focus on new connections where service currently does not exist, as well as enhancements to existing transit services. Several potential regional connections were mentioned, including express bus service in congested highway corridors such as between Easley and Greenville, as well as possible light rail services to connect Anderson and Oconee Counties. The aging population was also specifically mentioned as a group that will have significant transit needs in the future.

The need to encourage greater usage of transit was also addressed, including the need to educate people about the benefits of transit. Partnerships between transit systems and major destinations (e.g. the airport) could help improve service, and the need was cited to put a “human face” on riders through human interest stories in the media. The point was made that new residents moving in from elsewhere in the country have an expectation for transit service, and the region should work to meet growing demands.

- **What are the top challenges / potential barriers facing transit in your area - now, over the next five years, and long-term (10 to 20 years)?**

The top challenges for transit are viewed by stakeholders as being the fact that in most cases, transit is hindered by the stigma that it is a social “safety net” only, and there is inadequate service to be attractive to “choice” riders. A specific example was cited in which a local bank recently published an advertisement showing a person on a bus with a caption about getting a low interest loan to get off the bus and buy a car.

Funding was also cited as a major concern. In some cases, available federal funds are going unused because there is not enough local/state matching money to draw down the federal money. Recognizing the financial limitations of transit systems, the need for better coordination between urban and rural systems was also discussed, to enable more efficient connections.

- **What is the level of local support for transit (financially, politically, and otherwise)?**

There is mixed local financial support for transit in the region. Some agencies receive strong local support based on a history of success, whereas other agencies sorely lack needed local funding. In some cases, federal funds go unused because there are not enough local/state matching funds. However, there appears to be a growing recognition of the importance of transit.



- **What should the role of transit be in your community in the next twenty years? How does transit fit into the region's vision for the future?**

Stakeholders think that the demand for transit is likely to increase in future years, due primarily to the aging population and the increasing cost of driving.

- **What steps can be taken to help meet regional goals for transit?**

Stakeholders discussed the need to change the image of transit, to make it more appealing to a wider cross-section of the population. The need for a centralized website that contains transit information for the area was also mentioned.

- **What should the role of the State of South Carolina be in transit? Is the state doing enough? If not, what should it be doing? If yes, is it doing too much? What are examples of positives coming from State? What are areas in need of improvement?**

The Appalachian region's stakeholders provided numerous responses to these questions, indicating that they think that additional funding and technical assistance needs to be provided, and programmatic and legislative changes need to be made. The following specific comments were offered:

- SCDOT should make sure that the state continues to contribute 25 percent to match federal operating assistance.
- SCDOT should provide better funding and better technical support.
- Does not see value in image-building advertising; good service is the key to changing people's minds, not ads.
- Revise the allocation process for State Mass Transit Funds. The current formula allocation is arbitrary and difficult to understand. Furthermore, the drawdown of funds is piecemeal. The State needs to give the allocated amount to the systems.
- The state should publicize the "commuter choice" tax break for employers who provide transit subsidies to employees.
- The Regional Transit Authority legislation should be revised to give more autonomy to the Authorities. The RTAs are too "centrally controlled" by Columbia.
- Increase support and the role of the Transportation Association of South Carolina. Use this group as a training and lobbying group.
- Need to "grow the pie" of funding. As costs increase and new systems come on-line, the \$6 million State Mass Transportation Fund is dwindling.



- The role of South Carolina State University in training needs to be improved. Need more course variety and offer to providers at no cost.
- Would like more input or upfront involvement in SCDOT initiatives.
- SCDOT should encourage and publicize innovation, including bilingual public information, bicycle racks, and areas to reduce costs / increase efficiencies.
- Need more uniform reporting requirements. Different sections of SCDOT ask for similar information. Ask for information just once.
- Would like to see a reduction in “unfunded mandates”; for example, the mandate for coordination among systems.
- Streamline program administration; improve communication and deadlines. Often, letters requesting information will arrive several days after the date on the letter, requesting action with one or two days’ notice.
- The State should work to change federal funding for providing operating assistance for communities over 200,000 in population.
- Need to examine the role of technology in transit. The State had a dogmatic attitude toward transit, although some applications may be worthwhile.
- The funding for urban systems is lacking in comparison to rural / human service transit systems. Rural systems appear to have more support from the legislature.
- Transit (as well as bicycle / pedestrian improvements) should be considered in roadway and land development projects.
- Would like to see streamlined procedures for “piggybacking” of vehicle purchases.

## **2.6 Summary**

Transit is comparatively well-developed in the Appalachian region with major operations in Clemson, Greenville, and Spartanburg. However, with the exception of the CAT system, none of the transit operations have a sufficient level of service to be attractive to “choice” riders. Most of these systems suffer from the same stigma as others across South Carolina – that transit is only for low-income people. Nevertheless, as the region continues to grow and develop, there is an increasing awareness that transit can be a viable component of the region’s overall transit network.



## Section 3: Transit Perceptions & Attitudes

As part of the Statewide Transit Plan, market research was conducted consisting of focus groups and statistically valid surveys for each of the state’s ten regions. The purpose of the market research was to obtain information about attitudes and perceptions of transit in the State as well as to identify areas for improvement.

### 3.1 Focus Groups

During September 2006, ETC Institute facilitated a total of 20 focus groups for the South Carolina Department of Transportation. The purpose of the focus groups was to gather input from residents and community leaders about public transportation issues.

Two focus groups (one with residents and one with community leaders) were conducted in each of the State’s 10 regions. For the Appalachian region, the focus groups were conducted in Greenville. Elsewhere in the state, focus groups were conducted in Columbia, Aiken, Greenwood, Rock Hill, Waltherboro, Georgetown, North Charleston, Sumter, and Florence.

#### 3.1.1 Who Should Be Served by Public Transportation

Participants were asked to identify the three most important groups that public transportation in South Carolina should serve.

The five most important groups that community leaders and residents attending the Greenville focus group thought public transportation should be designed to serve for the Appalachian region are listed below.

#### ***Appalachian***

##### ***Among LEADERS***

<u>Rank</u>	<u>Groups to Serve</u>
1.	Low income (those without cars)
2.	College students
3.	Elderly/senior citizens
4.	Persons with disabilities
5.	Growth industry employees

##### ***Among RESIDENTS***

<u>Rank</u>	<u>Groups to Serve</u>
1.	Low income (those without cars)
2.	Everyone
3.	Business/airport travelers
4.	Elderly/senior citizens
5.	Major employment centers

#### 3.1.2 Preferred Funding Mechanisms for Public Transportation

Participants in each focus group were given time to brainstorm a list of possible funding sources for new or expanded public transportation services in South Carolina. The five sources of funding that were preferred most by residents and leaders in the Appalachian region are listed below.



**Appalachian**

**Among LEADERS**

Rank	Funding Mechanisms
1.	Gas tax
2.	Sales tax
3.	Parking fee in urban areas
4.	Federal grants
5.	Vehicle registration fees

**Among RESIDENTS**

Rank	Funding Mechanisms
1.	Tax on beneficiaries
2.	Sales tax
3.	User fees
4.	County & city pooling funds
5.	Cigarette tax

**3.2 Statewide Survey Report – Appalachian Region Results**

**3.2.1 Purpose**

ETC Institute conducted a statewide public transportation survey for the South Carolina Department of Transportation (SCDOT) during March of 2007. The purpose of the survey was to gather input from the state’s residents to help improve public transportation services in South Carolina.

**3.2.2 Major Findings**

This section provides the major findings provided by respondents from the Appalachian region.

**Availability of Public Transportation (at the community level).** Over one-third (38 percent) of respondents reported that public transportation services are currently available in their community. When asked to rate the overall availability of public transportation in the community where respondents live most (46 percent) gave a “poor” rating. Less than one-third (28 percent) of respondents could not give a rating because they were not familiar with the services available in their community; 12 percent of respondents indicated that the availability of public transportation in their community was “average” and 14 percent either “excellent” or “good.”

**Availability of Public Transportation (statewide).** When asked to rate the overall availability of public transportation throughout the state of South Carolina most respondents (36 percent) indicated that they could not give a rating because they were not familiar with the services available. Twelve percent (12 percent) of respondents indicated that the availability of public transportation in South Carolina was either “excellent” or “good;” 20 percent indicated “average” and 32 percent “poor.”

**Public Transportation Usage in South Carolina.** Thirty-one percent (31 percent) of respondents reported that they have used public transportation services in the state of South Carolina. Two-thirds (67 percent) of respondents have not used public transportation services in South Carolina. The remaining two percent (2 percent) did not have an opinion.



**Types of Groups Public Transportation Should Serve.** When asked to choose the groups that public transportation should serve in the state of South Carolina most respondents selected persons without cars and low income individuals. The next most important group respondents felt public transportation should serve was commuters, followed by seniors, persons with disabilities, and students.

**Types of Public Transportation Household Members Would Likely Use.** More than half (59 percent) of respondents indicated that members of their household would be “very likely” or “likely” to use commuter rail service. Fifty-two percent (52 percent) of respondents also indicated that members of their household would be “very likely” or “likely” to use door-to-door shuttle service. Other types of public transportation services household members would “very likely” or “likely” use include: intercity bus service (51 percent), park-and-ride service (50 percent), bus service that operates on fixed routes (47 percent), high speed trolley (45 percent) and van pool service (41 percent).

**Public Transportation Priorities.** More than ninety percent (92 percent) of respondents indicated that maintaining existing roads and highways were either “very important” or “important.” In addition, maintaining existing roads and highways was selected by fifty-nine percent (59 percent) of respondents as the most important transportation priority. Improving transportation services was the second most important transportation priority followed by adding capacity to existing roads and highways.

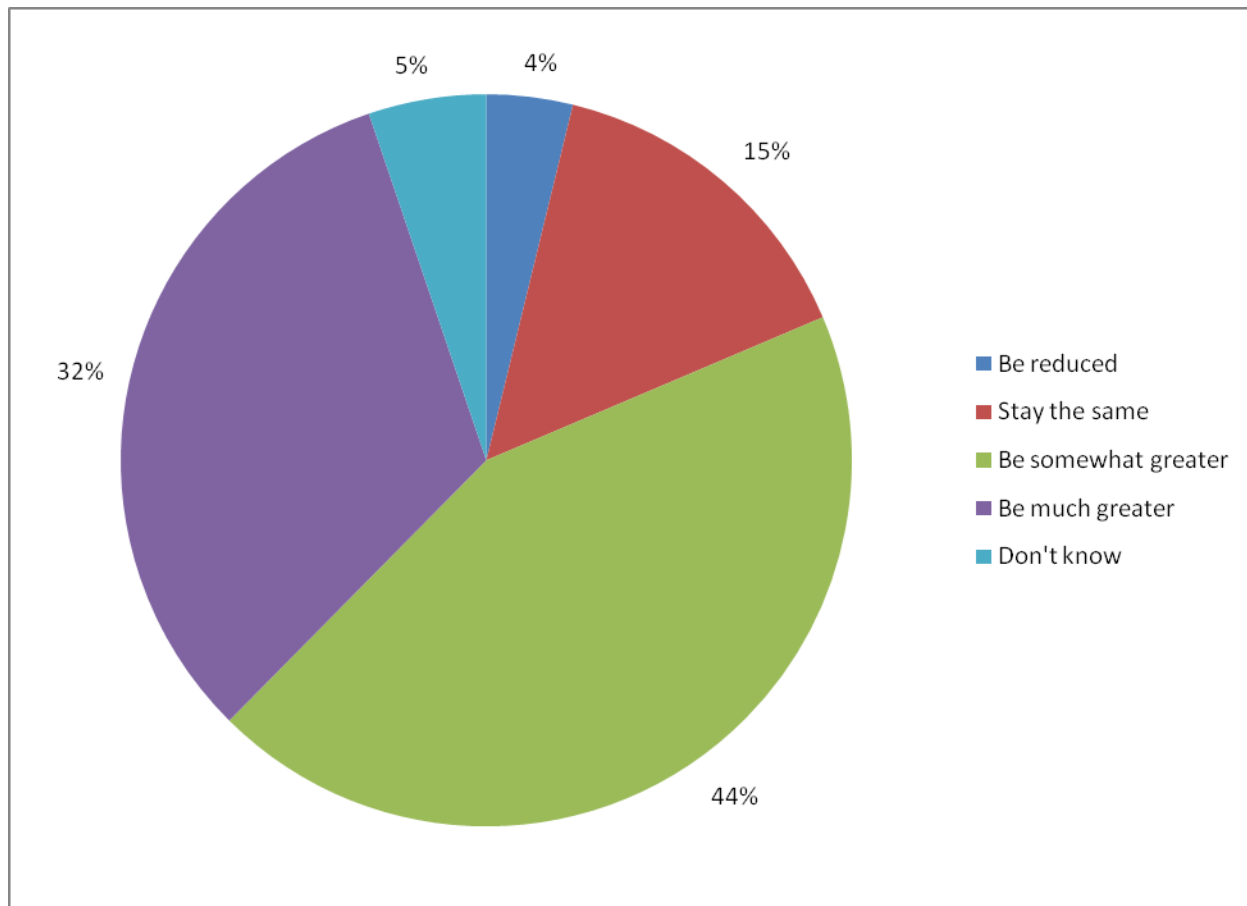
**Public Transportation Funding.** Seventy-six percent (76 percent) of respondents from the Appalachian region indicated that they thought the level of funding for public transportation in South Carolina should increase over the next five years. Fifteen percent (15 percent) of respondents thought funding should stay the same, 4 percent thought it should be reduced and 5 percent did not have an opinion. See Figure 6.

In addition to the high percentage of acceptance for increasing public transportation funding over the next five years, respondents were also generally supportive of the three types of funding mechanisms discussed in the survey. For example, over two-thirds (74 percent) of respondents were either “very supportive” or “supportive” of the State government funding the expansion of public transportation services in South Carolina. High levels of support were also evident for utilizing user fees (58 percent of respondents were “very supportive” or “supportive”) and for local governments i.e. cities and counties (57 percent of respondents were “very supportive” or “supportive”) funding the expansion of public transportation services in South Carolina.



Figure 6: Respondents' Attitudes towards Funding Public Transportation

How do you think the current level of funding for public transportation (e.g., bus, rail) in South Carolina should change over the next five years?



Source: ETC 2007

### 3.2.3 Other Findings

- **Increasing Usage.** More than half (60 percent) of the respondents reported that if transit stops were located closer to their home it would “very likely” or “likely” encourage them to begin using public transportation.
- **Locations Public Transportation Serve.** Only sixteen percent (16 percent) of respondents indicated that the locations public transportation serves are adequate.
- **Safety of Public Transportation.** Sixty-seven percent (67 percent) of respondents indicated that they thought public transportation is safe to use in the state of South Carolina.



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## Section 4: Vision for Transit in South Carolina

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### 4.1 Purpose of Vision

The development of a statewide plan is much more than simply a compilation of regional plans. As part of the statewide plan, the regional differences in goals and visions were acknowledged, but emphasis was placed on the visions that are common to all regions in South Carolina. In addition, “statewide” goals were identified that are not related to specific regions. For example, a “statewide” goal could be to establish general public transit service in every county, which must occur before “seamless transportation” can be a reality. Other goals could relate to establishing new funding sources, improving the image of transit, developing a framework for additional coordination of services, and other common interests. A focus must be placed on common themes across the state that stakeholders can use as rallying points. Regional initiatives should reflect local needs as well as support the overall statewide vision. The following section is the resulting “vision” for the State of South Carolina that was developed as part of the study process.

### 4.2 Vision

#### *Public Transit—Connecting Our Communities*

Public transit, connecting people and places through multiple-passenger, land or water-based means, will contribute to the state’s continued economic growth through a dedicated and sound investment approach as a viable mobility option accessible to all South Carolina residents and visitors.

#### *Economic Growth*

- Recognize and promote public transit as a key component of economic development initiatives, such as linking workers to jobs, supporting tourism, and accommodating the growth of South Carolina as a retirement destination through public / private partnerships.
- Enhance the image of public transit through a comprehensive and continuing marketing / education program that illustrates the benefits of quality transit services.

#### *Sound Investment Approach*

- Ensure stewardship of public transit investments through a defined oversight program.
- Increase dedicated state public transit funding by \$35 million by 2030.
- Make public transit reasonable and affordable by encouraging more local investment and promoting coordinated land use / transportation planning at the local level.



- Utilize an incremental approach to new public transit investments that recognizes funding constraints and the need to maintain existing services.

#### *Viability of Transit*

- Provide quality, affordable public transit services using safe, clean, comfortable, reliable, and well-maintained vehicles.
- Increase statewide public transit ridership by 5 percent annually through 2030.
- Utilize different modes of public transit including bus, rail, vanpool / carpool, ferry, and other appropriate technologies, corresponding to the level of demand.

#### *Accessibility to All*

- Provide an appropriate level of public transit in all 46 South Carolina counties by 2020 that supports intermodal connectivity.
- Develop and implement a coordinated interagency human services transportation delivery network.



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## **Section 5: Regional Transit Needs**

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In this section, an overview of the Arkansas Public Transportation Needs Assessment and the Mobility Gap for estimating rural and urban transit demand are discussed and applied. “Need” is expressed for South Carolina’s COG regions. In the individual regional plans “needs” will be expressed at the county level.

### **5.0.1 Arkansas Public Transportation Needs Assessment (APTNA) Method**

The APTNA method represents the proportional demand for transit service by applying trip rates to three population groups: the elderly, the disabled, and individuals living in poverty. The trip rates from the method are applied to population levels in a given community.

### **5.0.2 Mobility Gap Method**

The Mobility Gap method measures the mobility difference between households with a vehicle(s) and households without a vehicle. The concept assumes that the difference in travel between the two groups is the demand for transit among households without a vehicle.

## **5.1 Methods Selection for South Carolina**

Based upon the available data resources, and the timeframe and resources acceptable for conducting the demand estimate model, the Mobility Gap and APTNA methods tied and were recommended as the preferred methodologies for estimation of transit demand in the State of South Carolina. The data used for both methods is by and large realistically obtainable for the State of South Carolina.

## **5.2 Application of Methods**

The APTNA and Mobility Gap methods rely on reliable demographic and traveler information. The demographic characteristics of specified incorporated areas were summed to derive the urban populations within all South Carolina counties and these urban areas were subtracted from the total county population to derive the rural population.

2000 Census Summary Files,

- SF1, Table P12: Sex by Age.
- SF3, Table PCT 26: Age by Types of Disability.
- SF3, PCT 34: Sex by Age by Disability Status by Poverty Status.
- SF3, Table P87: Poverty Status by Age.
- SF3, Table H45: Vehicle Availability.

The assumptions for population trends were for all population groups in this method. These figures came from the South Carolina Department of Transportation. The results of the following methods are discussed.



### 5.2.1 Arkansas Public Transportation Needs Assessment (APTNA) Method

The Arkansas Public Transportation Needs Assessment (APTNA) method represents the proportional transit demand of an area by applying trip rates to three key markets: individuals greater than 65 years old, individuals with disabilities above the poverty level under age 65, and individuals living in poverty under age 65. Table 7 shows the population groups.

Table 7: Rural & Urban Population Groups Used in APTNA Method

	Elderly (Over 65)			Disabled (Under 65)			Poverty (Under 65)		
	2010	2020	2030	2010	2020	2030	2010	2020	2030
Anderson County	13,911	15,170	16,432	7,190	7,840	8,492	10,517	11,469	12,423
Cherokee County	7,158	7,923	8,640	3,770	4,173	4,551	6,813	7,542	8,224
Greenville County	18,586	20,671	22,743	8,672	9,644	10,611	12,539	13,946	15,344
Oconee County	11,643	13,051	14,440	4,647	5,209	5,763	6,526	7,316	8,094
Pickens County	7,175	8,087	8,949	4,403	4,962	5,492	6,057	6,827	7,555
Spartanburg County	24,787	27,119	29,443	10,878	11,901	12,921	17,014	18,616	20,211
<b>Rural</b>	<b>83,260</b>	<b>92,022</b>	<b>100,649</b>	<b>39,559</b>	<b>43,730</b>	<b>47,830</b>	<b>59,468</b>	<b>65,715</b>	<b>71,852</b>
Anderson County	11,026	12,023	13,024	2,661	2,902	3,144	7,794	8,499	9,206
Greenville County	31,609	35,156	38,680	11,605	12,908	14,201	26,004	28,922	31,821
Pickens County	6,853	7,724	8,547	2,241	2,525	2,795	8,250	9,298	10,289
Spartanburg County	10,303	11,273	12,239	3,376	3,693	4,010	11,969	13,096	14,218
<b>Urban</b>	<b>59,791</b>	<b>66,176</b>	<b>72,490</b>	<b>19,883</b>	<b>22,028</b>	<b>24,149</b>	<b>54,017</b>	<b>59,814</b>	<b>65,535</b>
Appalachian COG	143,051	158,198	173,138	59,441	65,759	71,980	113,485	125,530	137,386

A striking trend in the Appalachian region is that the majority of each population group lives more in the rural areas than the urban areas. Overall, the elderly have 58 percent living in rural areas and 42 percent living in rural areas. The disabled population has about 67 percent living in rural areas and 33 percent in urban, while 52 percent of people living in poverty live in rural areas and 48 percent in urban. Greenville County has the highest urban concentration in this region for all population groups, and has the second highest rural concentration, the first belonging to Spartanburg County.

In the APTNA method, trip generation rates represent the resulting ridership if a high quality of service were provided. The trip rates for the APTNA method were calculated using the 2001 National Household Travel Survey (NHTS). The trip rates came from the South Region (Alabama, Arkansas, Delaware, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia and West Virginia excluding Florida, Kentucky, Maryland and Texas). Table 8 shows the sample size used for each population group.



Table 8: 2001 National Household Transportation Survey (APTNA) Data

	Rural			Urban		
	Household	Person	Day Trip	Household	Person	Day Trip
Disabled	343	381	2,787	127	139	1,209
Elderly	681	1,114	3,732	387	600	2,226
Poverty	197	518	1,485	86	227	778
<b>Sample</b>	1,221	2,013	8,004	600	966	4,213
<b>Population</b>	1,858	4,290	16,367	3,090	6,850	29,343

Source: Data by NHTS

The original APTNA trip rates were 8.4 for the population above 65 years of age, 3.0 for people from five to 65 years of age with disabilities above the poverty level, and 14.0 for people from five to 65 years of age below the poverty level. The NHTS gave trip rates of 5.8 (rural) and 6.2 (urban) for the population above 65 years of age, 12.3 (rural) and 12.2 (urban) for people from 5 to 65 with disabilities above the poverty level, and 13.8 (rural) and 11.8 (urban) for people below the poverty level.

To derive transit demand, the following equations are used:

$$D_{(Rural)} = 5.8(P_{65+}) + 12.3(P_{DIS<65}) + 13.8(P_{POV})$$

$$D_{(Urban)} = 6.2(P_{65+}) + 12.2(P_{DIS<65}) + 11.8(P_{POV})$$

Where, *D* is demand for one-way passenger trips per year,

*P<sub>60+</sub>* is the population of individuals 65 years old and older,

*P<sub>DIS<60</sub>* is the population of individuals with disabilities under age 65, and

*P<sub>POV</sub>* is the population of individuals under age 65 living in poverty.

After applying the trip rates for each population group, the population below 65 years of age and living in poverty is projected to have the highest ridership potentials for both rural and urban counties in the Appalachian region. The second highest projected ridership levels come from the elderly population for the majority of rural Counties and for all urban Counties within the region. Anderson, Cherokee and Pickens County has the disabled as the second highest ridership potentials. Greenville’s elderly and disabled population is projected to have equal ridership potentials. The disabled population has the highest trip rate for rural and urban counties, but has the least amount of people as well; this results in the least projected ridership levels for all urban counties and Oconee and Spartanburg County. Even though this group is projected to have the lowest projected ridership levels for the majority of the region, this population group may be the most reliant on transit.

Table 9 shows the daily and annual ridership projections. The daily transit trips are 8,331 for the year 2010 and 10,085 for 2030. The annual transit trips are projected to be 3 million for 2010 and 3.7 million for 2030. About 60 percent of the projected daily ridership is attributed to rural areas and the remaining 40 percent to urban areas.



Table 9: Estimated Annual &amp; Daily Transit Demand: APTNA Method

	Annual			Daily		
	2010	2020	2030	2010	2020	2030
Anderson County	314,259	342,697	371,203	861	939	1,017
Cherokee County	181,909	201,362	219,581	498	552	602
Greenville County	387,499	430,975	474,179	1,062	1,181	1,299
Oconee County	214,748	240,718	266,343	588	660	730
Pickens County	179,361	202,151	223,710	491	554	613
Spartanburg County	512,357	560,577	608,615	1,404	1,536	1,667
Rural	1,790,133	1,978,478	2,163,630	4,904	5,420	5,928
Anderson County	192,791	210,237	227,725	528	576	624
Greenville County	644,416	716,718	788,567	1,766	1,964	2,160
Pickens County	167,170	188,410	208,504	458	516	571
Spartanburg County	246,299	269,479	292,572	675	738	802
Urban	1,250,676	1,384,844	1,517,367	3,427	3,794	4,157
Appalachian COG	3,040,809	3,363,322	3,680,997	8,331	9,215	10,085

### 5.2.2 Mobility Gap Method

The Mobility Gap method measures the difference in the household trip rate between households with vehicles available and households without vehicles available. Because households with vehicles travel more than households without vehicles, the difference in trip rates is the mobility gap. This method shows total demand for zero-vehicle household trips by a variety of modes including transit.

This method uses data that is easily obtainable, yet is stratified to address different groups of users: the elderly, the young, and those with and without vehicles. The data can be analyzed at the county level and based upon the stratified user-groups; the method produces results applicable to the State and at a realistic level of detail.

The primary strength of this method is that it is based upon data that is easily available: household data and trip rate data for households with and without vehicles. Population and household data were obtained from the 2000 U.S. Census. Table 10 shows the rural and urban households (by age group) in the Appalachian region without vehicles, based upon Census information. For the purposes of this study, a household that is in the 15 and 64 years of age group has no one residing in the household who is over 65 years of age. A household in the over 65 years of age group has at least one person over the age of 65 living in that household (even if other members are less than 65 years of age).



Table 10: Households With No Vehicle Available: 2010 to 2030

	Households (15 to 64)			Households (Over 65)			Total Households Without A Vehicle		
	2010	2020	2030	2010	2020	2030	2010	2020	2030
Anderson County	1,287	1,404	1,520	1,087	1,185	1,284	2,374	2,589	2,804
Cherokee County	1,404	1,555	1,695	876	969	1,057	2,280	2,524	2,752
Greenville County	1,846	2,053	2,259	1,350	1,501	1,651	3,196	3,554	3,911
Oconee County	1,079	1,210	1,339	843	945	1,045	1,922	2,155	2,384
Pickens County	675	761	842	464	523	579	1,139	1,284	1,421
Spartanburg County	2,729	2,986	3,242	2,131	2,331	2,531	4,860	5,317	5,773
Rural	9,021	9,968	10,898	6,750	7,455	8,148	15,772	17,423	19,046
Anderson County	1,866	2,035	2,204	1,347	1,468	1,591	3,212	3,503	3,795
Greenville County	5,845	6,501	7,153	3,652	4,062	4,469	9,497	10,563	11,622
Pickens County	854	962	1,065	752	848	938	1,606	1,810	2,003
Spartanburg County	2,872	3,142	3,411	1,314	1,438	1,561	4,186	4,580	4,973
Urban	11,437	12,640	13,833	7,065	7,816	8,559	18,502	20,456	22,392
Appalachian COG	20,458	22,609	24,731	13,815	15,271	16,707	34,274	37,880	41,438

Rural and urban trip rate data were derived from the National Household Travel Survey (NHTS) at the South Region level to be consistent in the way the APTNA trip rates were derived. Table 11 shows the total sample size in the South Region for vehicles available.

Table 11: 2001 National Household Travel Survey Mobility Gap Data

	Rural			Urban		
	Household	Person	Day Trip	Household	Person	Day Trip
No Vehicle (15 to 64)	30	46	85	87	130	432
No Vehicle 65+	38	46	86	82	96	216
Vehicle (15 to 64)	1,423	2,743	9,255	2,340	4,370	16,830
Vehicle 65+	367	619	4,229	581	953	7,165
<b>Total</b>	<b>1,858</b>	<b>3,454</b>	<b>13,655</b>	<b>3,090</b>	<b>5,549</b>	<b>24,643</b>
<b>Area Totals</b>	<b>1,858</b>	<b>4,290</b>	<b>16,367</b>	<b>3,090</b>	<b>6,850</b>	<b>29,343</b>

Source: Data by NHTS

For the Mobility Gap method, the trip rates for households with vehicles serves as the target for those households without vehicles, and the “gap” (the difference in trip rates) is the amount of transit service needed to allow equal mobility between households with zero vehicles and households with one or more vehicles. The assumption of this method is that people without vehicles will travel as much as people who have vehicles, which is the transit demand. The basic equation used in the Mobility Gap method is:

$$\text{Mobility Gap} = \text{Trip Rate}_{\text{HH w/Vehicle}} - \text{Trip Rate}_{\text{HH w/out Vehicle}}$$

Where, “HH w/ Vehicle” represents households with one or more vehicles, and “HH w/out Vehicle” represents households without a vehicle.

Table 12 shows that for households with people age 65 and older, a rural mobility gap of 5.88 and an urban mobility gap of 7.40 person-trips per day per household exist



between households with and without an automobile. For households with individuals between the age of 15 and 64, a rural mobility gap of 5.99 and an urban mobility gap of 0.74 person-trips per day per household exist between households with and without an automobile.

Table 12: Mobility Gap Calculations

	Vehicle Trip Rates				Mobility Gap	
	Rural		Urban		Rural	Urban
	None	One or More	None	One or More		
Age 15 to 64	4.09	10.09	7.62	8.36	5.99	0.74
Age 65 or Older	1.76	7.64	2.57	9.97	5.88	7.40

**Source:** Data by NHTS

Using this methodology, the number of transit trips needed to serve the demand is therefore equivalent to the mobility gap multiplied by the number of households without a vehicle and adjusted by the estimated share of those trips (63 percent) that could be met by transit. The 63 percent is based on Census Journey-to-Work mode share data for the state, which tells us that 0.63 percent of all work related trips for South Carolina are transit related (specifically bus or trolley). The mode share is then multiplied by a factor of 100 to obtain the 63 percent (100 percent service) used to estimate rural transit demand. The formula, therefore, is:

**Estimated Transit Demand = (Mobility Gap) x (#HH w/o Vehicle) x (Unmet Need)**

Using the Census 2000 household data (Table 10) and the appropriate Mobility Gap trip rate (Table 12), the estimated demand was calculated for each county in the Appalachian COG. Table 13 shows daily demand for 2010, 2020 and 2030. The Region’s rural daily demand is 59,082, 65,270 and 71,346 person-trips per day respectively and urban daily demand at 38,290, 42,353 and 46,375. Table 13 shows that the Mobility Gap method estimates rural Appalachian transit demand (based upon 365 days of service) at 21.6 million person-trips per year for 2010, 23.8 million for 2020 and 26 million for 2030; urban transit demand at 14 million, 15.5 million and 16.9 million person-trips per year respectively. The total annual person-trips is projected to be approximately 35.5 million in 2010, 39.3 million in 2020 and 43 million in 2030, while the total daily person-trips for the Appalachian region is projected to be approximately 97.4 thousand, 107.6 thousand and 117.7 thousand respectively.



Table 13: Estimated Annual &amp; Daily Transit Demand: Mobility Gap

	Annual			Daily		
	2010	2020	2030	2010	2020	2030
Anderson County	3,244,347	3,537,929	3,832,222	8,889	9,693	10,499
Cherokee County	3,120,336	3,454,018	3,766,540	8,549	9,463	10,319
Greenville County	4,370,105	4,860,419	5,347,660	11,973	13,316	14,651
Oconee County	2,627,948	2,945,743	3,259,328	7,200	8,071	8,930
Pickens County	1,558,462	1,756,476	1,943,803	4,270	4,812	5,325
Spartanburg County	6,643,638	7,268,904	7,891,797	18,202	19,915	21,621
Rural	21,564,835	23,823,489	26,041,351	59,082	65,270	71,346
Anderson County	2,610,211	2,846,410	3,083,181	7,151	7,798	8,447
Greenville County	7,212,760	8,022,012	8,826,191	19,761	21,978	24,181
Pickens County	1,425,801	1,606,959	1,778,340	3,906	4,403	4,872
Spartanburg County	2,726,961	2,983,609	3,239,283	7,471	8,174	8,875
Urban	13,975,732	15,458,990	16,926,996	38,290	42,353	46,375
Appalachian COG	35,540,568	39,282,479	42,968,347	97,371	107,623	117,721

### 5.2.3 Comparison of Results

The transit demand results estimated by the two methods show a substantial difference in the range of transit service required in the Appalachian region. The APTNA method estimates annual transit demand at 2.88 million person-trips per year for 2005, while the Mobility Gap method estimates annual transit demand at 33.7 million person-trips per year. The Mobility Gap estimate, however, indicates that the current level of reported transit service provided in the Appalachian region (2.96 million person-trips per year) falls short of the estimated transit demand, while the APTNA method shows that the current region, during 2005 had met its transit needs.

Based upon the APTNA estimate, the Appalachian region is currently providing transit service for 103 percent of the estimated demand. Only 8.6 percent of the rural demand is being met, primarily in Spartanburg County<sup>4</sup>, and approximately 237 percent of urban demand is being met, which is understating the amount of demand being met<sup>5</sup>. The Mobility Gap estimates that 0.7 percent of rural and 21.2 percent of urban transit needs are being met. As a whole, the Appalachian region is meeting only 8.8 percent of transit needs. The Mobility Gap in this case is overstating the amount of transit needs.

Key differences exist between the two model's assumptions, which are why the transit needs derived from each method are extremely different. The APTNA Method is derived specifically for the estimation of transit demand, assuming that a high-quality level of service is provided. Transit demand, as estimated by the APTNA method is based upon three population groups: the elderly, the disabled and those living in poverty.

<sup>4</sup> A lack of reporting in the Appalachian Region for rural transit needs makes this estimate extremely underestimated.

<sup>5</sup> Commuters and Students who use transit were not added to the APTNA method resulting in understating of transit need.



Conversely, the Mobility Gap method estimates the additional trips that might be taken by households without a vehicle if an additional mode of transportation were provided, such as transit. The Mobility Gap method estimates transportation demand that could be served by transit. However, these trips might also be served by other modes. Therefore, the Mobility Gap method estimates an “ultimate” demand.

The APTNA method’s estimate for urban transit need is not realistic, and the Mobility Gap method for estimating urban transit need is too overstated. After much consideration, it was decided to modify each method’s estimate of urban need to produce a more realistic estimate. Using professional judgment, this was done by multiplying the APTNA method urban county estimates by 75 percent and the Mobility Gap urban county estimate by 25 percent for small urban areas (Anderson and Spartanburg). Greenville County (a large urban area) was multiplied by 50 percent of each method. For Pickens County both the APTNA and Mobility Gap’s calculations for transit needs were summed together<sup>6</sup>. Since rural transit needs were more realistic, the APTNA method rural estimates were used. Table 14 shows the results of the adjustments made to the Appalachian region’s transit needs.

Table 14: Estimated Annual & Daily Transit Demand: Adjusted Needs (Per Formula)

	Annual			Daily		
	2010	2020	2030	2010	2020	2030
Anderson County	314,259	342,697	371,203	861	939	1,017
Cherokee County	181,909	201,362	219,581	498	552	602
Greenville County	387,499	430,975	474,179	1,062	1,181	1,299
Oconee County	214,748	240,718	266,343	588	660	730
Pickens County	179,361	202,151	223,710	491	554	613
Spartanburg County	512,357	560,577	608,615	1,404	1,536	1,667
Rural	1,790,133	1,978,478	2,163,630	4,904	5,420	5,928
Anderson County	797,146	869,280	941,589	2,184	2,382	2,580
Greenville County	3,928,588	4,369,365	4,807,379	10,763	11,971	13,171
Pickens County	481,828	543,047	600,963	1,320	1,488	1,646
Spartanburg County	866,464	948,012	1,029,249	2,374	2,597	2,820
Urban	6,074,026	6,729,704	7,379,180	16,641	18,438	20,217
Appalachian COG	7,864,159	8,708,182	9,542,810	21,546	23,858	26,145

The Adjusted Needs (Per Formula) projects daily rural demand to be 4,904 for 2010, 5,420 for 2020 and 5,928 for 2030, and 16,641, 18,438 and 20,217 respectively for daily urban demand. The annual rural demand is about 1.8 million for 2010, 1.98 million for 2020 and 2.2 million for 2030. Annual urban demand is projected to be about 6.1 million for 2010, 6.7 million for 2020 and 7.4 million for 2030. As mentioned earlier, the Appalachian region had 2.96 million person-trips per year for 2005. The Adjusted Needs (Per Formula) estimate method for 2005 shows that current level of reported transit service provided in this region still falls short. However, the percent of need met for urban demand changed from 237 percent (APTNA) and 21.2 percent (Mobility Gap)

<sup>6</sup> Pickens County transit needs for students overwhelming increased actual transit demand provided by SCDOT.



to a more reasonable 41.4 percent. This also made the overall needs being met to 34.9 percent instead of 103 percent (APTNA) and 8.8 percent (Mobility Gap). The rural needs being met remained the same at 8.6 percent.

Table 15 summarizes the two methodologies' results and primary assumptions as well as the adjusted method.

Table 15: Comparison of Results for Estimated Rural & Urban Transit Demand

Demand	APTNA Method			Mobility Gap Method			Adjusted Needs (Per Formula)			
	2010	2020	2030	2010	2020	2030	2010	2020	2030	
Rural	Daily	4,904	5,420	5,928	59,082	65,270	71,346	4,904	5,420	5,928
	Annual	1,790,133	1,978,478	2,163,630	21,564,835	23,823,489	26,041,351	1,790,133	1,978,478	2,163,630
Urban	Daily	3,427	3,794	4,157	38,290	42,353	46,375	16,641	18,438	20,217
	Annual	1,250,676	1,384,844	1,517,367	13,975,732	15,458,990	16,926,996	6,074,026	6,729,704	7,379,180
COG	Daily	8,331	9,215	10,085	97,371	107,623	117,721	21,546	23,858	26,145
	Annual	3,040,809	3,363,322	3,680,997	35,540,568	39,282,479	42,968,347	7,864,159	8,708,182	9,542,810
Data Sources	65 Years Old or Older Under 65 Years Old With A Disability Under 65 Years Old Living In Poverty			Individuals With A Vehicle Not Available Individuals With A Vehicle Available			Rural: APTNA (100%) & MG (0%) Small Urban: APTNA (75%) MG (25%) Large Urban: APTNA (50%) MG (50%)			
Quality	Trips If All Groups Were Served			Additional Trips Filled By Transit Service			Advantages of Both Methods			
Type of Demand	Elderly, Disabled & Poverty Demand			Persons Without Vehicles Demand			Percentage of Both Methods			

A comparison with the current level of transit service in the Appalachian region (2.96 million person-trips per year) suggest that the Adjusted Needs (Per Formula) method represents a realistic estimate for existing transit demand, while the estimate provided by the APTNA method is a low-end goal and the Mobility Gap method is a “high-end” goal for the region. To verify the legitimacy of the model’s estimated results for transit demand, a transit mode share analysis and a comparison of ridership statistics were performed.

### 5.3 Transit Demand Validation

Two techniques were used to help validate the results for calculating rural and urban transit demand. First, the transit demand estimates for the APTNA and Mobility Gap methods were compared with transit mode-splits for rural and urban Appalachian. Second, per capita ridership was compared with states deemed, respectively, as having well regarded rural transit programs and urban services.

#### 5.3.1 Modal Split Analysis

The mode-split analysis compares the transit demand estimates with the estimated regional annual transportation mode share for the Appalachian region for bus and trolleys. In this manner, the estimated demand for rural and urban transit (i.e. the Appalachian region estimated transit mode share for rural and urban areas) was compared with the State’s total rural and urban travel patterns.

The first task was to estimate the State’s total rural and urban travel demand for all modes. The statewide travel demand for all transportation modes was estimated at 6.77 billion one-way person-trips per year. This estimate reflects travel for all individuals age 15 and older for *all modes* of travel in South Carolina. The estimate was



based upon the trips produced from the 2001 Nationwide Household Travel Survey (NHTS) data for all South Carolina households<sup>7</sup>.

Census 2000 estimates show that the rural Appalachian population consists of approximately 510,243 people age 15 and older, and an urban population of 307,702. Based upon the statewide annual travel estimate of 6.77 billion one-way person-trips per year and weighting by the total state rural and urban population, people in rural areas take approximately 8.87 trips per day, while people in urban areas take about 17.22 trips per day, a reasonable estimate for the rural and urban Appalachian average.

Table 16 compares the recommended range of estimated transit demand (for 2005) with the statewide travel demand estimate in annual person trips. As the table shows, the preliminary results of the rural APTNA method and the Mobility Gap method represent a mode split of 0.024 and 0.287 percent, respectively, while the urban mode split is 0.017 and 0.185 percent respectively. The Adjusted Needs method's rural mode split is the same as the APTNA's because no changes were made to rural transit estimates, but the urban portion reflects the changes made resulting in a more realistic mode split of 0.095 percent.

Various mode-split statistics for the Appalachian region were used for comparison with the mode split ratios for transit demand and are shown in Table 16. A work trip mode-split from Census 2000 as well as an estimation of transit mode split for total trips derived from the NHTS was calculated. The Census 2000 indicates that rural and urban transit travelers in the Appalachian region make up 0.027 and 0.052 percent respectively for total *work* trips<sup>8</sup>. The NHTS analysis shows that all trips make up 1.36 percent of *total* trips, 0.8 percent of which is rural and 0.56 percent is urban.

Table 16: Estimated Rural & Urban Transit Demand by Appalachian Region Total

	<b>APTNA</b>	<b>Mobility Gap</b>	<b>Adjusted Needs</b>	<b>Means of Transportation</b>
Rural Need	1,611,342	19,428,214	1,611,342	NA
Urban Need	1,121,435	12,538,202	6,429,758	NA
South Carolina Person Trips	6,771,409,100	6,771,409,100	6,771,409,100	NA
<b>Demand to Person Trips (Rural)</b>	<b>0.024%</b>	<b>0.287%</b>	<b>0.024%</b>	<b>0.027%</b>
<b>Demand to Person Trips (Urban)</b>	<b>0.017%</b>	<b>0.185%</b>	<b>0.095%</b>	<b>0.052%</b>

For the work trip mode split, the Mobility Gap is significantly higher for both rural and urban areas, the APTNA is a third for urban and slightly lower at the rural level, while the Adjusted Needs is almost double for urban areas. For the total trip mode split, the Adjusted Needs is about one fifth as much for urban; the Mobility Gap is about a third for both rural and urban, while the APTNA is significantly below for both rural and urban.

<sup>7</sup> South Carolina's total trips from the National Transportation Household Survey (NHTS).

<sup>8</sup> Census Journey-to-Work data provided the percent of transit mode share.



This review of the mode split statistics suggests that the Adjusted Needs method is a more realistic approximation of Appalachian travel characteristics.

### **5.3.2 Recommended Demand Estimation Methodology**

The Adjusted Needs method produces results more in line with current experience, and appears to be logical with both the modal split comparisons provided in Table 16 and the comparison with model states provided in Table 15 of the Statewide Multimodal Plan. Therefore, it is recommended that the Adjusted Needs method be used for quantifying rural and urban transit demand in the Appalachian COG.

## **5.4 Quantifying Transit Need**

Based on the transit demand projections provided in section 5.3, this section analyzes the strategies to meet the current and future demand, and estimates the costs involved, including operating cost, vehicle expansion and replacement cost, and facility cost. Operating cost is defined based on transit subsidy, or the cost of operating services less fare box revenue. The vehicle cost is defined in terms of numbers of vehicles purchased and the cost of each purchase. The facility cost is assumed to be related to the number of vehicles an operator has, and whether the operator is an existing one or a newly started one. All cost calculations use year 2005 constant dollars.

### **5.4.1 Transit Need in the Region**

For the purpose of estimating costs, a targeted level of transit need was required based on the predicted level of demand. Demand was forecasted using three methods described in Section 5.2: Mobility Gap method, Arkansas Public Transportation Needs Assessment (APTNA) method, and the Adjusted Needs (Per Formula) method. The Adjusted Needs method became the targeted level of demand for the cost calculation. This method is selected because it is somewhat in the mid-range of the other two methods and represents a significant increase in transit services in most of the counties compared with existing services. This estimate seems to present an achievable goal in comparison with the much higher, transit demand predicted by the Mobility Gap method.

Based on the Adjusted Needs forecast, the total transit demand in 2005 was estimated at 4.6 million one-way person trips. In the same year, 2.96 million trips were provided. The average percentage of demand met is 64 percent. To meet the current transit need, 1.33 million trips are needed among the existing rural transit systems, 2.92 million trips are needed among the existing urban systems, and 0.37 million trips are needed among the newly started transit systems.<sup>9</sup> This is shown in Figure 7.

The demand forecast shows that by 2030, the estimated transit demand will exceed 10.5 million trips. Among those trips, 1.7 million will be demanded for the existing rural transit systems, 8.33 million will be demanded for existing urban transit systems, and about 0.49 million trips will be demanded for the newly started systems.

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<sup>9</sup> For purpose of this report, transit need in counties with existing Section 5311 transit services is assigned to those existing systems within each county. This will not necessarily be the case during the development of service alternatives and solutions.



Figure 7: Existing Service & Transit Need

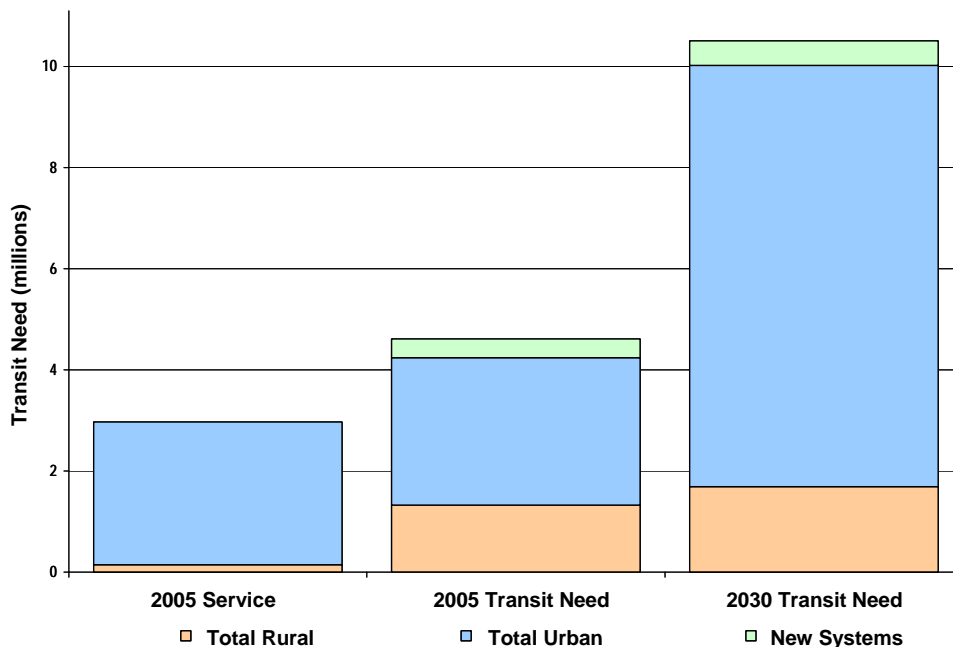


Table 17 shows the 2005 estimated and 2030 forecasted transit need for the rural and urban portions of the Appalachian COG. The existing service is based on data provided by SCDOT for FY 2005. The 2005 and 2030 transit needs are from the Adjusted Needs forecast. The 2005 unmet need is the difference between predicted transit need and the existing service. Using the data in the table, about 97 percent of Appalachian urban needs and 11 percent of the Appalachian rural needs are being met.

Table 17: 2005 and 2030 Transit Need

	2005 Service	2005 Transit Need	% of Need Met	2030 Transit Need
Anderson County	0	302,495	0%	371,203
Greenville County	0	370,069	0%	474,179
Pickens County	0	164,335	0%	223,710
Spartanburg County	148,985	488,446	31%	622,035
<b>Total Rural</b>	<b>148,985</b>	<b>1,325,345</b>	<b>11%</b>	<b>1,691,127</b>
Cherokee County	0	170,313	0%	219,581
Oconee County	0	199,433	0%	266,343
New Systems	0	369,746	0%	485,924
Anderson County (Urban)	90,229	185,574	49%	941,589
Greenville County (Urban)	718,010	718,010	100%	4,807,379
Pickens County (Urban)	1,410,323	1,410,323	100%	1,551,322
Spartanburg County (Urban)	601,541	601,541	100%	1,029,249
<b>Total Urban</b>	<b>2,820,103</b>	<b>2,915,448</b>	<b>97%</b>	<b>8,329,539</b>
<b>Total ACOG</b>	<b>2,969,088</b>	<b>4,610,538</b>	<b>64%</b>	<b>10,506,589</b>

*(In One-Way Annual Passenger Trips)*

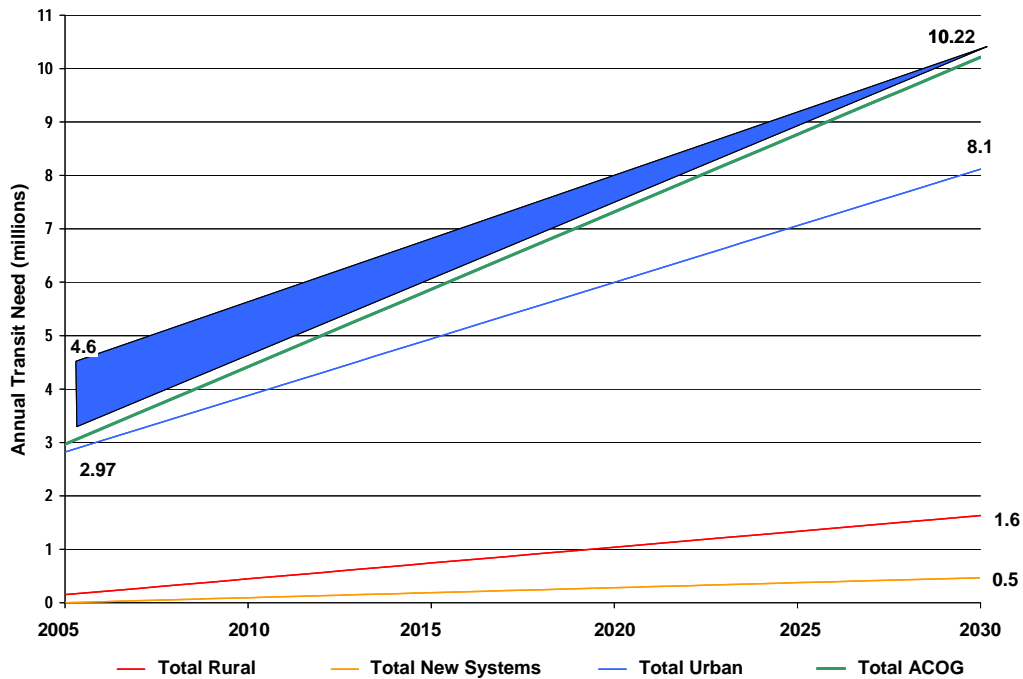
Since the demand is forecasted on a county level, the distribution of the demand to each individual transit operator was based on the year 2005 SCDOT data reports.



These reports give the information on the counties an operator serves and the current ridership.

To meet the unmet demand, our general assumption is that service will not decrease, even if demand goes down. For counties for which the current predicted demand is higher than the service provided, services gradually increase between years 2005 and 2030 until needs are met, as shown in Figure 8. This is accomplished by a uniform annual increase. To meet this goal, for the existing systems, overall, they should provide an equivalent of 0.3 million additional one way person trips annually; for the new systems, 0.02 million annually.

Figure 8: Transit Need and Strategy to Meet: 2005 to 2030



### 5.4.2 Transit Net Operating Costs

For the existing systems, to meet all their demand in 2005, \$16.4 million in operating subsidies (operating costs minus fare revenue) are needed. Compared to the current subsidy of \$6.6 million, an additional \$9.8 million in subsidy is required. For the new systems, \$1.4 million in subsidy is required to meet all their 2005 demand. This is shown in Figure 9. It must be noted that this only gives the estimation to meet all the demand in 2005. In terms of implementation, not all the subsidy is required in place at the beginning, as discussed later.

In the year 2030, to meet all the demand, the predicted subsidy is \$49.7 million (\$6.8 million for the existing rural transit systems, \$41.2 million for existing urban transit systems and \$1.7 million for the new systems).



Figure 9: Estimate of Subsidy Needed for 2005

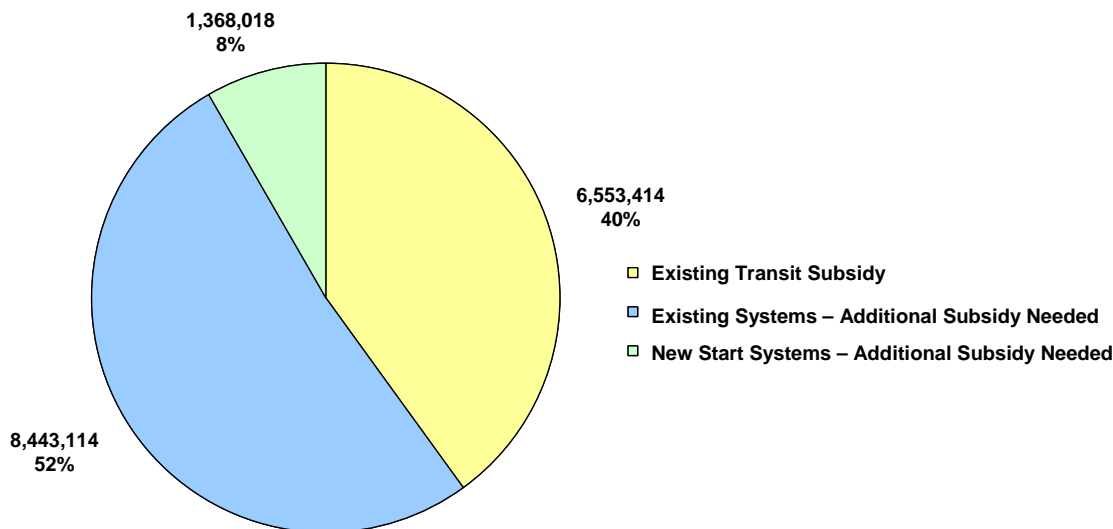


Table 18 shows the year 2005 estimated and year 2030 forecasted transit subsidy for the rural and urban counties. The existing subsidy is estimated based on the data provided by SCDOT for FY 2005. The 2005 subsidy is based on the predicted transit need, and the unit subsidy per person-trip from the existing subsidy estimation. Similarly, 2030 subsidy is also calculated based on the unit subsidy and the predicted demand at that time.

Table 18: Transit Subsidy for 2005 & 2030

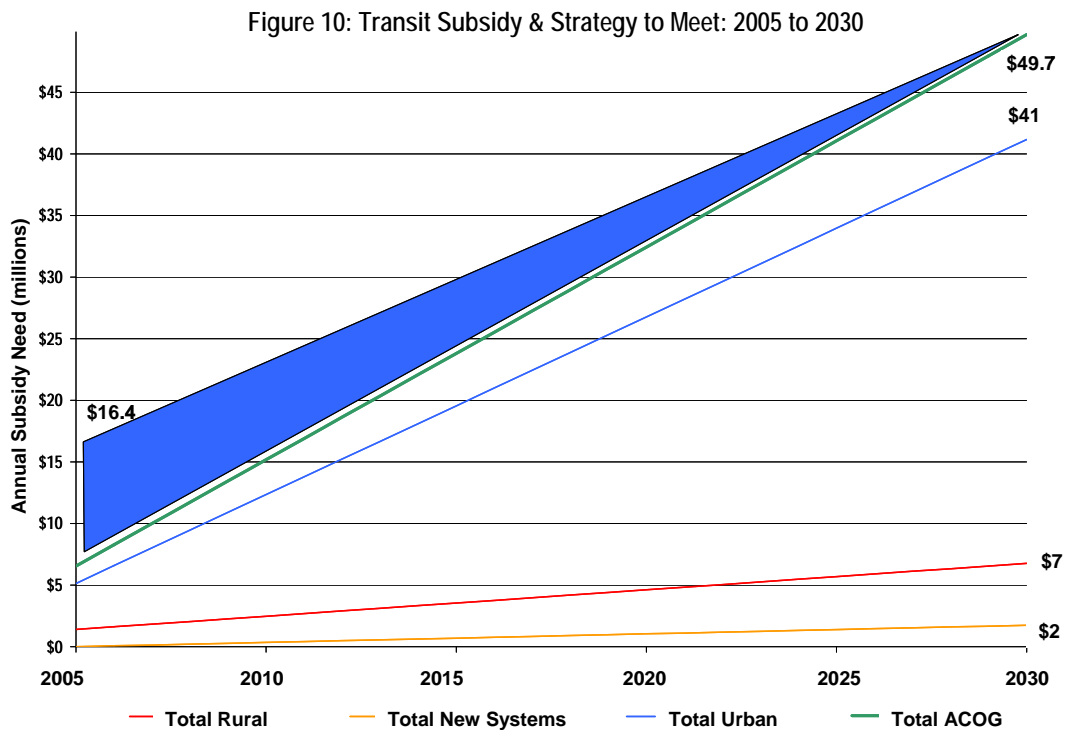
	2005 Existing	2005 Need	% of Need Met	2030 Need
Anderson County	\$0	\$1,119,196	0%	\$1,333,406
Greenville County	\$0	\$1,369,213	0%	\$1,703,307
Pickens County	\$0	\$608,021	0%	\$803,593
Spartanburg County	\$1,407,518	\$2,293,192	61%	\$2,923,988
<b>Total Rural</b>	<b>\$1,407,518</b>	<b>\$5,389,622</b>	<b>26%</b>	<b>\$6,764,295</b>
Cherokee County	\$0	\$630,138	0%	\$788,761
Oconee County	\$0	\$737,880	0%	\$956,736
<b>Total New Systems</b>	<b>\$0</b>	<b>\$1,368,018</b>	<b>0%</b>	<b>\$1,745,497</b>
Anderson County (Urban)	\$393,379	\$691,743	57%	\$3,407,634
Greenville County (Urban)	\$1,527,145	\$4,966,963	31%	\$32,287,286
<b>Pickens County (Urban)</b>	<b>\$1,314,611</b>	<b>\$1,557,206</b>	<b>84%</b>	<b>\$1,504,286</b>
Spartanburg County (Urban)	\$1,910,762	\$2,390,994	80%	\$3,971,885
<b>Total Urban</b>	<b>\$5,145,896</b>	<b>\$9,606,906</b>	<b>54%</b>	<b>\$41,171,090</b>
<b>Total ACOG</b>	<b>\$6,553,414</b>	<b>\$16,364,545</b>	<b>40%</b>	<b>\$49,680,882</b>

(Subsidy = Operating Cost – Farebox Revenue)

The total \$16.4 million in operating subsidy is estimated to meet all the 4.6 million one-way trips for 2005, and \$49.7 million (in year 2005 dollars) is projected to meet all the 10.5 million one-way trips to meet the expected 2030 transit need. However, as



assumed, not all the demand is going to be met at the beginning. The actual subsidy required for 2008 (since 2005 is past, the unmet subsidy is distributed from 2005 through 2030, by a 25-year period) is \$11.7 million (\$1.8 million for existing rural systems, \$8 million for existing urban systems and \$0.21 million for new systems). Then the subsidy is increased by a uniform rise annually to reach the goal of meeting all the demand in the year 2030. In this case, the annual subsidy increase should be \$1.73 million (\$0.21 million for existing rural transit systems, \$1.4 million for existing urban transit systems and \$0.07 million for the new transit systems). Figure 10 shows how the transit need would be met by increasing subsidy gradually, consistent with the sound, incremental approach to transit investments expressed previously in the statewide Vision for Transit (Section 4.2).



### 5.4.3 Capital Needs

This section examines major capital needs including vehicles and facilities.

#### 5.4.3.1 Vehicle Needs

The following data and assumptions are used in vehicle estimation:

- The existing number of vehicles is based on data provided by SCDOT (FY 2005).
- Total vehicle requirement: based on transit demand forecast and vehicle production.
- A vehicle is added for every 15,300 new riders per year, which is based on the following assumptions:

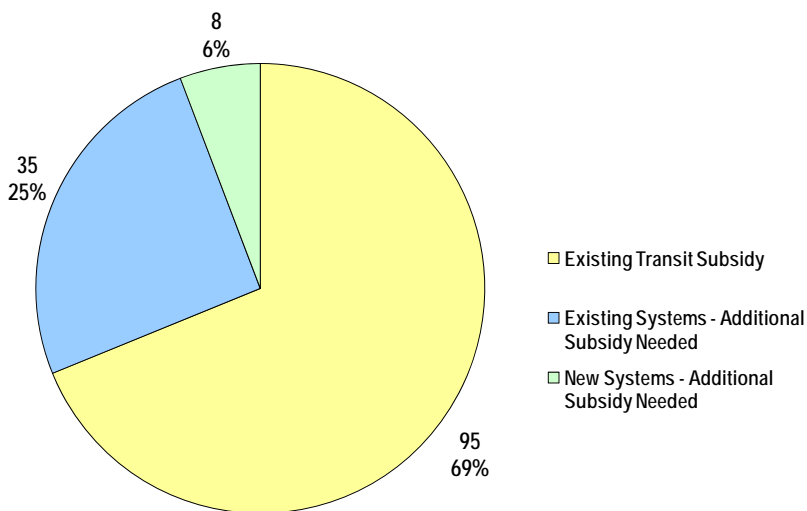


- Vehicle utilization is 5 riders per vehicle hour.<sup>10</sup>
- Each vehicle operates 12 hours per day for 255 days per year.<sup>11</sup>
- Vehicles need to be replaced after 5 years in service.
- Between 2005 and 2030, the vehicle fleet size is increased as the level of transit service is increased. The fleet size is expanded at a rate that corresponds with the uniform annual demand increase according to the strategy to meet all the demand gradually from 2005 to 2030. This assumes that there will be no fleet size decrease over the 25 year period.
- The cost of each new vehicle purchase is assumed to be \$275,000 for Fixed Route vehicles, \$60,000 for Demand Response vehicles and \$30,000 for Human Resource vehicles and remain constant from 2005 to 2030.
- Vehicles are assumed to be body-on-chassis type with diesel engines.

Based on these assumptions, the overall vehicle needs for each year, the vehicles needed to be purchased and replaced, and the related costs were calculated and summarized as follows:

Through 2005, the existing service providers had 95 vehicles (29 rural and 66 urban) in total. To meet all the predicted demand in 2008 about 138 vehicles will be needed. Since the strategy is not to meet all the demand at once, the actual vehicles required in 2008 will be about 138 vehicles (47 for existing rural systems, 83 for existing urban systems, and 8 for new systems). This equates to the number of vehicles needed to meet the level of 2008 need. The following Figure 11 shows the vehicle needs for 2008.

Figure 11: Vehicle Needs for 2008



The vehicles required to meet all the predicted need in 2030 will be 329 (135 for existing rural systems, 160 for existing urban systems and 34 for new systems). Table 19

<sup>10</sup> Consistent with existing Section 5311 operations.

<sup>11</sup> Or 3,060 vehicle hours annually.



shows the vehicle needs to meet the predicted 2030 transit demand, and the vehicles needed in 2008.

Table 19: Vehicle Needs for 2008 &amp; 2030

	2005 Existing	Needed in 2008	% of Need Met	Needed in 2030
Anderson County	0	5	0%	26
Greenville County	0	5	0%	33
Pickens County	0	4	0%	16
Spartanburg County	29	33	88%	60
Total Rural	29	47	62%	135
Cherokee County	0	4	0%	15
Oconee County	0	4	0%	19
Total New Systems	0	8	0%	34
Anderson County (Urban)	3	5	60%	17
Greenville County (Urban)	16	22	73%	81
Pickens County (Urban)	18	26	69%	28
Spartanburg County (Urban)	29	30	97%	34
Total Urban	66	83	80%	160
Total ACOG	95	138	69%	329

From 2005 to 2030, 234 vehicles should be purchased for fleet expansion, while 447 vehicles should be purchased for fleet replacement. This adds up to the total purchase of 681 vehicles. The purchases and related costs are shown in Table 20.

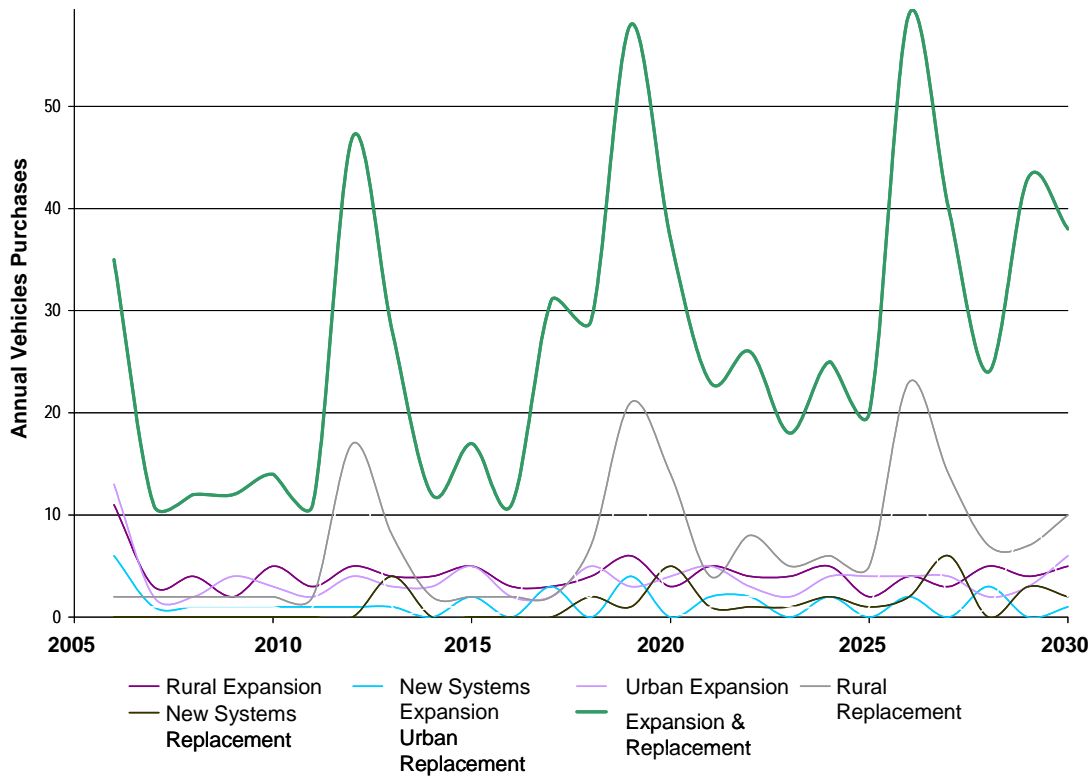
Table 20: Vehicle Needs &amp; Cost Over 25 Years

Units	Fleet Expansion Vehicles	Fleet Replacement Vehicles	Total Purchased Vehicles	Total Cost Millions of Dollars
Anderson County	26	22	48	\$2,880,000
Greenville County	33	26	59	\$3,540,000
Pickens County	16	15	31	\$1,860,000
Spartanburg County	31	113	144	\$8,640,000
Total Rural	106	176	282	\$16,920,000
Cherokee County	15	15	30	\$1,800,000
Oconee County	19	16	35	\$2,100,000
Total New Systems	34	31	65	\$3,900,000
Anderson County (Urban)	14	18	32	\$1,920,000
Greenville County (Urban)	65	80	145	\$8,700,000
<b>Pickens County (Urban)</b>	10	55	65	\$3,900,000
Spartanburg County (Urban)	5	87	92	\$5,520,000
Total Urban	94	240	334	\$20,040,000
Total ACOG	234	447	681	\$40,860,000

Figure 12 shows the vehicle capital expenditures between 2005 and 2030.



Figure 12: Vehicle Capital Expenditures Over 25 Years



**5.4.3.2 Facility Needs**

This analysis assumes that facility expansion or construction will be needed between 2005 and 2030 for existing and newly started transit systems. The amount of facility expansion or construction is assumed to be proportional to the number of vehicles required by each system. The capital costs for facility expansion and construction were categorized as having different levels of cost requirements. Expansion is for the existing systems while construction is for the new systems. An exception is that an existing system expanding by 41 or more vehicles would be calculated at the construction cost. Table 21 gives the approximate cost based on the above assumptions:

Table 21: Facility Needs Assumptions Based Upon Fleet Size

Fleet Size	Expansion System	New Systems
0	\$0	\$0
1-10	\$875,000	\$1,750,000
11-40	\$1,500,000	\$3,000,000
41-80	\$2,750,000	\$5,500,000
81-160	\$4,625,000	\$9,250,000
161-320	\$8,375,000	\$16,750,000
Over 321	\$15,875,000	\$31,750,000



Facility costs are assumed at about \$280 a square foot for new construction. This assumes masonry or similar construction material and includes design fees, contingencies, project management as well as an allowance for land purchase at about \$44,000 an acre. A cost of about \$42 a square foot for expansion has been assumed and includes space for parking and fueling vehicles. No expansion of maintenance bays are assumed except in the expansion of a fleet by 41 or more vehicles.

Table 22 summarizes the total operating costs, vehicle costs and facility costs.

Table 22: Total Operating, Vehicle & Facility Capital Costs: 2005 to 2030

	Vehicle Purchases	Vehicle Cost	Facility Cost	Total Cost
Anderson County	48	\$9.1	\$6.0	\$15.1
Greenville County	59	\$11.4	\$6.0	\$17.4
Pickens County	31	\$5.8	\$3.3	\$9.0
Spartanburg County	144	\$18.5	\$15.8	\$34.3
Total Rural	282	\$44.8	\$31.0	\$75.8
Cherokee County	30	\$5.5	\$3.3	\$8.7
Oconee County	35	\$6.7	\$3.3	\$9.9
Total New Systems	65	\$12.1	\$6.5	\$18.6
Anderson County (Urban)	32	\$5.8	\$1.5	\$7.3
Greenville County (Urban)	145	\$29.6	\$15.8	\$45.3
Pickens County (Urban)	65	\$15.6	\$2.8	\$18.3
Spartanburg County (Urban)	92	\$10.4	\$7.4	\$17.7
Total Urban	334	\$61.3	\$27.4	\$88.7
Total ACOG	681	\$118.3	\$64.9	\$183.2

(in millions)

#### 5.4.4 Total Capital and Operating Costs

The total capital and operating costs is summarized in Table 23.

Table 23: Total Operating, Vehicle and Facility Costs: 2005 to 2030

	Vehicle Purchases	Operating Costs	Vehicle Cost	Facility Cost	Total Cost
Anderson County	48	\$17.3	\$9.1	\$6.0	\$32.4
Greenville County	59	\$22.1	\$11.4	\$6.0	\$39.6
Pickens County	31	\$10.4	\$5.8	\$3.3	\$19.5
Spartanburg County	144	\$56.3	\$18.5	\$15.8	\$90.6
Total Rural	282	\$106.2	\$44.8	\$31.0	\$182.0
Cherokee County	30	\$10.3	\$5.5	\$3.3	\$19.0
Oconee County	35	\$12.4	\$6.7	\$3.3	\$22.3
Total New Systems	65	\$22.7	\$12.1	\$6.5	\$41.3
Anderson County (Urban)	32	\$49.4	\$5.8	\$1.5	\$56.7
Greenville County (Urban)	145	\$439.6	\$29.6	\$15.8	\$484.9
Pickens County (Urban)	65	\$36.6	\$15.6	\$2.8	\$55.0
Spartanburg County (Urban)	92	\$76.5	\$10.4	\$7.4	\$94.2
Total Urban	334	\$602.1	\$61.3	\$27.4	\$690.8
Total ACOG	681	\$731.0	\$118.3	\$64.9	\$914.2

(in millions)



The Appalachian region is projected to have costs of up to 914.2 million dollars over the next 25 years. About 80 percent of this cost is attributed to operating costs, while about 13 percent of the costs are projected to come from vehicle costs and about 7 percent from facility costs.

### **5.5 Intercity / Interregional Transit Needs**

For residents and visitors who have limited travel options, intercity bus will continue to provide an important mobility service. However, for intercity bus service to have an increased role in transportation in South Carolina, the service must be provided in a way to attract more people who could otherwise fly or drive. It is difficult for intercity bus to be time-competitive with air travel or driving directly between an origin and a destination, but budget-conscious travelers may be more receptive to bus service if it is provided at a deeply-discounted fare. The “no frills” business model being used by Megabus.com and other similar providers is attempting to use low fares to attract customers who would otherwise fly or drive, but the long-term sustainability of this operation remains unproven.

As part of the focus group sessions conducted for this planning process, several community leaders and members of the general public made comments regarding the need for more public transportation options between cities or across state lines. Although the need for improved intercity transportation was recognized in the focus group sessions, there was a greater emphasis on local and regional (commute-oriented) transit needs. The same thought process was also reflected in the stakeholder interviews with regional planners and transit officials, in which most of the comments received addressed regional transit needs as opposed to intercity concerns.

Intercity rail transportation, particularly high speed rail service, has a greater potential than intercity bus to significantly impact how South Carolina residents and visitors travel between cities in the future, due to the reduced travel times, level of comfort, and direct service. Several attempts have been made in the State to use intercity bus service to connect residents to Amtrak service (such as the former Amtrak “Thruway” bus connection between Florence and Columbia that was operated by the Pee Dee Regional Transportation Authority). Although this type of service was previously unsuccessful due largely to the unreliability of Amtrak, using intercity bus service to connect patrons to high speed rail service could serve to extend the reach of the high speed rail corridor. This type of connection should be considered in future high speed rail planning.

Several public transit agencies in the State offer what can be described as “intercity bus service”, designed to connect inland communities to employment opportunities in coastal resort areas like Myrtle Beach (with trips traveling distances of 50-100 miles or more one-way). Because these trips are daily, commute-oriented trips, they are not specifically included in this “intercity bus” assessment. However, this travel pattern reflects one of the unique transit issues in South Carolina, and considering the rapid growth rate of coastal areas along with high unemployment rates in inland counties, this long-distance transit connection will likely grow in importance over the coming years.



Therefore, providing enhancements in these long-distance commuter connections is identified as a focus area for intercity-type travel.

The State of South Carolina currently provides no subsidies for intercity bus service, but these needs should be considered in the future, especially if additional service cuts are made to current operations. If necessary, state investment in intercity bus service should be considered to maintain key connections across the State. Current State funding sources are used by public transit agencies to support the intercity commute-oriented services to jobs along the coast, but additional support for these services may be needed in the future. Additionally, as high speed rail services are developed, the State should examine its role in not only the rail operation, but any connecting bus service as well.

### **5.5.1 Intercity High Speed and Passenger Rail Assessment**

Although there is not, as yet, a funded national program for the actual construction of high speed rail passenger corridors, the United States Department of Transportation (USDOT) has designated a network of corridors for the development of high speed rail service in this country. These corridors are generally focused on regional trips that could be competitive with commercial air service from a schedule standpoint. To date, only small amounts of Federal funding have been provided, adequate only for studies. South Carolina is a member of the Southeast High Speed Rail Coalition, along with its neighbors, North Carolina, Georgia, Florida and Virginia. Two corridors that pass through South Carolina have been adopted as part of the Southeast High Speed Rail Coalition plan. These corridors were added to the Southeast Corridor network designated by the USDOT as future high speed rail passenger routes on December 1, 1998.

The provision of HSR Stations in Greenville with connections to/from other urban activity centers via rail or bus would be very important for access to and from the Appalachian Region.

## **5.6 Critical and Potential Transit Corridors**

In addition to the needs-based assessment of transit demand, potential for commuter-based transit and other services designed to attract choice riders was also analyzed across the State. Developed in conjunction with the development of the Strategic Corridor System, there were several corridors in the Appalachian Region identified as having transit supportive characteristics. These corridors could have been selected for any number of reasons including but not limited to: projected traffic congestion; other traffic or development patterns; currently served by successful transit service poised for expansion or enhancement; and/or the implementation is included in regional long range transportation plans and has a defined transit-supportive commuting or land use pattern. Beyond the scope of this plan, more detailed transit propensity analyses in congested corridors must be performed as part of the Advanced Planning Project Report (APPR) phase of project development, in adherence to the requirements of Section 57-1-370 of the Code of Laws of South Carolina.



The purpose of this section is to evaluate potential transit technologies for consideration in the South Carolina Multimodal Transportation Plan, and to identify those that may be most suitable for potential transit applications. A map of these corridors is depicted in Figure 13 at the end of the section.

### **5.6.1 Potential Transit Technologies**

Five transit technologies were identified for evaluation as potential corridor application options. The technologies analyzed include:

1. Local Bus;
2. Express Bus;
3. Enhanced Bus / Intelligent Transportation Systems (ITS);
4. Bus Rapid Transit (BRT); and
5. Commuter Rail

#### ***Local Bus***

Local bus service represents the most common and most flexible type of public transportation and is commonly referred to as fixed route as service operates along a defined route and on a pre determined schedule. Service can be provided with vans, small buses, traditional transit buses including low floor configuration, or articulated buses. Stops are typically as placed as frequent as every one to two blocks, or every one-eighth mile. When operated within a smaller area, local service may be called circulator, feeder, neighborhood, trolley, or shuttle service. Complementary paratransit service for eligible persons with disabilities who cannot access or use the local service must be provided as required under the Americans with Disabilities Act of 1990.

#### ***Express Bus***

Express bus service provides direct point-to-point service over longer service routes utilizing high-occupancy vehicles. Buses are usually equipped with high-back seats, reading lamps, and other passenger amenities. Service typically operates between central business districts and suburban areas, primarily on weekdays, and during peak hours, however limited midday trips are not uncommon. Suburban terminals may include customer parking and covered waiting areas.

#### ***Enhanced Bus/ITS***

Enhanced bus service uses low-floor, low or zero-emission buses with Intelligent Transportation Systems technology such as traffic signal priority and coordination along the entire alignment and on board customer information displays. Enhanced bus service typically operates in mixed-flow traffic along major arterial streets except in congested segments where peak period transit lanes or “queue jump” lanes may be provided. Queue jump lanes allow buses to bypass traffic queues at major intersections and advance more quickly through traffic signals. Bus pull off areas and bus stop passenger amenities may also be included.



**Bus Rapid Transit (BRT)**

Bus Rapid Transit uses a number of features to reduce delays and improve customer convenience. BRT systems typically use dedicated busways or bus lanes, although they can also operate in HOV lanes, dedicated guideway facilities, or in mixed traffic on arterial streets with various ITS applications including traffic signal priority. Other features can include improved passenger waiting areas, high-capacity/low-floor buses; fare collection prior to boarding; and advanced customer information systems. BRT systems can improve passenger convenience by using the same vehicle for the collection/distribution portion of the trip and for the faster line-haul portion of the trip; reducing the number of required transfers is a major advantage of BRT systems.

Busways which provide a high level of service and allow high hourly passenger capacities are typically grade separated from cross streets, and have on-line stations with spacing comparable to light rail. Low volume busways often are characterized by at-grade intersections with cross streets. Buses may operate non-stop along the busway/bus lanes or make selected stops based on passenger demand. Buses may also exit the specially designated busway and operate along streets to provide local area circulation and distribution. BRT is considered a viable option for upgrading bus service performance.



**Commuter Rail**

Commuter rail is a mode of passenger transportation using vehicles with steel wheels on steel rails using tracks that are part of a general rail network. The name "commuter rail" covers a multitude of rail system elements to carry passengers. Service typically operates between a central city terminal and outlying suburbs and trains can be diesel powered or use electric-powered rail cars. Commuter rail services may share track with railroad freight trains, or have separate tracks. Some commuter lines are primarily used for peak hour work trips while others have extended off-peak and weekend services. Commuter trains can vary in length from one car to 14, but are generally limited to the length of the platforms at the stations. Some systems use locomotives for power and others have self-propelled cars.



**5.6.2 Corridor Evaluation Criteria**

**Technology Compatible with Existing Development**

The corridors being considered for transit options vary widely in regards to existing development and adjacent land uses. The transit technologies described above can

<p><b>Scoring Method:</b>  <b>Appropriate: +1</b>  <b>Somewhat Appropriate: 0</b>  <b>Not Appropriate: -1</b></p>
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be strategically employed to alleviate congestion, provide mobility options, and/or enhance existing roadway capacities. The attributes of the transit technology should be consistent with the existing characteristics of the corridor. This criterion is qualitative and ratings were determined by assigning the most reasonable score based on existing development characteristics and staff knowledge of the area.

**Technology Compatible with Level of Service Needs**

This criterion examines the future level of service needs for the corridor. The 2030 Average Daily Traffic (ADT) figures were utilized by assuming a ten percent transit mode split. Lower ADT scores in a corridor were assumed to indicate the need for lower capacity transit options, such as local bus, and higher scores indicating the need for higher capacity options, such as BRT or commuter rail. Note: Along highways with multiple segments, the highest ADT along that roadway was used.

<b>Scoring Method:</b>	
<i>ADT less than 2000 then Local Bus Assigned Score: 1</i>	<i>Other Modes: -1</i>
<i>ADT 2000-5000 then Local, Enhanced &amp; Express Bus Assigned Score: 1</i>	<i>Other Modes: -1</i>
<i>ADT greater than 5000 then BRT &amp; Commuter Rail Assigned Score: 1</i>	<i>Other Modes: -1</i>

**Technology Compatible with Roadway Improvement Plans**

This criterion evaluates the technology as compared against the Statewide Multimodal Transportation Plan. The technologies were assessed for various roadway improvement categories including capacity, Intelligent Transportation Systems (ITS), operations (e.g. signal timing), and access management. If the roadway type improvement has potential for promoting the technology, then the technology was considered compatible and assigned a rating of +1. It is important to note that the proposed roadway improvements were not considered to have potential to promote commuter rail. For this reason, commuter rail was assigned a score of 0 to represent its lack of compatibility to this criterion.

Scoring Method	Roadway Improvement			
	Capacity	ITS	Operations	Access Mgmt.
Technology				
Local Bus	1	1	1	1
Express Bus	1	0	0	1
Enhanced Bus	0	1	1	0
BRT	1	0	0	0
Commuter Rail	0 or 1	0	0	0



***Railroad Right-of Way Adjacent to the Corridor***

This criterion considers the advantage of existing exclusive rail right of way for Commuter Rail. For the technologies other than Commuter Rail, the score is 0.

**Scoring Method:**  
***Available or Planned: +1***  
***Available or planned along a Portion of the Corridor: 0***  
***Not Available: -1***

**Technology Compatible with Existing Plans**

It is important for the candidate transit technology to be compatible with the existing local, regional, and statewide plans. For this criterion, the Long Range Transportation Plan was utilized, as well as mode specific plans from relevant transit authorities and Metropolitan Planning Organizations (MPOs).

**Scoring Method:**  
***Compatible: +1***  
***Somewhat Compatible: 0***  
***Not Compatible: -1***

**Roadway Parallel to the Corridor**

This criterion considers the advantage of existing/planned roadways parallel to the corridor.

**Scoring Method:**  
***Available or planned roadway/HOV: +1***  
***Available or planned along a Portion of the Corridor: 0***  
***Not Available or Planned: -1***

**5.6.3 Appalachian Region Corridors**

The Appalachian Region contains critical corridor segments from the Trans-Carolina and Upstate corridors.

**Trans-Carolina Corridor**

Segment TC2-1 is within the Trans-Carolina corridor. The following matrix provides applicability ratings for transit technologies along this segment.



**Segment TC2-1**

SC 9 (Boiling Springs Boulevard) from S-42 (Poors Ford Road/Rainbow Lake Road) to S-56 (Old Furnace Road)

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Compatible	Incompatible	Incompatible
<i>Rating</i>	1	1	1	-1	-1
Technology compatible Level of Service needs	Compatible	Compatible	Compatible	Incompatible	Incompatible
<i>Rating</i>	1	1	1	-1	-1
Technology compatible with roadway improvements	Compatible	Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	1	1	0	0	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Not Adjacent
<i>Rating</i>	0	0	0	0	-1
Technology compatible with existing plans	Compatible	Compatible	Compatible	Compatible	Compatible
<i>Rating</i>	1	1	1	1	1
Parallel roadway/facility	Partially	Present	Present	Partially	Partially
<i>Rating</i>	0	1	1	0	0
<b>Overall Rating</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>-1</b>	<b>-2</b>
<b>Carry Forward?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>

Rating scale:

Desirable/Positive Rating = +1

Neutral Rating = 0

Negative Rating/Less Desirable = -1

Express bus service performed highest among all evaluated modes, followed by local bus service along with enhanced bus service featuring ITS technology. Suburban residential and commercial activities are situated within this small sub-corridor. A moderate density of single-family and multi-family housing is found south of the sub-corridor between Boiling Springs and Interstates 85 and 585 near Spartanburg. Recommendations in the Statewide Multimodal Transportation Plan for this sub-corridor include the relocation of one through-street and one cul-de-sac at their intersection with SC 9, right-in/right-out driveway access management strategies, bicycle/pedestrian facilities, and an express bus service between Boiling Springs and Spartanburg. In addition to a circulator shuttle or trolley service promoting tourist activity, future transit service considerations could include a limited-service extension of Spartanburg Area Regional Transit Agency (SPARTA) Route 8 to Boiling Springs, or alternatively a shuttle route from Boiling Springs to a future park-and-ride/transfer center in the vicinity of I-585, Wofford College, University of South Carolina-Spartanburg, and Spartanburg Regional Medical Center. Traffic signal priority for SPARTA routes during peak periods could be considered to alleviate congestion at key intersections.

**Upstate Corridor**

Segments U2-1; U5-1; U6-1; U11-1 through U11-4; U12-1 and U12-2; and U13-1 are within the Upstate corridor. The following matrix provides applicability ratings for transit technologies for these segments.



**Segment U2-1**

*US 76 (Bypass 123) from US 76/US 123 Business / SC 28 (Blue Ridge Boulevard) to SC 130 (Rochester Highway)*

Appalachian  
Upstate  
U2-1

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Somewhat Compatible	Incompatible	Incompatible
<i>Rating</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>-1</i>	<i>-1</i>
Technology compatible Level of Service needs	Compatible	Compatible	Compatible	Incompatible	Incompatible
<i>Rating</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>-1</i>	<i>-1</i>
Technology compatible with roadway improvements	Compatible	Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Adjacent
<i>Rating</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>
Technology compatible with existing plans	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Parallel roadway/facility	Partially	Present	Present	Partially	Partially
<i>Rating</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>
<b>Overall Rating</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>-2</b>	<b>-1</b>
<b>Carry Forward?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

*Rating scale:*

*Desirable/Positive Rating = +1*

*Neutral Rating = 0*

*Negative Rating/Less Desirable = -1*

Express bus service performed highest among all evaluated modes, followed by local bus and enhanced bus services featuring ITS technology. There is primarily highway commercial activity along this sub-corridor north of the City of Seneca town Center, with growth on the northern end limited by the presence of the Lake Keowee reservoir. Access management and bicycle/pedestrian improvements recommended in this Statewide Multimodal Transportation Plan include potential service/frontage roads along US 76. Clemson Area Transit (CAT) provides hourly express bus service along this segment between Clemson University and Seneca at its downtown Railroad Park. In Seneca, CAT offers a residential loop route and a loop route serving key business destinations. Expansion of local and express bus service operating hours can promote ridership growth along this corridor. Traffic signal priority for CAT buses during peak periods can be considered to alleviate congestion at key intersections.

**Segments U5-1 and U6-1**

*US 123 (Calhoun Memorial Highway) from SC 135 to SC 124 (Old Easley Highway)*



Appalachian  
Upstate  
U5-1 to U6-1

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Compatible	Incompatible	Incompatible
<i>Rating</i>	1	1	1	-1	-1
Technology compatible Level of Service needs	Incompatible	Incompatible	Incompatible	Compatible	Compatible
<i>Rating</i>	-1	-1	-1	1	1
Technology compatible with roadway improvements	Compatible	Compatible	Somewhat Compatible	Compatible	Somewhat Compatible
<i>Rating</i>	1	1	0	1	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Adjacent
<i>Rating</i>	0	0	0	0	1
Technology compatible with existing plans	Compatible	Compatible	Somewhat Compatible	Compatible	Somewhat Compatible
<i>Rating</i>	1	1	0	1	0
Parallel roadway/facility	Partially	Partially	Partially	Partially	Partially
<i>Rating</i>	0	0	0	0	0
<b>Overall Rating</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>Carry Forward?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>No</b>

Rating scale:

Desirable/Positive Rating = +1

Neutral Rating = 0

Negative Rating/Less Desirable = -1

Local bus service, bus rapid transit (BRT) and express bus services performed highest among all evaluated modes, followed by commuter rail. A moderate level of highway commercial and single-family residential development exists along the sub-corridor, situated south of the Easley town center. Capacity enhancements and access management and bicycle/pedestrian improvements recommended for the sub-corridor in this Statewide Multimodal Transportation Plan include a major reconstruction of one intersection to create an at-grade signalized intersection, upgrades at two additional intersections, and consideration of utilizing the median to increase capacity. The Town of Easley recently completed a feasibility study for transit. Study recommendations included the introduction of four local fixed-route services with route-deviation capacities, and encouraged the identification of a transfer point in the downtown area north of this sub-corridor. Express bus or bus rapid transit services to either Clemson or Greenville may be a long-term consideration and would require multi-jurisdictional coordinated efforts. With existing railroad right-of-way north of this sub-corridor, there may be long-term prospects for commuter rail services connecting Clemson and Easley with Greenville and Spartanburg.

**Segments U11-1 through U11-4; U12-1 and U12-2; and U13-1**

US 29 (Wade Hampton Boulevard) from US 29 (Greenville County) to Spartanburg County Line; US 29 (East Wade Hampton Boulevard) from Greenville County Line to I-26; US 29 (Wo Ezell Boulevard) from I-26 to US 29/SC 296 Connection (North Daniel Morgan Avenue)



Appalachian  
Upstate  
U11-1 to U11-4, U12-1, U12-2, U13-1

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Compatible	Compatible	Compatible
<i>Rating</i>	1	1	1	1	1
Technology compatible Level of Service needs	Incompatible	Incompatible	Incompatible	Compatible	Compatible
<i>Rating</i>	-1	-1	-1	1	1
Technology compatible with roadway improvements	Compatible	Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	1	1	0	0	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Adjacent
<i>Rating</i>	0	0	0	0	1
Technology compatible with existing plans	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Parallel roadway/facility	Partially	Partially	Partially	Partially	Partially
<i>Rating</i>	0	0	0	0	0
<b>Overall Rating</b>	1	1	0	2	3
<b>Carry Forward?</b>	No	No	No	Yes	Yes

Rating scale: Desirable/Positive Rating = +1  
Neutral Rating = 0  
Negative Rating/Less Desirable = -1

Commuter rail services performed highest among all evaluated modes, followed by bus rapid transit (BRT) and local and express bus services. This sub-corridor extends east from an area just north of downtown Greenville and includes medium-density residential, commercial, and institutional land use along US 29 (Wade Hampton Boulevard). Densities and development levels recede beyond the Taylors community, except where US 29 passes through the cities of Greer and Lyman. The sub-corridor continues east to a moderately-developed area just west of downtown Spartanburg. Access management enhancements and bicycle/pedestrian improvements are recommended for this sub-corridor in the Statewide Multimodal Transportation Plan, including access controls, grass medians, and a context-sensitive solutions process during the design phase. While commuter rail performed highest in this particular analysis, the Greenville-Pickens Area Transportation Study (GPATS) Long Range Transportation Plan identifies an alternate corridor for commuter rail, between Greer and Clemson, as opposed to the railroad right-of-way in the vicinity of US 29 within this sub-corridor. Feasibility and demand analyses for BRT may be incorporated within the context-sensitive solutions process for enhancements in the Greenville-Spartanburg corridor. The Greenville Transit Authority (GTA) provides fixed-route transit service (Route 11) at hourly service frequencies from downtown Greenville to Taylors Road along the western portion of the sub-corridor. Future transit improvements involve increasing frequencies and service span for the existing GTA route, and an express bus connection to Greer.

### 5.6.4 Other Potential Transit Corridors

Not all corridors have either current or projected issues with critical traffic congestion, as is the case with the Critical Corridors identified in Section 5.6.3. However, many of the



below segments, found within the Mountains to the Sea, Trans-Carolina and Upstate corridors, can benefit from future enhancements to coordinated public transportation, and/or new transit services. The methodology detailed in the preceding section is applied to an additional set of corridors. Among non-critical corridors, these were identified to pose the greatest potential need for transit.

**Segments MS-6 through MS-13**  
*Anderson-Greenwood-Saluda-Columbia via US 178/US 76/US 25*

Appalachian, Upper Savannah and Central Midlands  
Mountains to the Sea  
Anderson to Greenwood to Saluda to Columbia

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Somewhat Compatible	Incompatible	Incompatible
<i>Rating</i>	1	1	0	-1	-1
Technology compatible Level of Service needs	Compatible	Incompatible	Incompatible	Incompatible	Incompatible
<i>Rating</i>	1	-1	-1	-1	-1
Technology compatible with roadway improvements	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Not Adjacent
<i>Rating</i>	0	0	0	0	-1
Technology compatible with existing plans	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Parallel roadway/facility	Partially	Not Present	Not Present	Partially	Partially
<i>Rating</i>	0	-1	-1	0	0
<b>Overall Rating</b>	<b>2</b>	<b>-1</b>	<b>-2</b>	<b>-2</b>	<b>-3</b>
<b>Carry Forward?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

*Rating scale:*  
 Desirable/Positive Rating = +1  
 Neutral Rating = 0  
 Negative Rating/Less Desirable = -1

Local bus service performed highest among all evaluated modes. The sub-corridor includes the suburban/rural area of southeast Anderson County, extending through the rural centers of Greenwood and Saluda. Transit services within this corridor include Electric City Transit services in the City of Anderson as well as the Greenwood Connection express route operated by the Edgefield County Senior Citizens Council between Greenwood, Edgefield, and Johnston.

Potential transit needs include expanded rural fixed-route and demand-responsive services in the Upper Savannah region, and commuter express routes between Anderson and Greenwood and from Saluda to Batesburg-Lewisville (with connecting routes to Columbia).

Traffic signal priority technology can be applied to potential points of peak-period congestion near interstates and at the intersections of strategic corridors included in the Statewide Multimodal Transportation Plan.



**Segments U-3 through U-13**  
**Clemson-Greenville-Spartanburg via US29/US123**

Appalachian  
Upstate  
 Clemson to Greenville to Spartanburg

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Compatible	Compatible	Compatible
<i>Rating</i>	1	1	1	1	1
Technology compatible Level of Service needs	Incompatible	Incompatible	Incompatible	Compatible	Compatible
<i>Rating</i>	-1	-1	-1	1	1
Technology compatible with roadway improvements	Compatible	Compatible	Somewhat Compatible	Compatible	Somewhat Compatible
<i>Rating</i>	1	1	0	1	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Adjacent
<i>Rating</i>	0	0	0	0	1
Technology compatible with existing plans	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Parallel roadway/facility	Partially	Partially	Partially	Partially	Partially
<i>Rating</i>	0	0	0	0	0
<b>Overall Rating</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>3</b>
<b>Carry Forward?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

*Rating scale:* Desirable/Positive Rating = +1  
 Neutral Rating = 0  
 Negative Rating/Less Desirable = -1

Bus rapid transit (BRT) and commuter rail services performed highest among evaluated modes, followed by local bus and express bus services. The sub-corridor extends east from the Clemson University area to the Greenville and Spartanburg urbanized areas. The most highly developed areas include central and suburban Greenville, and the cities of Spartanburg, Greer, Easley and Lyman. Fixed-route transit providers in this area include Clemson Area Transit (CAT), Greenville Transit Authority (GTA) and Spartanburg Area Regional Transit Authority (SPARTA). The Town of Easley recently completed a Transit Feasibility Study, and will pursue implementation of new fixed-route services. Capacity improvements recommended via the Statewide Multimodal Transportation Plan involve a mix of access management and context-sensitive solutions strategies, including the implementation of a grass median and bicycle/pedestrian facilities.

Potential transit opportunities include local and/or express bus route connections between Clemson and Greenville, GTA and SPARTA, in the vicinity of the City of Greer, and shuttles connecting town centers to industrial districts, including centers in the automotive technology sector. Other potential considerations include continued study of commuter rail feasibility between Clemson, Easley, Greenville and Spartanburg.

Strategic growth in land use mix and population and employment densities along this corridor should precede future consideration of commuter rail transportation along the nearby rail corridor between Clemson and Greenville. More concentrated growth patterns and dedicated right-of-way may also improve the future feasibility for Bus Rapid Transit service along this sub-corridor.



**Segments TC-3 through TC-10  
Chester-Spartanburg via SC 9**

Appalachian, Catawba  
Trans Carolina  
Chester to Spartanburg

Guideline	LOCAL BUS	EXPRESS BUS	ENHANCED BUS/ITS	BUS RAPID TRANSIT	COMMUTER RAIL
Technology compatible with existing development	Compatible	Compatible	Somewhat Compatible	Incompatible	Incompatible
<i>Rating</i>	1	1	0	-1	-1
Technology compatible Level of Service needs	Compatible	Incompatible	Incompatible	Incompatible	Incompatible
<i>Rating</i>	1	-1	-1	-1	-1
Technology compatible with roadway improvements	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Railroad right of way adjacent to the corridor	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent	Partially Adjacent
<i>Rating</i>	0	0	0	0	0
Technology compatible with existing plans	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible	Somewhat Compatible
<i>Rating</i>	0	0	0	0	0
Parallel roadway/facility	Partially	Not Present	Not Present	Partially	Partially
<i>Rating</i>	0	-1	-1	0	0
<b>Overall Rating</b>	<b>2</b>	<b>-1</b>	<b>-2</b>	<b>-2</b>	<b>-2</b>
<b>Carry Forward?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

*Rating scale:*  
Desirable/Positive Rating = +1  
Neutral Rating = 0  
Negative Rating/Less Desirable = -1

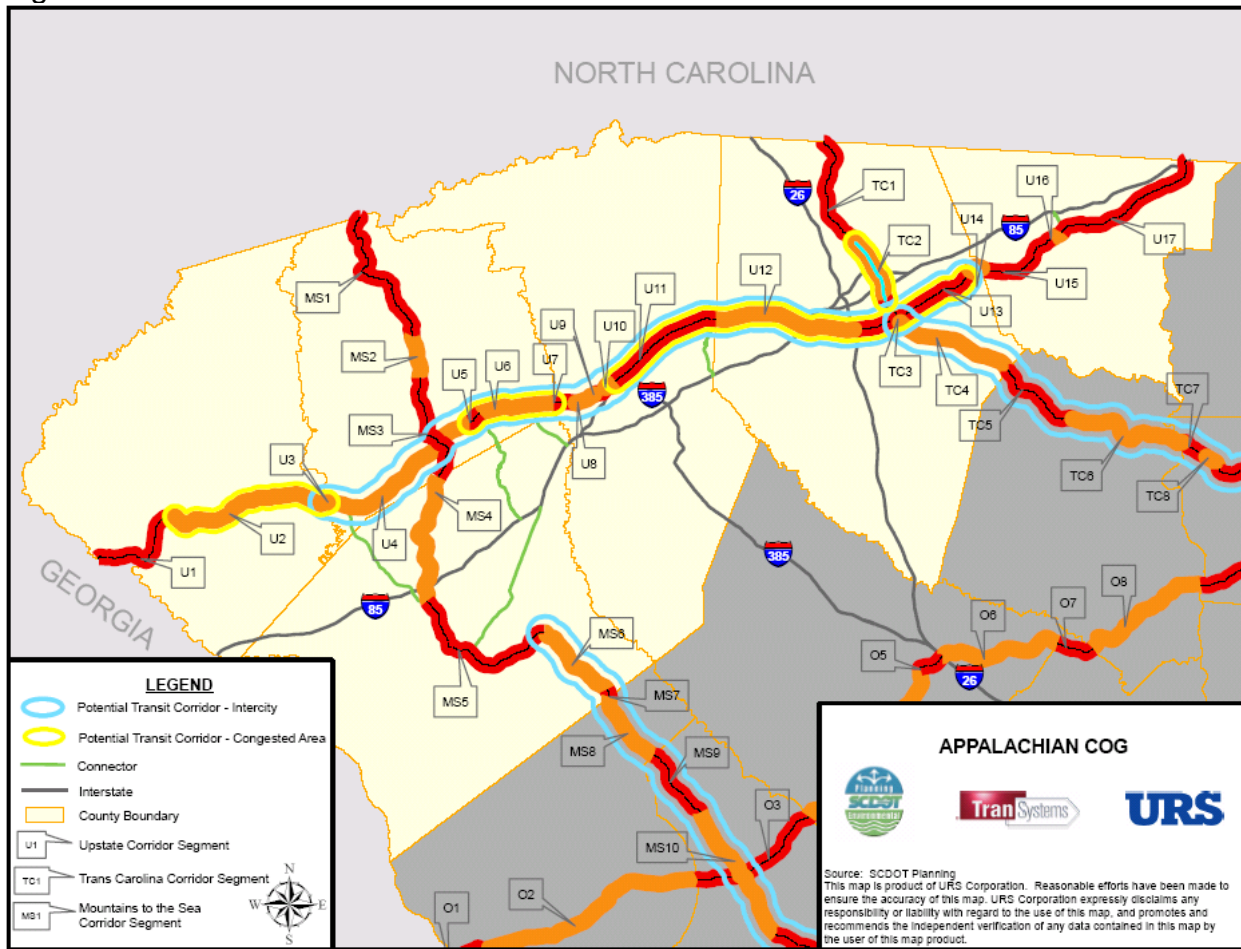
Local bus service performed highest among evaluated modes. This sub-corridor extends east from central Spartanburg to the rural town of Chester, and is typified by sparse residential and commercial areas. Rural transit services in Chester County are provided by Senior Services, Inc., offering morning and evening express routes.

Potential transit opportunities include expansion of rural demand-responsive and fixed-route services between Spartanburg and Chester, and between Chester and the Rock Hill-Fort Mill-Charlotte area northeast of the corridor.

Figure 13 presents potential transit opportunities along the Strategic Corridor System within the Appalachian region. Transit opportunities beyond the Strategic Corridor System are detailed at a regional level under separate cover from this plan.



Figure 13: Potential Transit Corridors



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## **Section 6: Transit Funding Needs**

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### **6.1 Discussion of Funding Issues for the Appalachian Region**

Given the continued growth in population and employment projected for the Appalachian Region, particularly in communities along the I-85 corridor, transit will become increasingly important as a viable transportation option. However, for the Region to provide continuous, reliable and expanding services a stable funding mechanism will be imperative. Particularly in Greenville, Spartanburg, and Anderson Counties, city-county cooperation in the identification of long-term funding sources is crucial. In the region's largest city, the City of Greenville, currently planning a takeover of GTA operations, will need to identify more than in-kind contributions to sustain and expand GTA services, and will need to establish a financial plan that coordinates funding for services to other municipalities and major unincorporated areas in Greenville County.

According to the needs analysis, the region will require nearly \$50 million in annual operating costs, which constitutes an exponential increase in the amount of funding being generated today in the Region.

Both community leaders and residents surveyed in the focus groups (Section 3.1.2) agree that sales taxes are a preferable alternative funding source. Residents prefer a taxing mechanism that ensures beneficiaries generate a fair share of revenue, while community leaders suggest gasoline taxes are most worthy of consideration. Opportunities can be pursued to generate revenues from sales and motor fuel taxes, applying either a unified regional approach or closely coordinated endeavors among the county and city governments. Motor fuel taxes at the local and federal levels need to be indexed to inflation to maximize revenue. Any local endeavors for higher parking fees to support transit services should be complemented with efforts to reduce the subsidization of free parking in urban areas.

### **6.2 Potential New Funding Sources**

To fully address transit needs in the state, new revenue sources will need to be tapped. Potential new funding sources could come from a variety of levels, including federal, state, and local governments, transit users, and private industry contributors. Based on the level of transit need in the state, a combination of sources will be needed to make significant enhancements in the level of service that is available. In many communities, transit has been regarded as a service funded largely from federal grants, state contributions, and passenger fares. However, with the strains on the federal budget and restrictions on use of funds, coupled with a lack of growth in state funding, communities are recognizing that a significant local funding commitment is needed not only to provide the required match to draw down the available federal monies, but also to support operating costs that are not eligible to be funded through other sources.



Historically, local governmental funding in South Carolina has been allocated on a year-to-year basis, subject to the government's overall fiscal health and the priorities of the elected officials at the time. Local funding appropriated to a transit system can vary significantly from year to year, making it difficult for systems to plan for the future and initiate new services. To reduce this volatility, systems have been pushing for local dedicated funding sources that produce consistent revenues from year to year. For example, Charleston County has a dedicated half-cent transportation sales tax, a portion of which is allocated to the Charleston Area Regional Transportation Authority (CARTA) and the Berkeley-Charleston-Dorchester Rural Transportation Management Association (BCDRTMA). Richland County has implemented an increased vehicle registration fee, with the proceeds of the increase supporting the Central Midlands Regional Transit Authority (CMRTA) system until the revenue source expires in 2008.

For both local leaders and residents, there appears to be a growing realization that transit funding should come from all levels of government, in addition to transit users and other sources. As part of the input gathered through the focus group process, participants were asked if they would be willing to have local taxes used to fund public transportation services. Of the community leaders that were surveyed, 89% indicated that they would be willing to have local taxes used for public transportation; likewise, 80% of the residents who participated in the focus groups stated that they would be willing to have their local taxes used to fund public transportation.

### 6.2.1 Possible Funding Mechanisms

Participants in the focus groups were asked to brainstorm a list of possible funding sources for new or expanded public transit services in South Carolina. The list generated by the participants includes potential sources from all levels of government, as well as user fees and private contributions. The complete list as identified by focus group participants is as follows:

- Advertisement
- Alcohol tax
- Bonds
- Business license
- Business tax
- Cigarette tax
- County funds
- City funds
- Corporate investment
- Dedicated state fuel tax
- Employer tax
- Energy tax
- Environmental credits
- Federal government
- Fee option over parking spaces
- Gambling/Lottery
- Gas tax
- Grants
- Hospitality tax
- Impact fees
- Local sales tax
- Lottery/gambling
- Medicare tax
- New dedicated tax
- Non-profit donations
- Parking fee in urban areas
- Private contributions
- Property tax
- Reallocation of DOT funds
- Rental car tax



- Sales tax
- State infrastructure bank
- Tax incentives to industrial parks
- Tax on beneficiaries
- Tire/oil tax
- Tobacco tax
- Tolls
- Traffic fines
- Trailer tax
- Unemployment tax
- Use current dollars better
- User fees
- Vehicle registration fees
- Vehicle sales tax

A number of these potential revenue sources are already used by various states for transit funding. Major sources of state-level transit funding include the following:

- Vehicle license/registration fees<sup>\*</sup>;
- Motor fuels tax<sup>\*</sup>;
- General fund monies<sup>\*</sup>;
- Sales tax on vehicle sales<sup>\*\*</sup>;
- Bond funds<sup>\*\*</sup>;
- Retail tax (CA, IN, MA, NY, PA);
- Rental car tax (AR, FL, PA);
- Interest income (CT, NV, WY);
- Corporate taxes (MD, NY);
- Casino revenues (NJ);
- Cigarette tax (OR);
- Lottery funds (PA);
- Oil company tax (CT); and
- Bridge tolls (DE).

\*Many States

\*\*Several States

As illustrated by this list, states are using a variety of different sources of revenue for transit purposes, and many states use a combination of multiple sources. Conversely, South Carolina currently uses only one revenue source (proceeds from the state motor fuels tax). This list is not intended to imply that all of these potential sources may be appropriate in South Carolina; however, this list does indicate the breadth of transit funding streams that are being used at the state level.



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## Section 7: Action Plans

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Transit in South Carolina, in its current form, generates numerous benefits for its residents and visitors as well as to its economic health and quality of life. Transportation providers in the State form a comprehensive system despite weak funding streams and non-conducive land use patterns. It is not without its gaps and issues, but public transportation in South Carolina is comprised of a comprehensive network of rural services, human service transportation programs and several urban systems that could be poised for growth. The information and analysis within this Plan indicates, however, that there is considerable unmet demand in the State, given the prospect of continual growth in population, especially in transit dependent sectors of the population. There is also a need for more connectivity, opportunities for improved efficiencies, greater emphasis on commuter transportation and a substantial need for increases in the overall funding for transit.

The Appalachian Region represents a cross-section of the rural networks, human service transportation programs and urban service. The public perception of transit is good but it is deemed a public service rather than a commute option. However, traffic issues, mobility problems and/or the need to continue stimulating growth and economic development will continue to heighten the benefits that can be realized through the implementation of transit. For this reason, many of the action items included in the statewide plan apply to the Appalachian Region.

### ***7.1 Close the Gap between Funding Needs and Available Funding Levels***

As identified in Section 6, two significant findings in the Statewide Transit Plan are the gap of about \$60 million between the current level of transit service and estimated annual transit needs in the State, and the shortfall in revenue exceeding \$1 billion over the course of the Plan (2007-2030). These are substantial investment shortfalls in transit and require a broad spectrum of strategies to increase the level of funding from existing sources and identifying new sources so that more of the needs are met. These strategies need to be aggressive, offer transit providers flexibility and should be sustainable in order to facilitate bonding capacity and other long range financing techniques.

Transit providers in Greenville, Spartanburg, Anderson, and Clemson face an uphill battle every year as they propose funding levels through the various municipal general budgeting processes. This problem stems from the lack of confidence on the part of elected officials in transit providing tangible benefits.



### 7.1.1 Improve Efforts to Leverage Federal Dollars

First and foremost, greater financial participation at both the State and local government level is critical to the success of transit as a mobility solution. South Carolina ranks a distant fourth among Southeastern States (VA, NC, TN, GA, MS, AL) in terms of state contribution per capita for transit service and only Charleston has a semi-permanent local funding mechanism directly targeting transit improvements. Many of the transit systems in South Carolina struggle on an annual basis to generate the matching funds for federal formula dollars. There has been little instance of returning federal formula dollars back to FTA, however, so systems are generally achieving the required matching requirements in spite of their struggles. But it raises the question of how many federal *discretionary* dollars could the State have collected if more flexibility and capacity to match federal funds were afforded the State's transit systems.

The number of discretionary programs actually declined after SAFETEA-LU but FTA and other US DOT programs are available to fund transit initiatives and require 20-50% non-federal match. SAFETEA-LU has also included new provisions under Section 5310, 5316 and 5317 which allow the use of non-FTA federal dollars to match funds under these programs. These are generally small sums of funding but target transportation disadvantaged populations. Existing transit and human service transportation providers work in collaboration with the Appalachian Council of Governments and SCDOT to establish the federally-required and coordinated human service transportation-public transit coordination plan for this region.

### 7.1.2 Allow Greater Flexibility for Local Jurisdictions to Generate Funds

A number of potential local funding mechanisms are outlined in Section 6.4 of the Plan that could be implemented at the local (some at the State) level to generate funds. Most of these methods require substantial political capital in order to implement them. Adding to the difficulty of establishing these mechanisms is the fact that there are legislative restrictions against them. A concerted effort among transit providers and SCDOT, perhaps in conjunction with TASC, should be undertaken to research these barriers and approach the State Legislature about changes in the restrictions placed on local funding mechanisms. TASC annually prepares a legislative agenda for law makers regarding transit and relaxing these restrictions could be included with the agenda.

#### *Provide Local Control Options for Transit Funding Sources*

Broad flexibility with local control for funding options must also be made available such as sales and gas taxes, vehicle registration fees, property taxes and tax allocation districts. Municipalities within South Carolina and elsewhere in the Southeast (including Atlanta, Charlotte and now Charleston) have used local sales tax revenues to pay for transit services. Richland County is currently using part of a vehicle registration fee to



fund transit in the short term until the revenue source expires in 2008. The General Assembly should provide flexibility in local control for additional transit revenues.

All six counties in the Appalachian Region and the cities of Anderson, Clemson, Easley, Greenville, Spartanburg can sustain transit through the establishment of dedicated local funding sources. Opportunities to share resources and costs should accompany cross-jurisdictional transit services and should be defined via formal agreements.

### **7.1.3 Increase State Funding for Transit**

State funding support for public transit should be increased to expand service and provide increased mobility and travel choices. As is the case with local funding mechanisms, legislation has restricted the use of State motor fuel user fee receipts for transit to  $\frac{1}{4}$  of a cent out of 16.8 cents per gallon. This translates to about \$6 million per year for transit programs. This fee is based purely on the level of fuel consumption, and is not indexed to inflation. Therefore, if consumption remains flat, the proceeds from this user fee will also experience little variation from the 18 cents per capita made available for transit funding. In addition to increasing the percentage of the user fee dedicated to transit, the State will need to explore methods to provide incremental increases to account for inflation.

### **7.1.4 Engage Non-Traditional Partners**

Transit's role in economic development and supporting tourism is on the rise and transit providers and the state transit association have taken a more visible approach to engaging chambers and economic development agencies in the planning process. A number of transit systems especially those just inland depend heavily on routes that serve the coast and transport many workers to and from jobs on the Strand, as well as other coastal areas. The ridership on these routes has steadily increased in the recent past and the trend should continue. Critical to the expansion of transit as well as the introduction of premium service transit, like bus rapid transit and rail service, will be how well the transit community engages the tourism and development communities into the design of service and ultimately the funding of new service.

With an array of technology-oriented industries and major regional activity centers situated along the I-85 corridor, transit providers should redouble their efforts to approach the business community and tourism industry for their support of transit.

Regional mobility providers can expand partnerships with private employers, non-profit organizations and government agencies to promote the federally-sponsored tax-free commuter benefits program. Often called "Commuter Choice," the program is authorized under Section 132 in the Internal Revenue Code, Title 26 of the United States Code, and currently allows employers to pay for their employees to commute by transit or vanpool for up to \$115 per month in exchange for a tax deduction. Alternatively, employers may allow employees to exchange up to \$115 monthly in



taxable salary for tax-free transit or vanpool benefits, or may share the costs with employees. Additional information is provided by the Association for Commuter Transportation at [www.commuterchoice.com](http://www.commuterchoice.com), or from the Federal Transit Administration and the National Transit Benefit Association.

## **7.2 Increase Coordination among Providers**

A number of other key findings from the coordination planning process speak to methods for improving transit in the State. Although the specifics of transportation needs from region to region differ greatly, the primary findings in the process indicate that the needs of each region can be classified under the following:

- Increase service (more days, hours, geographic coverage including rural areas)
- Targeting populations that may not qualify for existing programs (like Medicaid and TANF) but are still low/fixed income and have unmet transportation needs
- Access to jobs many of which are across county or regional boundaries
- Improve response time for return trips through centralized and/or real-time scheduling
- Coordinate fleet replacements and expansion in an effort to reduce capital costs
- Develop programs that increase the utilization of existing services
- Improve the distribution of information to the riding public, human service agencies about available services through the use of a mobility manager (this is underway in the Lower Savannah Region).
- Expense pooling program (fuel, insurance, training etc.)
- Address cost allocation among operators to facilitate greater coordination/cooperation

These issues constitute the commonalities among the regions, but the coordination plan development process did show significant differences in the primary transportation needs of each region. Given the differences in the provision of service and the different evolution of relationships among agencies from region to region, potential strategies to address these issues will vary across the State. Each plan does place the responsibility of developing actual projects to the human service agencies and transportation providers and for the COGs to develop an evaluation process to identify which of these projects will receive funding.

## **7.3 Expand Transit Service**

There is little doubt that transit can be expanded in its role as a mobility option in South Carolina. Even though there is heightened awareness about the benefits of transit, expansion of service will be predicated upon identifying new service that is cost effective with defined benefits that warrant sustainability and funding.

Demand estimates for the Appalachian Region suggest there will be at least a 9% increase in both urban and rural transit demand every decade between now and 2030



(see Table 12 in the Statewide Transit Plan). This growth will need the implementation of transit to at the very least, maintain mobility.

Specific investments in major transit expansion continue to be analyzed and pursued by regional partners, as discussed previously in Section 2.4.

### **7.3.1 Need to Accommodate the In-Flux of Elderly**

South Carolina has one of the fastest growing elderly populations in the US because of the State's allure as a retirement destination. Many of these individuals have higher incomes (although may still be fixed incomes) and come from areas of the country where transit plays a greater role as a transportation option. One of the primary reasons the needs assessment shows so many deficiencies in the transportation system is attributable to the pressure the elderly population will exert on the transit network in terms of need for service and the propensity for using the service. Transit systems cannot be slow to react to new developments with elderly populations and should look for opportunities to partner with these developments to help fund transit programs. Transit service demand among the elderly population is expected to continue growing swiftly in the Appalachian Region.

### **7.3.2 Target Gaps in Rural Areas**

The needs assessment for the Statewide Plan focused on transit dependent populations which showed that only 34% of the total transit need is being accommodated currently in counties with existing service. This equates to over 4 million trips and the number nears 6 million if those counties without service are included in the estimate. Rural transportation is a core function of transit in South Carolina and service in these areas should be expanded. New and expanded services connecting to rural commerce centers such as Gaffney should be evaluated.

### **7.3.3 "Right Size" Urban Systems**

The evolution of the urban systems in South Carolina has led to several of them being undersized given the population in these areas. Many of them were originally operated by power companies and were reduced in scope as the power companies relinquished control to public authorities. Other factors have also affected the size of these systems like the density of population and the general difficulty in maintaining local funding for these systems. Columbia has recently faced service cuts as the funding agreement between the Authority and SCE&G has sunset. Charleston was forced to make drastic cuts in service prior to the introduction of a dedicated sales tax. Given the population of these cities along with Greenville and Myrtle Beach, their systems would probably be quite larger if they were in another part of the country or there was a different culture toward transit. The primary issue is funding, but these cities could support larger more intensive transit systems.

Some cursory research shows that on average cities between 200,000 and 400,000 in population have systems with peak bus requirements in the 60-100 range. Knoxville, a city with approximately 180,000 in population, has a peak requirement of 72, while



comparable cities in South Carolina have much smaller fleets. Continuing to keep in mind that sustainable funding is the core problem inhibiting expansion of these systems, these cities could realize an order of magnitude difference in ridership just by increasing the frequency on existing routes and without increasing their service area. One of the key issues for these systems as they attempt to attract choice riders is that hourly headways on a route fails to provide the convenience necessary for non-dependent riders to choose to ride the system. Growth in the urban areas continues to move these regions closer to the densities and travel patterns more conducive to transit as a commute option and it will be critical to expand these systems to a level commensurate to the size of the jurisdictions they serve.

### **7.3.4 Increase in Commuter Based Services**

Even though the needs assessment in the Plan centers on the needs of transit dependent populations, there is also a need to attract choice riders. From the Statewide Plan's perspective, development of regional commuter based systems will be left up to the individual regions since they are better equipped to produce ridership estimates and must identify long term funding programs. However, the State should support the implementation of regional commuter based transit through increased funding support, especially for capital expenditures, such as the implementation of formal park and ride facilities, purchase of rolling stock, corridor preservation; as well as the introduction of pilot programs like the SmartRide program.

A key finding in the Plan is that the change in daytime population indicates significant travel patterns between regions and from the suburbs into the urban areas. The State of South Carolina currently provides no subsidies for intercity bus service, but these needs should be considered in the future, especially if additional service cuts are made to current operations. If necessary, state investment in intercity bus service should be considered to maintain key connections across the State and these services could augment commuter based services into the urban areas. Current State funding sources are used by public transit agencies to support the intercity commute-oriented services to jobs along the coast, but additional support for these services may be needed in the future. Additionally, as high speed rail services are developed, the State should examine its role in not only the rail operation, but any connecting bus service as well.

As a part of the development of the Statewide Transportation Plan, a corridor plan was developed to identify deficiencies in the roadway network that connects key cities and activity centers. Several of these corridors present opportunities for transit to play a role in attracting choice riders and potentially encourage a modal shift away from the automobile. There were several corridors identified in the Appalachian Region that exhibit the characteristics necessary for transit to become a viable option. Table 24 shows the transit options to address these corridor issues and the Corridor Plan contains more detailed information.

Table 24: Potential Transit Options



SC Region	Corridor	Project ID/ Sub-Corridor	Route	Segment Length (miles)	Potential Transit Option(s)
Appalachian	Trans-Carolina	TC2-1	SC 9 (Boiling Springs Boulevard)	0.20	Express Bus, Local Bus, Enhanced Bus/ITS
Appalachian	Upstate	U2-1	US 76 (Bypass 123)	2.48	Express Bus, Local Bus, Enhanced Bus/ITS
Appalachian	Upstate	U5-1	US 123 (Calhoun Memorial Highway)	2.20	Local Bus, Express Bus, BRT
Appalachian	Upstate	U6-1	US 123 (Calhoun Memorial Highway)	3.55	Local Bus, Express Bus, BRT
Appalachian	Upstate	U11-1	US 29 (Wade Hampton Boulevard)	1.73	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U11-2	US 29 (Wade Hampton Boulevard)	3.88	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U11-3	US 29 (Wade Hampton Boulevard)	2.05	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U11-4	US 29 (Wade Hampton Boulevard)	3.68	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U12-1	US 29 (East Wade Hampton Boulevard)	0.43	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U12-2	US 29 (Warren H. Abernathy Highway)	2.19	Commuter Rail, Local Bus, BRT
Appalachian	Upstate	U13-1	US 29 (Wo Ezell Boulevard)	3.20	Commuter Rail, Local Bus, BRT
Appalachian	Mountains to the Sea	MS-6 to MS13	Anderson-Greenwood-Saluda-Columbia Clemson-Greenville-	113.68	Local Bus
Appalachian	Upstate	U-3 to U-13	Spartanburg	68.53	BRT, Commuter Rail
Appalachian	Trans Carolina	TC-3 to TC-10	Chester-Spartanburg	37.89	Local Bus

### 7.3.5 Needs Incremental Approach with Sustainability

Another important component of the Plan is the Vision and Goals included in Section 4 which speak to the potential of transit as a catalyst for economic growth, and its role in maintaining mobility and the quality of life in South Carolina. One key ingredient in realizing this Vision will be to concentrate on core service as the transit network incrementally grows. It will be important to maintain momentum for transit growth by avoiding the pitfalls of growing too fast and spreading services too thin. Planning transit expansion must hinge on the quantification of benefits and designing cost effective service so that they can be justified to funding entities and gain better support from the public and just as important, improve the image of transit in the public’s eye. Sustainability is a very important concept to the growth of the region’s various transit systems because each system must take every precaution for new service to be successful.

## 7.4 Other Action Items

### 7.4.1 Coordinating Transportation and Land Use Decisions

South Carolina has the fifth worst sprawl rating in the country and ranks fourth in the amount of land being developed on a per capita basis. Even more remarkable is that South Carolina, one of the smallest states (40th in size), ranks ninth in the country in the total number of acres that are being developed. A statewide study conducted by the Center for Urban Policy Research, Rutgers University entitled, *South Carolina Infrastructure Study: Projection of Statewide Infrastructure Costs 1995-2015* (1997), determined that through compact growth, South Carolina would reduce its infrastructure costs for a 20-year period (1995 to 2015) by nearly \$5 billion.



In South Carolina, the State is responsible for transportation and local governments are responsible for land use and zoning. Frequently there are inadequate incentives for municipalities to cooperate with one another and the State on transportation and land use issues. There is a need to take voluntary but cumulative steps toward improving transportation and land use planning in the State.

Access management techniques provide a way to manage access to transportation facilities, typically highways. These techniques can help increase public safety, extend the life of major facilities, reduce congestion, support alternative transportation modes, and improve the appearance and quality of the built environment while ensuring appropriate access to adjacent businesses and other land uses. Managing access to transportation facilities and services is one way to preserve the operational integrity of the transportation system while ensuring its compatibility with adjacent land uses.

#### **7.4.2 Upgrade Passenger Rail Service**

Develop an integrated Statewide Rail Plan that includes coordination of all entities relative to passenger rail service, including freight interests and Amtrak. Address future growth and development opportunities facilitating passenger rail service. Identify options for a sustainable source of state funding with which to support capital and operating costs of passenger rail and/or other incremental transportation services. Work with the railroad companies to ensure that upgrades are made to track and other equipment that benefit both passenger and freight rail:

- Work with both public and private sector interests to improve the State's rail infrastructure and passenger and freight rail service.
- Continue to support the interstate efforts to implement high speed rail in the Southeast, which is of extreme importance to the Appalachian Region given the interstate connection of proposed high speed rail between Charlotte and Atlanta.

### **7.5 Conclusion**

This plan provides a framework for collaborative, continuous actions on the part of SCDOT, the metropolitan planning organizations, councils of governments, and regional stakeholders to move toward effective implementation of a multimodal transportation network along the Strategic Corridor System.

The need for collaborative efforts at all levels is evident considering that the scale of cumulative transit funding needs in South Carolina through 2030 (\$3.88 billion) significantly outstrips unconstrained projections of available funding (\$2.15 billion) over the same period. Financial deficits for current, planned and projected transit operations are anticipated in each region. The urgency for action becomes more essential as rising fuel and travel costs, socioeconomic and environmental impacts, right-of-way limitations for roadway expansion, and demographic changes collectively suggest the growing need on South Carolina's critical corridors for viable alternatives to personal single-occupant motorized transportation, now and into the future. If shortfalls at the state and regional levels continue unabated, the state's citizens and leaders will have to



come to terms with the prospect of substandard transit service levels that fall short of meeting a diverse range of intra-regional and inter-regional needs.

While the challenges ahead may appear insurmountable, this plan lays out action items which can be tailored to help address many of the burdens to be placed on current and future transit providers and those who will rely on their coordinated services. A balance can be struck between anticipated transit demand and the minimum acceptable corridor levels of service to reflect the quality of life expected within each region. State and regional partners may build on the focus group findings and other analyses in this plan to help articulate the purpose and need for enhanced transit services and pursue the most acceptable mechanisms to fill gaps in funding.

