BCDCOG

RURAL WORKFORCE TRANSPORTATION STUDY

Rural Workforce Transportation Study Report

Prepared For:

BCDCOG
BERKELEY CHARLESTON DORCHESTER
COUNCIL OF GOVERNMENTS
PLANNING PARTNERSHIP & PROSPERITY

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March 2020

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1 INTRODUCTION

1.1 STUDY BACKGROUND

As one of South Carolina's 10 Regional Planning Councils, the Berkeley-Charleston-Dorchester Council of Government (BCDCOG) is a multi-county metropolitan planning agency comprised of Berkeley, Charleston and Dorchester counties. The BCDCOGs' primary objectives are to assist local governments in developing local and regional plans within the tri-county region, as well as providing local governments with planning and technical support to improve the quality of life in the region.

In 2016, a *Talent Demand Study* was prepared by the Charleston Metro Chamber of Commerce and projected that 26,000 new jobs would be created in the region by 2022. Without additional strategic planning efforts, this growth is anticipated to result in a shortage of workers across several critical industry sectors in the region. To further strategic economic development planning and direction in the region, the BCDCOG published a *Comprehensive Economic Development Strategy* (CEDS) in 2018, which provides strategic direction and action items to guide economic development over the next five years. The CEDS document outlines a regional economic development vision that seeks to support economic development "by sustainably pursuing economic prosperity through wise, diverse investment, devotion to maintaining a high quality of life for all residents and for preserving the natural and historical beauty of the tri-county area."

Transportation strategies that connect the region's labor force to job skills training and employment in the region are an important component to achieve the CEDS goals to both: (1) grow and support the region's economic base around existing and new sectors that provide long-term economic resiliency and growth, and (2) ensure that all residents of the region have access to a variety of education and training opportunities. This is particularly true for the region's rural areas where public transportation options are limited or unavailable and where approximately 20 percent of the BCDCOG's regional unemployed workforce resides. According to the U.S. Census American Community Survey, 2017, 5-year estimates, while the tri-county region has a consistently lower unemployment rate than the state as a whole, on average the rural portions of the region have approximately one percent higher unemployment rate (7.8 percent) than the region as a whole (6.9 percent), and some rural areas have unemployment rates as high as 30 percent.

1.2 STUDY PURPOSE AND OBJECTIVES

The purpose of this Rural Workforce Transportation Study is to provide a regional strategy focused on improving access to job skills training and employment for the rural workforce in the BCDCOG region. The study aligns with Economic Development Administration's (EDA) investment priorities to encourage job growth and business expansion in manufacturing by developing a skilled labor force and providing employment access to underserved communities, such as those in rural areas. Employers, major industries and small companies, in the region have expressed concerns about the shortage of available labor for available jobs. According to the South Carolina Department of Employment and

Workforce (SCDEW), as many as 23,000 jobs are available in the BCDCOG region in November 2019. While these jobs provide opportunities for members of the labor force living in the region's rural areas, a lack of transportation options to and from training and jobs are key barriers to encouraging continued job growth and business expansion and need to be proactively addressed.

The key objectives undertaken in this study to meet this purpose included: (1) Developing an understanding of the BCDCOG regional rural workforce and skill sets; (2) Identifying existing and expanding industry training and employment gaps that could be filled by the rural workforce; and, (3) Developing and evaluating potential strategies and recommending ways to better connect the region's rural workforce to job skills training and employment opportunities.

1.3 DEFINING THE RURAL STUDY AREA

The first step in this study was to define the rural areas within the region to be analyzed. As shown on **Figure 1**, urbanized area boundaries are defined by the U.S. Census and are used in determining metropolitan planning boundaries. Within the BCDCOG region, the metropolitan transportation boundary is referred to as the Charleston Area Transportation Study (CHATS) boundary and encompasses the existing census-defined urbanized area (UZA) and contiguous areas expected to become urban over the next 20-year period. Areas outside of this CHATS boundary within the BCDCOG region represent the rural study area.

The BCDCOG region encompasses approximately 3,163 square miles and approximately 68 percent (2,163 square miles) of this regional geographic area is made up of rural areas outside of the CHATS urbanized area boundary. While the rural areas within the region make up most of the geographic coverage, population is largely concentrated within the urbanized area and rural populations comprise close to 24 percent of the total regional population. **Table 1** provides further information on land area and population composition.

Table 1: Urban and Rural Area Geography and Population

	Geographic Coverage		Population Composition
	Land Area (Square Miles)	**% Makeup**	**% Makeup**
Urbanized Area (CHATS)	1,000	31.6%	76.2%
Rural Area	2,163	68.4%	23.8%
BCDCOG Region	3,163	100%	100%

Source: U.S. Census American Community Survey, 2017, 5-year estimates

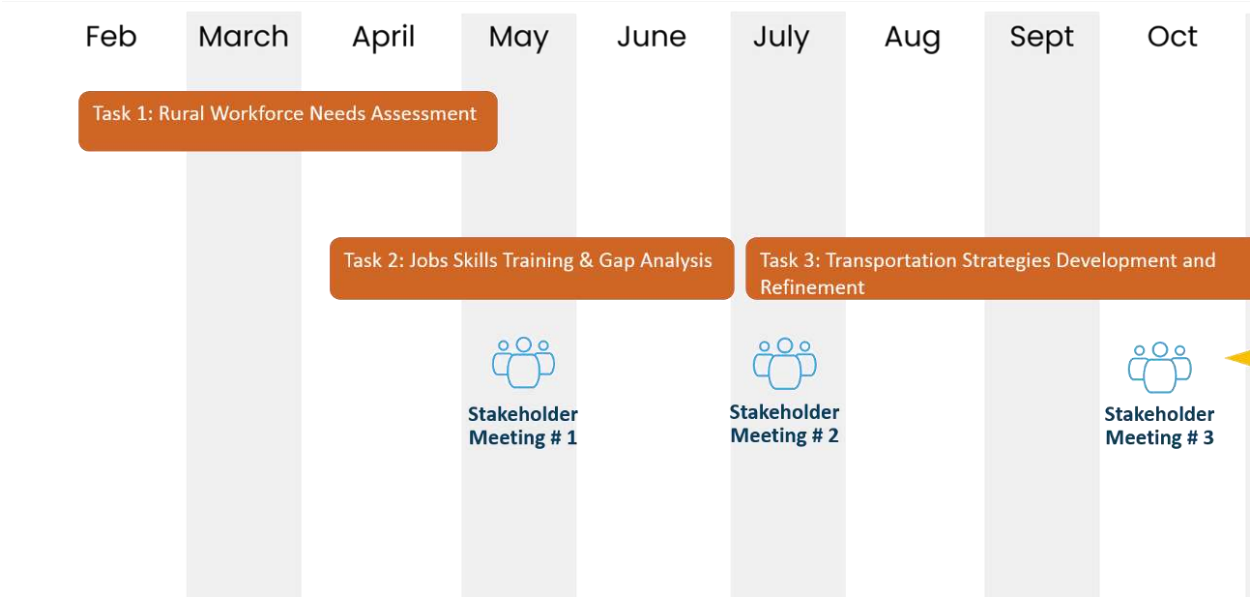
Figure 1: Rural Study Area Context

1.4 PLANNING PROCESS

To meet the purpose and objectives of this study, three major tasks were undertaken in development of this report: (1) a rural workforce needs assessment was conducted to gain additional insights into specific rural areas within the region (2) interviews and input were obtained from key employers, training organization representatives, and other stakeholders within the region to identify specific job skills and training needs, and (3) transportation strategies and alternatives were developed and refined to reflect needs and identify gaps.

Stakeholder engagement was a critical element to developing a comprehensive understanding of regional workforce and training issues and in defining and refining the alternatives and recommendations for this study. Three stakeholder meetings were held at each major milestone in development of this plan, as shown on **Figure 2**.

Figure 2: 2019 Study Process and Timeline



Stakeholders were identified and invited to participate in this study. Stakeholders included an array of representatives from regional employers, workforce agencies, local government, community organizations, chambers of commerce and other economic development-focused organizations, higher education and training facilitators as well as representatives from the BCDCOG. Organizations invited to attend and participate through this study process are identified in **Table 2**. Stakeholders were also encouraged to distribute materials and invite other members of the public or within their organizations that might have an interest in participating. Throughout the study, stakeholders were kept apprised of developments in the study and provided presentation materials and summaries from stakeholder meetings through the BCDCOG website.

Table 2: Participating Agencies and Stakeholders

- Adult ED Adult Education
- BEGIN – Berkeley County Growth Impact Network
- Berkeley County Government
- Berkeley Chamber of Commerce
- Boeing
- Bosch
- Bulls Bay Chamber of Commerce
- Charleston County Economic Development
- Charleston Metro Chamber
- Charleston Regional Development Alliance
- Cooper River Partners
- Daimler
- Dorchester Adult Education
- Dorchester County
- ECPI University
- Economic Development Workforce Development
- Grace R.E. Church
- Greater Summerville/Dorchester County Chamber of Commerce
- HCA/Trident Health
- Hope Repair Ministry
- MUSC
- One Region Strategy
- Raines Hospitality
- Roper Hospital
- Santee Cooper
- SC Department of Employment and Workforce
- SC Works
- SC Vocational Rehabilitation
- Sportsman Boats
- Trident Technical College
- TriCounty Link
- Upper Dorchester Chamber of Commerce
- W International

1.5 REPORT ORGANIZATION

This report summarizes the outcomes of each of the major processes undertaken within this study and is organized into four main sections. Appendix materials are also provided for documentation of stakeholder meetings held and supporting documentation used in developing recommendations. The following sections are provided in this report:

1. A **Needs Assessment Section** that summarizes the analysis and findings for major rural areas within the region, including socio-economic and economic and workforce data. This expansive data collection and outreach effort helped to identify gaps and opportunities for the rural workforce in terms of training and employment opportunities.

2. A **Rural Service Area and Employment/Training Profiles Section** that summarizes steps taken to understand and define rural service areas, identify employer and training/education needs, and develop workforce transportation strategies. This step included development of more focused service area profiles in each rural area, conducting stakeholder interviews and additional research, and developing key transportation nodes and corridors to link rural area populations to training, education, and job centers within each rural service area defined.

3. A **Transportation Strategies Development and Evaluation Section** that summarizes an array of potential strategies that were identified, evaluated, and vetted with stakeholders in selecting a preferred strategy for linking rural communities in the region with employment and training.

4. An **Implementation, Costs and Funding Considerations Section** that provides details on ways that this regional initiative can move forward incrementally, provides planning level costs for the preferred strategy, and identifies several funding opportunities.

5. A final **Conclusions/Next Steps** section provides the major next steps to be taken in implementation of this regional strategy. It provides key steps and milestones in the incremental development of this strategy.

2 NEEDS ASSESSMENT

Based on the definition of the rural study area, a needs assessment was conducted to better understand the rural regional area composition and conditions. This analysis included data collected on regional growth and commuting trends, more specific demographic, socio-economic and transportation conditions within the region and for major rural areas, as well as regional information on economic and education and training conditions. For the purposes of this study major rural areas refers to geographic areas within the rural BCDCOG boundary, where there exists a clustering of census designated places that exhibit similar characteristics from the Center for Neighborhood Technology (CNT) Housing and Transportation Affordability Index.

Together, these existing conditions helped to establish a baseline understanding of rural area needs and helped identify where both job skills gaps and limited transportation access are creating barriers to gaining employment in the rural communities.

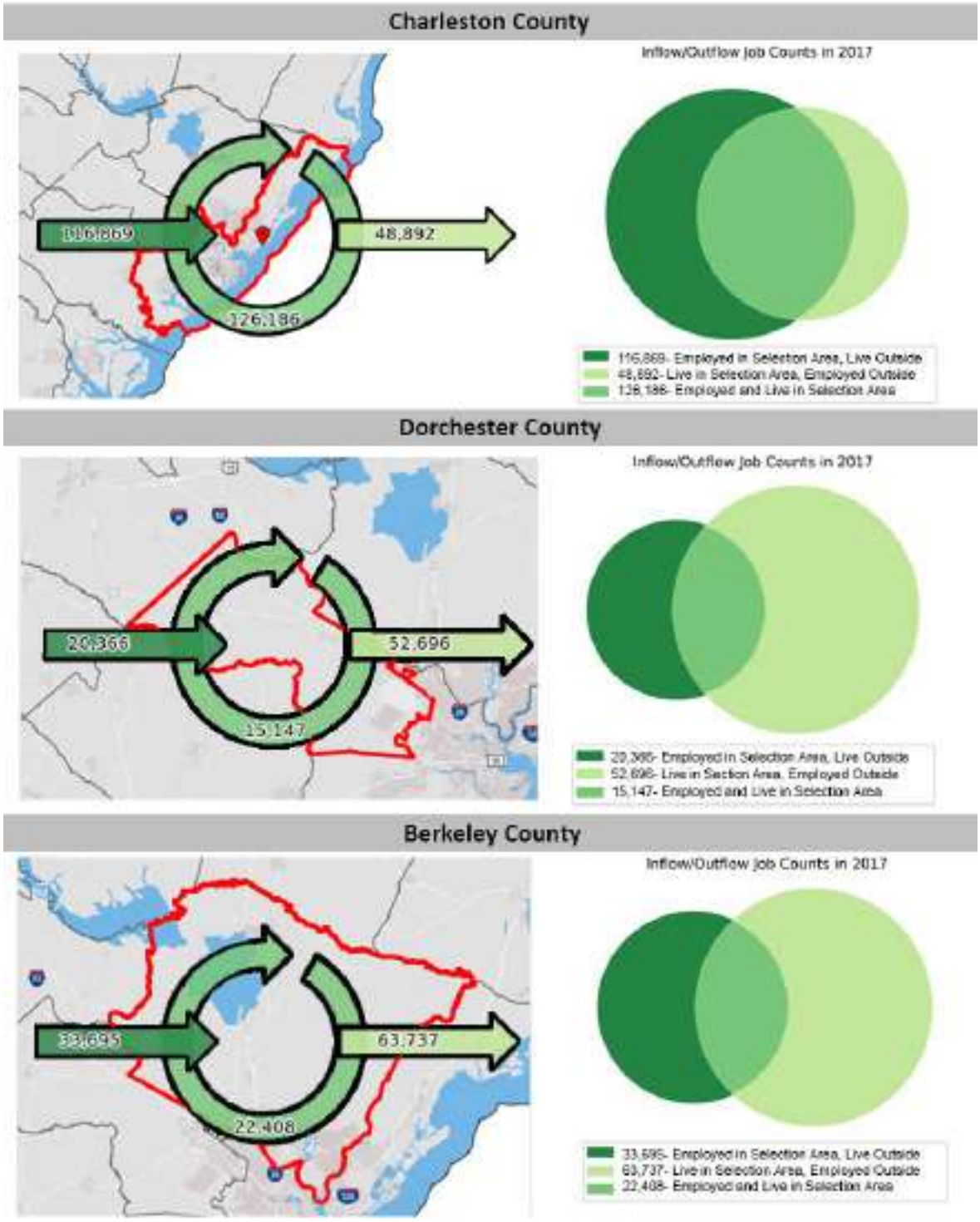
2.1 REGIONAL GROWTH AND COMMUTING TRENDS

At a regional level and based on U.S. Census American Community Survey (ACS) five-year projection data, population over the last 10 years (from 2010 to 2018) has grown by approximately 18.0 percent. Population has grown within each of the counties in the region, with Charleston County growing by 15.2 percent, Dorchester County growing by 17.2 percent, and population in Berkeley County growing by 23.2 percent during this time.

As population has grown, so has employment. Based on the most recent available U.S. Census data for the region, jobs between 2010 and 2017 increased by 31 percent in Charleston County, 32 percent in Dorchester County and 33 percent in Berkeley County.

As shown on **Figure 3**, these elements of growth have contributed to longer distances of travel for commuters making trips from home to work and longer travel times. Concentrated employment in Charleston County, in particular, has led to more commuters traveling into Charleston County for work. While 88.2 percent of Charleston County residents worked within Charleston County in 2017, only 43.5 percent of Berkeley County residents worked within Berkeley County and only 37 percent of Dorchester County residents worked in Dorchester County. Many residents of the rural areas and urban fringe of the region experience longer distance travel and longer commute times between homes and destinations. These are common features of living and working in the region. For those without transportation options and living in rural areas of the region, this presents an even greater challenge in connecting between homes in rural areas and jobs and training that are in the urbanized area of the region.

Figure 3: Regional Commuting Patterns for Workers by County in 2017



Source: U.S. Census, OnTheMap, 2017. https://onthemap.ces.census.gov/

2.2 RURAL AREA DEMOGRAPHICS AND TRANSPORTATION CONDITIONS

These regional trends and growth factors are important in determining overall needs for services to better connect rural communities in the region to training and employment. To more fully understand rural needs, however, it was also important to further analyze the unique characteristics present in different rural areas within the region. Additional data was gathered for rural U.S. Census tracts within each county of the tri-county region to provide a greater understanding of needs specific to rural areas within the region.

Even with Census tract-level data, geographic tracts tend to be large, particularly for rural areas. Within the tri-county region and each county, there are several identified rural townships where available data from the SC Power Team's Project Pioneer Labor Study allowed for more granular examination of demographics and socio-economic conditions such as labor statistics within rural townships in the region in addition to available data at the tract level from the U.S. Census. These rural townships are indicated in **Table 3** and shown on **Figure 4** and are further described in this section. **Appendix C** provides additional detailed information on Project Pioneer data methodology and datasets.

Table 3: Key Places and Municipalities in the BCDCOG Rural Region (2018)

COUNTY	RURAL TOWNSHIPS	POPULATION
Berkeley	Bonneau	496
	Pinopolis	1,858
	Russellville	713
	St. Stephen	1,816
	Pineville*	2,262
Charleston	Hollywood	5,252
	Meggett	1,291
	Ravenel	2,679
	Awendaw	1,401
	McClellanville	531
Dorchester	Harleyville	693
	Reevesville	192
	Ridgeville	1,707
	St. George	2,145

Source: SC Power Team: Project Pioneer Labor Study, 2018. www.scpowerteam.com

**Demographic data was not readily available for the unincorporated area known as Pineville in Berkeley County. U.S Census data zip code-level data using July 2019 South Carolina Home-Town Locator was therefore used to identify population data for Pineville.*

Figure 4: Key Municipalities and Places in Rural BCDCOG Region

The SC Power Team is a full-service, non-profit economic development organization representing the state's 20 consumer-owned electric cooperatives. Established in 1988, SC Power Team serves two-thirds of the area of the state and over half of its population. The mission of SC Power Team is to facilitate the growth of jobs, investment and electric load through the attraction of new industrial and commercial activity, as well as, the expansion and retention of existing businesses and facilities in the service areas of the electric cooperatives throughout South Carolina. "Project Pioneer," a statewide, comprehensive labor study has spurred critical conversations between communities, employers, workforce development, and training institutions on how to grow and enhance South Carolina's workforce far into the future.

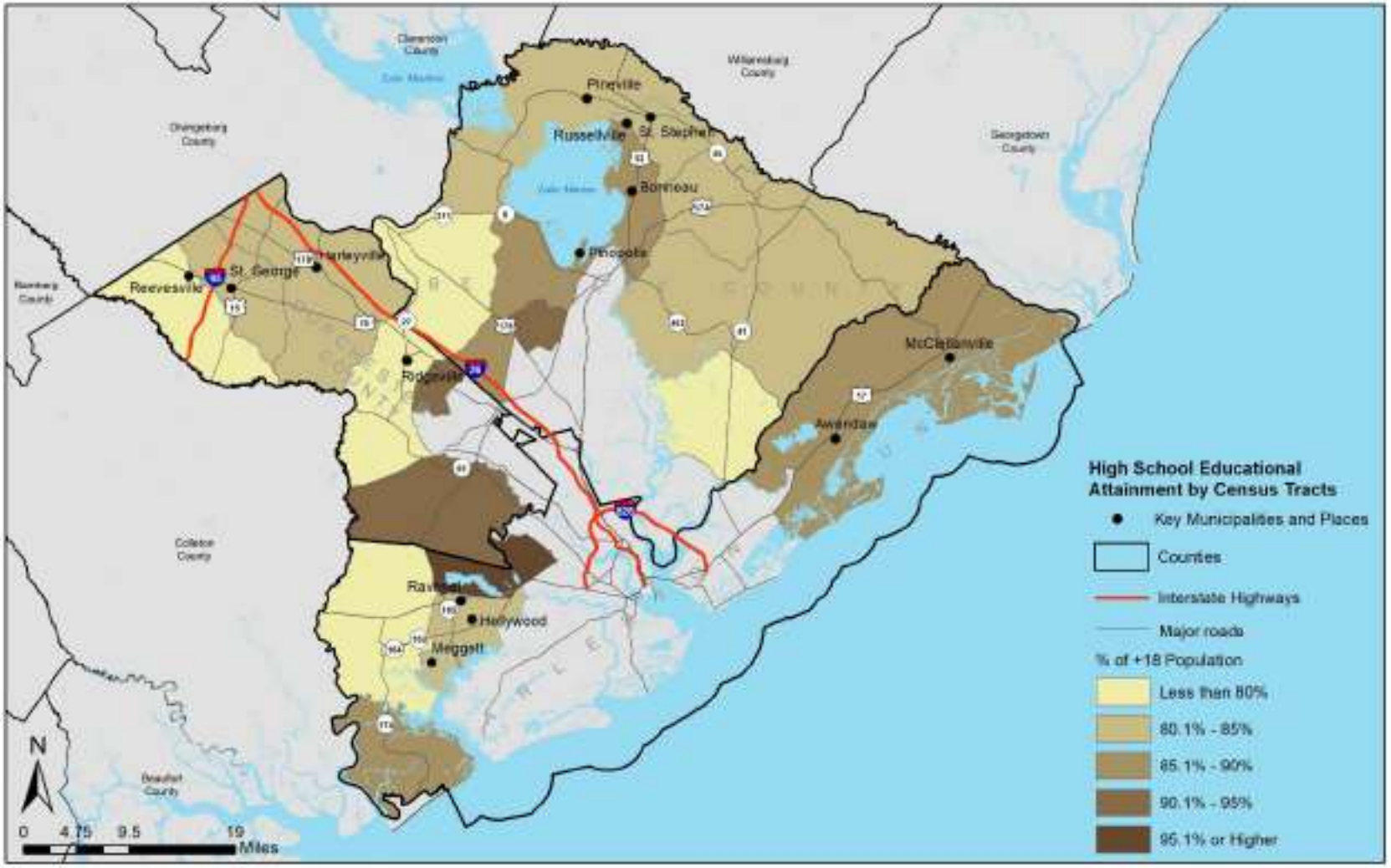
Specific demographic data, such as educational attainment, employment, and income levels, as well as transportation-related factors and challenges within these tracts and communities helped to identify transportation opportunities and gaps.

2.2.1 EDUCATIONAL ATTAINMENT AND EMPLOYMENT

Educational attainment and employment statistics help to understand where additional education and training may be needed and where job needs are greatest in the region. The *Comprehensive Economic Development Strategy* (CEDS), published by BCDCOG in 2018, reports that the overall BCDCOG region has a slightly higher percentage of residents with Associate's and Bachelor's degrees than the U.S. average. For the tri-county region, Charleston County has the highest levels of overall educational attainment. The study team analyzed educational attainment at two levels: high school degree attainment and Bachelor's degree attainment. These are represented by geographies on **Figure 5** and **Figure 6**.

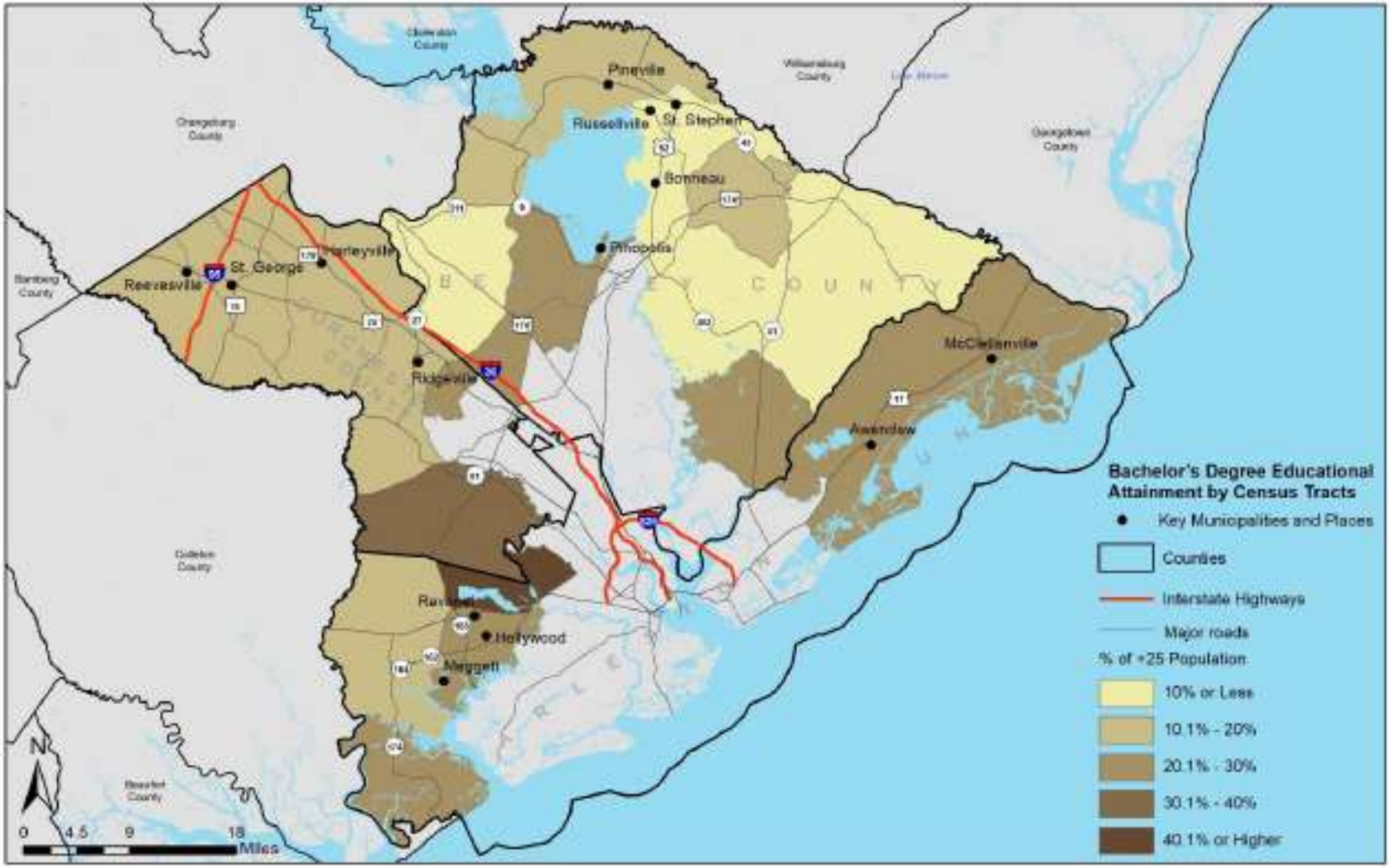
Within Berkeley County, rural areas near Russellville, Pinopolis, Bonneau, and Bonneau Beach have relatively high concentrations of high school graduates (over 80 percent), but some of the lowest concentrations in the region for Bachelor's degree attainment (approximately 8 percent). These areas, where there are concentrations of rural places and municipalities and low Bachelor's degree attainment could provide near-term opportunities for providing greater access to additional training, such as certificate programs and other short-term educational training, that could better link rural residents to jobs.

Figure 5: High School Educational Attainment by Census Tracts (2013-2017 ACS 5-Year Estimates)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Table S1501

Figure 6: Bachelor's Degree Educational Attainment by Census Tracts (2013-2017 ACS 5-Year Estimates)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Table S1501

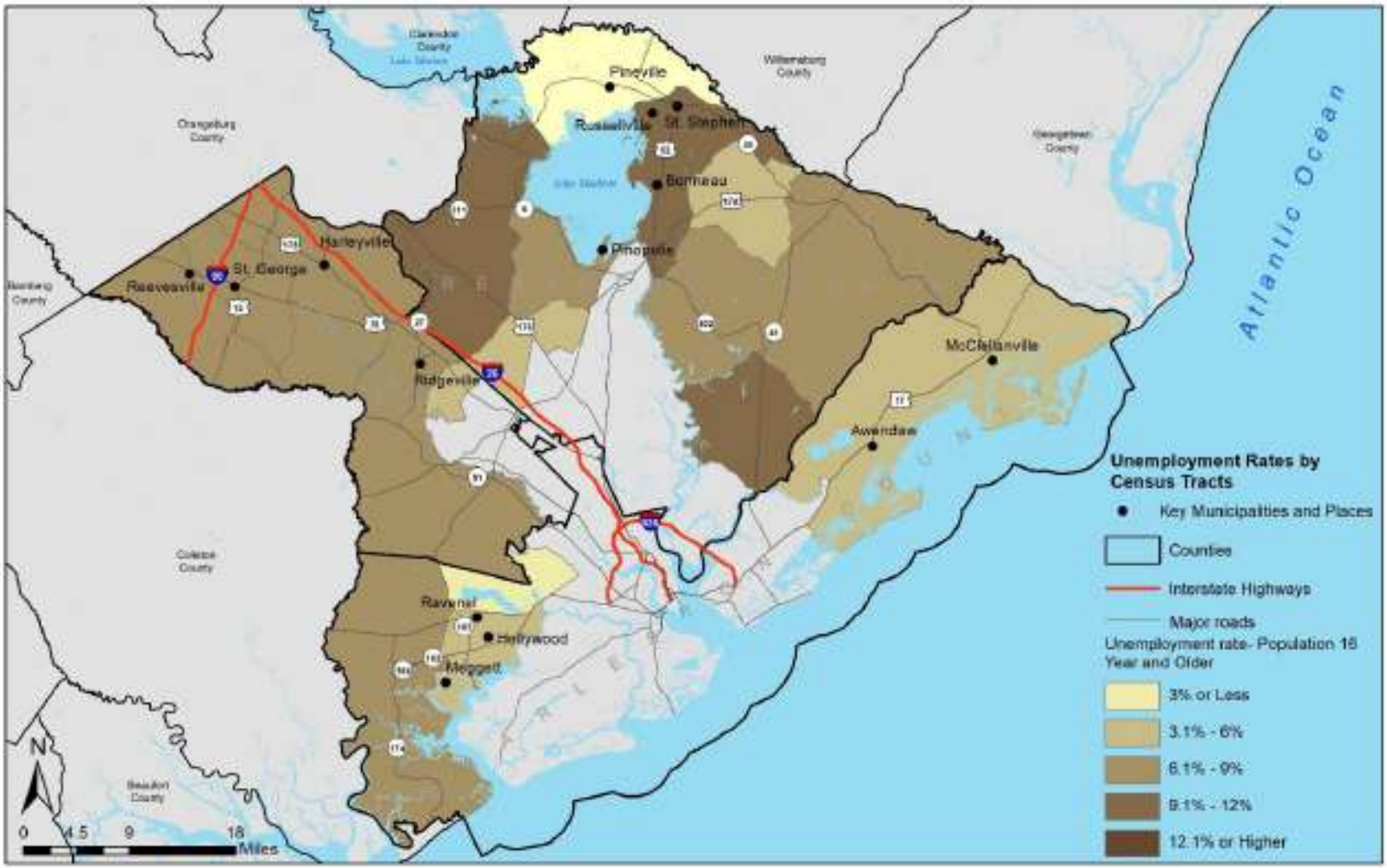
High school diploma attainment in rural areas of Charleston County is also high. In rural areas north of Ravenel, as much as 95 percent of the population has a high school diploma, the highest in the rural regions examined. Areas west of Ravenel, Hollywood and Meggett in western Charleston County have comparatively lower concentrations with a high school degree. Similarly, rural places and municipalities identified within Charleston County have a relatively high level of residents with Bachelor's degree attainment compared with other rural areas in the region. In these areas, there may already exist a greater pool of trained and educated workforce populations and there may be opportunities to better link unemployed populations more directly to available jobs in the region.

In areas of western Dorchester County, which includes Reevesville, St. George, Harleyville and Ridgeville, approximately 25 percent of the population currently have only a high school diploma. Similarly, Bachelor's degree attainment is low, at approximately 12 percent Low levels of high-school diploma and Bachelor's degree attainment in rural areas of Dorchester County indicate a high needs for linking the rural population to greater education and job training opportunities.

The average unemployment rate in the tri-county region as of 2017 is 6.1 percent. Unemployment is higher in rural areas of the region, as shown on **Figure 7**. In rural areas of the region, there was an average unemployment rate of 7.3 percent in 2017. Additionally, those who have been out of the workforce for over 2-years may result in under counting of actual unemployment rates.

High levels of unemployment are concentrated in rural areas within Berkeley and Dorchester counties. Rural areas north of Lake Moultrie in Berkeley County represent the highest unemployment rates in the region and for all rural areas within the region, within over 19 percent unemployment for rural residents over the age of 16. While unemployment rates in rural areas of Charleston County are also for the most part higher than that of the region as a whole, rural municipalities such as Meggett, Hollywood and Ravenel in western Charleston County and McClellanville and Awendaw in southeast Charleston County have lower unemployment rates than other rural areas in the region. North of Ridgeville in Dorchester County, unemployment rates are also noticeably higher than other areas, with an unemployment rate of approximately 11 percent. For all these rural areas, unemployment trends higher than the region and greater opportunities to match these rural residents with jobs and training are needed. Considering the relatively high level of educational attainment in rural Berkeley County and where higher levels of unemployment have been identified, providing greater and more direct access to jobs should be further considered. Relatively higher educational attainment and higher than regional average unemployment in Charleston County may represent opportunities to link unemployed rural residents more directly to jobs in urbanized areas. In rural areas of Dorchester County, where educational attainment is lower and unemployment rates are higher, addressing both training and job access gaps are needed.

Figure 7: Unemployment Rates by Census Tracts (2013-2017 ACS 5-Year Estimates)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Table S2301

2.2.2 INCOME AND POVERTY LEVELS

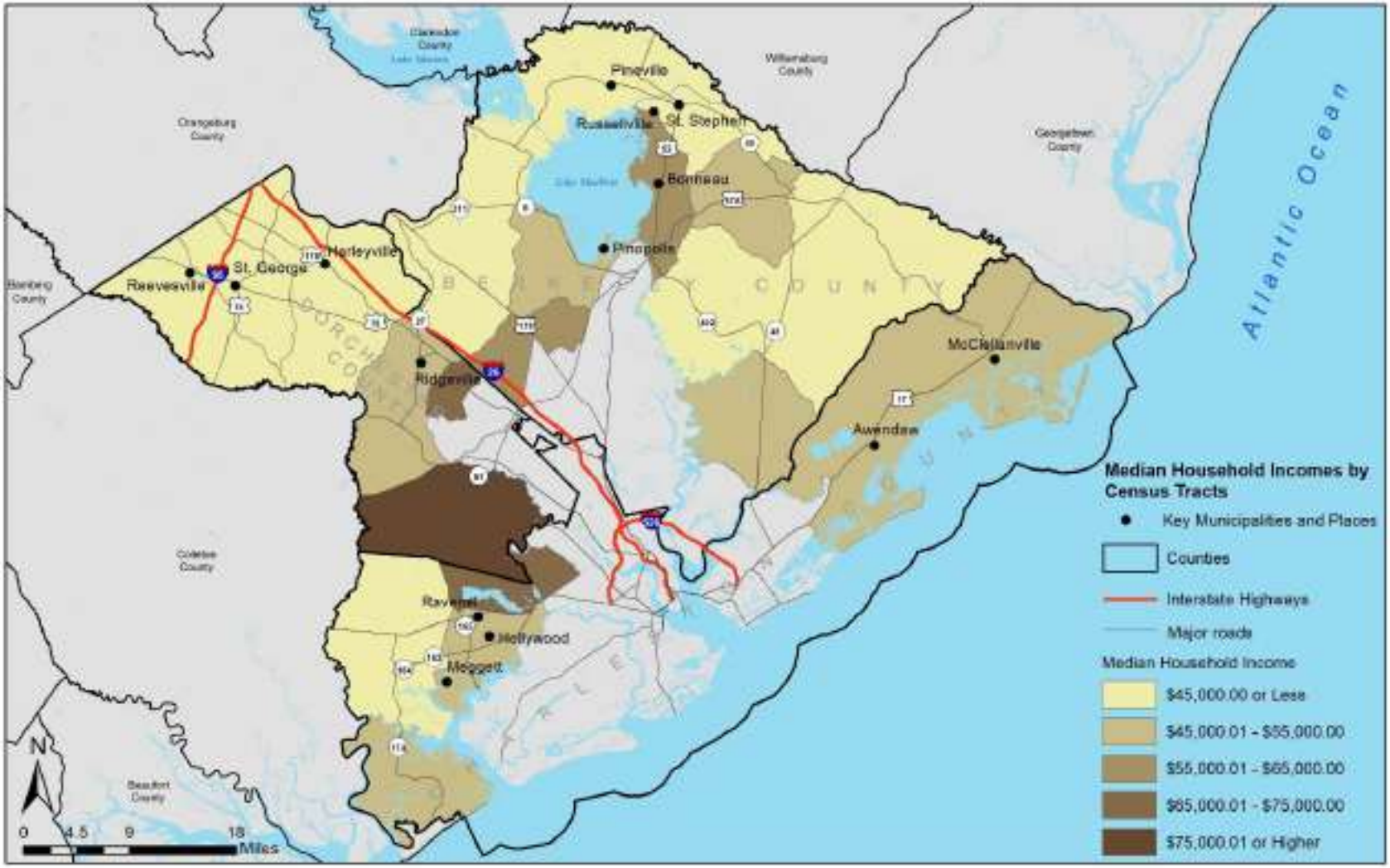
Based on 2017 U.S. Census population and housing estimates, the average median household income in the overall BCDCOG region is approximately $57,755 and is close to the U.S. average of $57,652. Differences and disparities, however, exist between urban and rural areas of the region. Based on an examination of Census tracts within these rural and urban areas, the average median household income in rural areas of the region is approximately $49,303, while that in the urban areas of the region is approximately $60,777.

As shown in **Figure 8**, rural areas in the northern portion of Dorchester County and northern and western portions of Berkeley County have some of the lowest median household income rates. Additionally, in Charleston County west of Meggett, median household incomes are also rather low. Within the rural areas in the region, the lowest median household income levels are in Dorchester County near Harleyville (approximately $36,000). Households that fall below the defined poverty line, which varies depending on the number of people and their ages within a household, are provided by 2017 U.S. Census data. Poverty line data are also an important indicator of concentrations and differences in income and are shown graphically in **Figure 9**. The poverty line, as defined in 2017, is $24,858 for a family of four with two children and two adults and $16,493 for two adults under aged 65 and $ 12,752 for one person under aged 65. While Berkeley County and its surrounding communities of Russellville, St. Stephen, Pineville, Bonneau Beach and Bonneau have lower levels of median household income levels, poverty rates are somewhat lower than other rural areas analyzed. Large concentrations of rural populations living below poverty line are found in western Charleston County near McClellanville and Awendaw as well as in western Dorchester County near Harleyville and Ridgeville. It should be noted that higher poverty levels may also be an indicator of high living costs. This can be particularly observed in populations residing in some of the urban fringes of the region.

2.2.3 COMBINED HOUSING AND TRANSPORTATION COSTS

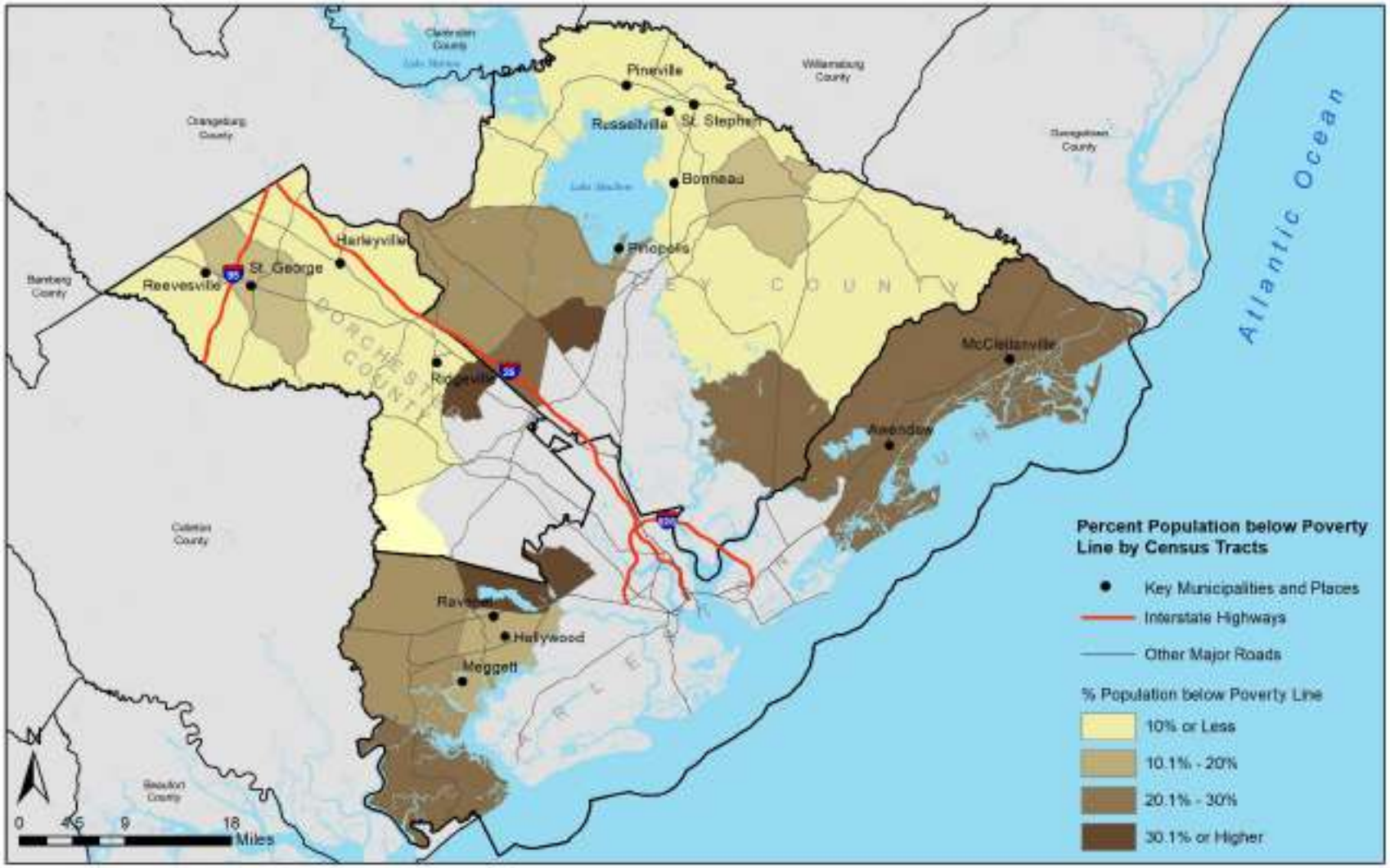
In addition to income and poverty rates, it is also important to understand combined housing and transportation costs for rural areas in the region. Since transportation is the second-largest expenditure in a household, it greatly contributes towards overall living costs. This is particularly true for low density and rural areas that may have to travel further to access jobs that are typically concentrated in urban areas and where there is a relatively higher dependence on personal vehicles to meet day-to-day travel needs. According to the Center for Neighborhood Technology (CNT) Housing and Transportation Affordability Index for 2017, the combined housing and transportation costs in the nation is recommended to be less than 45 percent to create a truly affordable community. The BCDCOG regional average for combined housing and transportation costs is currently 55 percent of the area's average median household income, which is $57,755. That means, on average, $31,765 is spent by the average household in the BCDCOG region on housing and transportation costs combined.

Figure 8: Median Household Incomes by Census Tracts (2013-2017 ACS 5-Year Estimates)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Table S1501

Figure 9: Percent Population below Poverty Line by Census Tracts (2013-2017 ACS 5-Year Estimates)



Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Table S1701

As shown in **Table 4** and graphically in **Figure 10**, in looking more closely at rural areas in the region and the key municipalities within these rural census tracts, rural places within the region all have a higher transportation cost than the region taken as a whole. Additionally, nearly all the rural areas contain combined housing transportation costs that are larger than CNT's recommended 45 percent total combined costs.

Table 4: Combined Housing and Transportation Costs by Rural Places

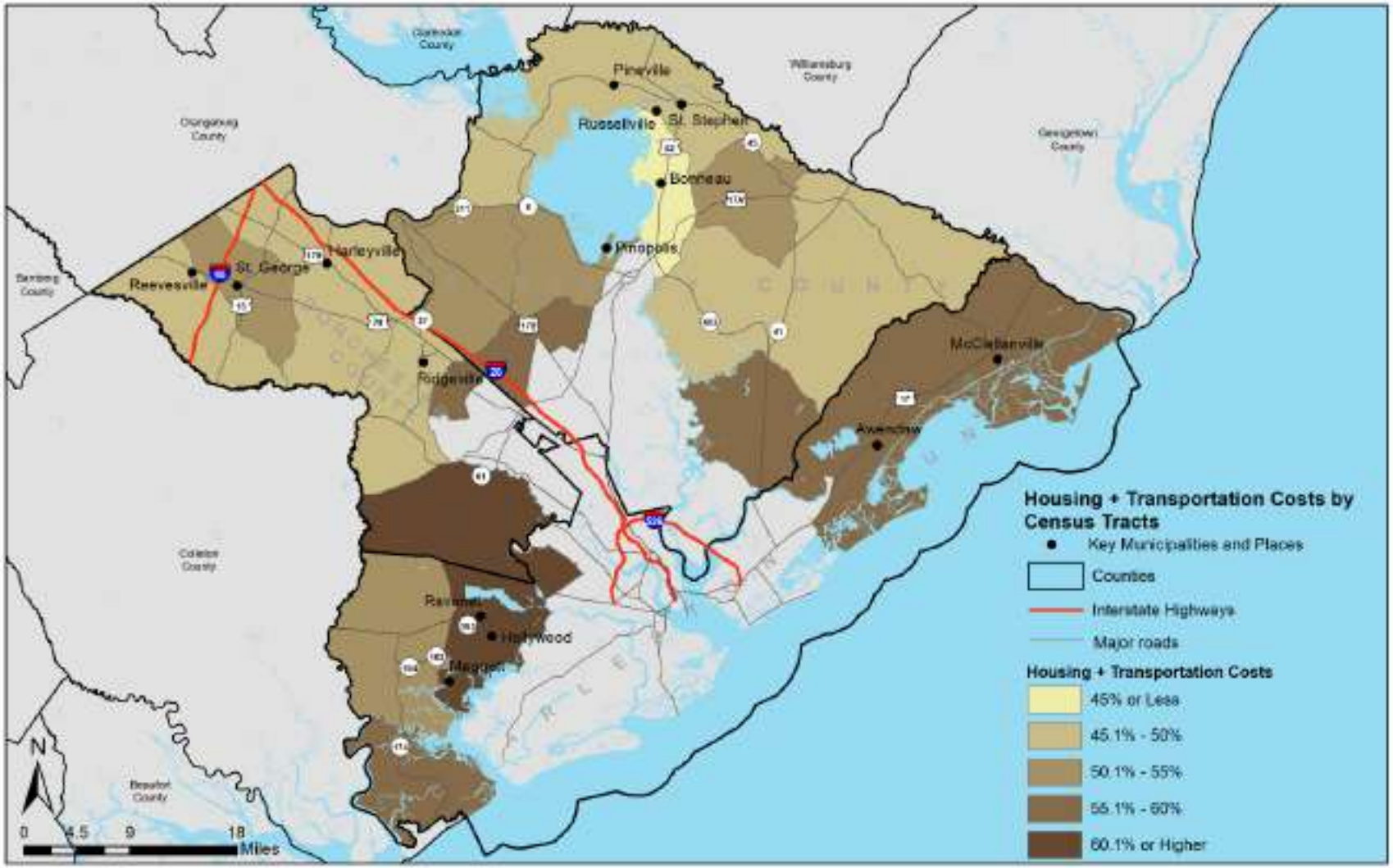
County	Rural Township	Housing Costs	Housing Costs (In Dollars)	Transportation Costs	Transportation Costs (In Dollars)	Combined Costs	Combined Costs (In Dollars)
Berkeley	Bonneau	21%	$ 11,223.87	26%	$13,896.22	47%	$ 25,120.09
	Bonneau Beach	22%	$ 11,758.34	26%	$13,896.22	48%	$ 25,654.56
	Pinopolis	31%	$ 16,568.57	27%	$14,430.69	58%	$30,999.26
	Russellville	21%	$ 11,223.87	26%	$13,896.22	47%	$ 25,120.09
	St. Stephen	19%	$ 10,154.93	26%	$13,896.22	45%	$ 24,051.15
Charleston	Hollywood	40%	$ 21,378.80	27%	$14,430.69	67%	$ 35,809.49
	Meggett	38%	$20,309.86	27%	$14,430.69	65%	$34,740.55
	Ravenel	27%	$ 14,430.69	26%	$13,896.22	53%	$ 28,326.91
	Awendaw	19%	$ 10,154.93	28%	$14,965.16	47%	$ 25,120.09
	McClellanville	36%	$19,240.92	30%	$16,034.10	66%	$ 35,275.02
Dorchester	Harleyville	18%	$ 9,620.46	27%	$14,430.69	45%	$ 24,051.15
	Reevesville	21%	$ 11,223.87	28%	$14,965.16	49%	$ 26,189.03
	Ridgeville	19%	$ 10,154.93	27%	$14,430.69	46%	$ 24,585.62
	St. George	24%	$ 12,827.28	26%	$13,896.22	50%	$ 26,723.50
Charleston-North Charleston Core-Based Statistical Area		**31%**	**$ 16,568.57**	**24%**	**$12,827.28**	**55%**	**$ 29,395.85**

Source: Center for Neighborhood and Transportation H+T Index 2015. URL- https://htaindex.cnt.org/
Note: CNT data on housing and transportation costs for Pineville, SC was not available and therefore cannot be reported.

There are some exceptions in rural areas where these CNT-recommended combined costs, an indicator of overall affordability, may be found. These include rural areas within northern Berkeley County, such as in St. Stephen, Bonneau Beach and Bonneau, and within northern Dorchester County, such as in Harleyville. While these areas still have higher transportation costs than regional averages due to their distance from the more urban areas and job concentrations in the region, lower housing costs help to alleviate some of the combined affordability measures.

Within the tri-county region rural areas, Pinopolis in Berkeley County (58 percent), and Hollywood and McClellanville (66 percent) in Charleston County each have the greatest combined housing and transportation costs of all rural areas examined in the region. Much like poverty rate findings, higher combined transportation and housing costs tend to be concentrated in rural areas at the urban fringe.

Figure 10: Housing + Transportation Costs by Census Tracts



Source: Center for Neighborhood and Transportation H+T Index 2015. URL- https://htaindex.cnt.org/

2.2.4 TRANSPORTATION CHARACTERISTICS

The existing transportation network and infrastructure, commuting patterns, and environmental barriers to transportation access are also directly related to identifying needs and gaps within rural areas in the region. Available data on the key transportation roadway network as well as available transit options, access to vehicles, travel time to work and Vehicle-Miles Travelled (VMT) were collected and analyzed to identify these needs and gaps. The following summarizes key findings of that analysis and additional mapping and analysis may also be found in **Appendix A**.

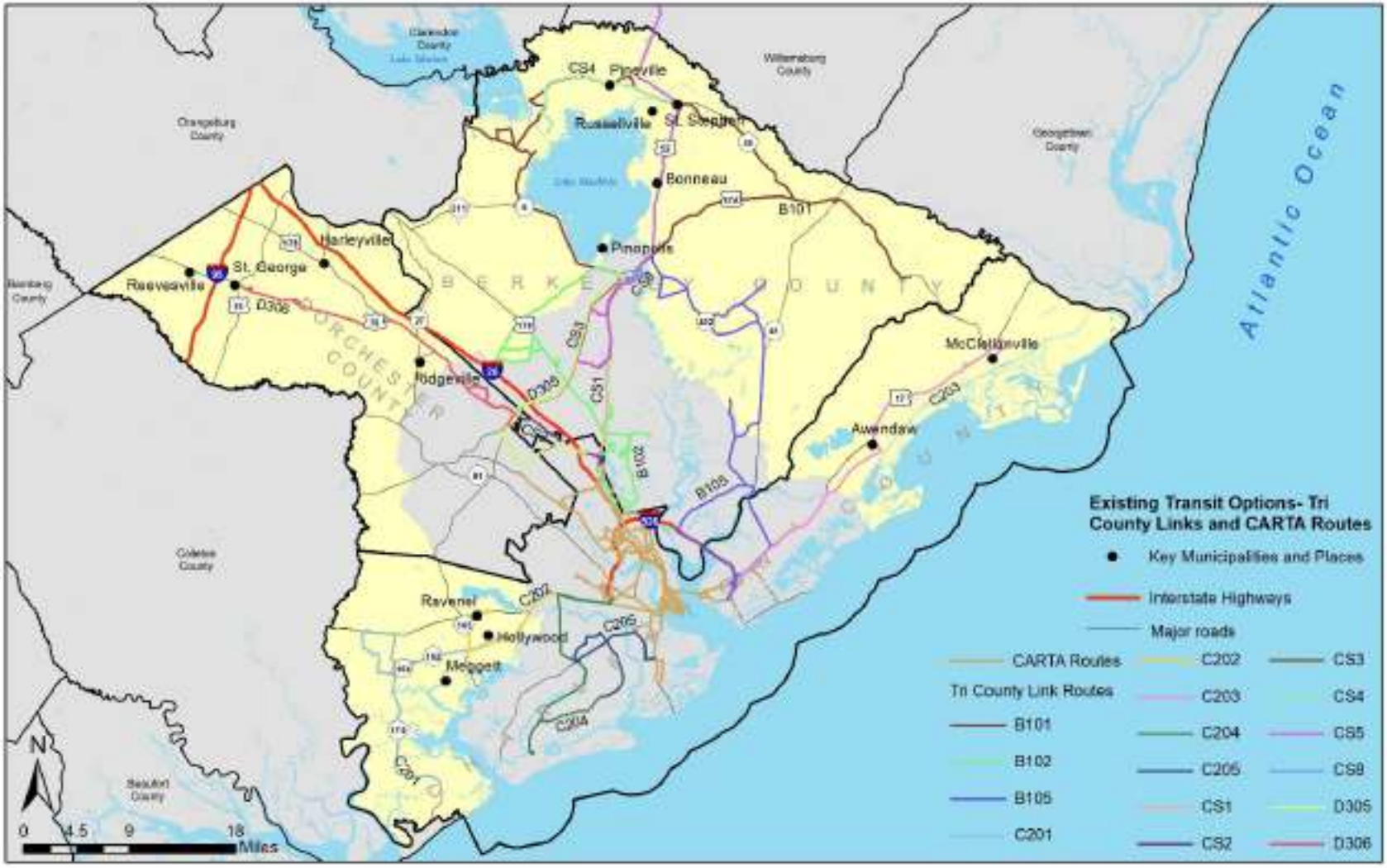
The primary mode of transportation within the BCDCOG region is automobiles, generally single-occupant vehicles, as the U.S. Census 2017 ACS 5-Year estimates show 82 percent of commuters drove alone in the rural areas and 78 percent drove alone in the urbanized areas. The BCDCOG region is primarily connected by two major federal interstates: I-26 and I-95. Various highways, such as US 17, US 52, and US 78 connect the region as well.

Charleston Area Regional Transportation Authority (CARTA) and TriCounty Link (TCL) are the primary public transportation systems in the BCDCOG region and the transit network is shown on **Figure 11**. CARTA largely serves the urbanized areas through fixed-route bus routes and express commuter routes, and paratransit services. The TriCounty link (TCL), which is the main transit provider for rural areas, has two main service types: local and commuter routes. While local routes may have few daily trips, commuter routes operate either throughout the day or. This is typically done in the mornings or evenings. Although the bus service maintains published schedules, each local route offers a "route deviation option," which allows the driver to deviate from the fixed route up to three-fourths of a quarter mile radius to pick up riders that are unable to gain access to designated bus stops.

Within rural areas of Berkeley County, US Highway 52 is a primary roadway providing access between the rural and urban areas of the region. Communities East of Bonneau and around the Francis Marion National Forest have limited transit access but are currently served by several TCL routes.

In Charleston County, key rural areas are in the northeastern and southwestern quadrants of the county limits. The eastern Charleston County region, which includes rural areas of Awendaw and McClellanville, are connected by US 17 and served by one TCL route. The western Charleston County rural area includes Meggett, Hollywood and Ravenel and are comparatively closer to urban areas than other rural areas in the region. US Highway 17 and SC 162 provide primary access between rural and urban areas and there are two TCL local routes that serve this area. Major rural areas in north Dorchester County include Harleysville and St. George. These areas have a greater access due to the proximity of I-26, US 76 and US 176 and are served by one TCL local route.

Figure 11: Existing Transit Options - TCL and CARTA Routes



The rural area has a number of environmental features which can impact transportation access, such as forests, rivers, and lakes. Most prominently, these environmental features are found in Berkeley County and include the Francis Marion National Forest in Berkeley County, which spans 404 square miles. Lake Moultrie also creates some natural transportation barriers to access north and western rural areas of the county. Finally, the Cooper River, which runs through the study area, serves as a natural barrier between some urban and rural areas. Four bridges provide access across the river: US 52, SC 41, I-526 and US 17. Given their relative distance to urban areas and concentrations of jobs, education, and other major destinations, commute times are generally longer in rural areas of the region. According to the US Census Bureau ACS 2012-2017 data, the average commuting travel time for the entire BCDCOG region is approximately 25 minutes, while that of the rural areas is approximately 33 minutes. Northern regions of Dorchester County, which includes rural areas north of Ridgeville, have significantly higher travel time to work at 43.7 minutes.

The rural regions of Hollywood, Meggett and Ravenel in Charleston County also report higher than average commute times at 41.6 minutes.

Further contributing to rural transportation needs are the number of households within the rural region that do not currently have access to a vehicle. Within the tri-county region, approximately 1,659 households (2 percent) do not have access to a vehicle. According to the US Census Bureau, there are three specific areas within the rural area of the BCDCOG region that have concentrations of zero-car rural households: near Russellville and St. Stephen in Berkeley County; near Ravenel, Hollywood and Meggett in western Charleston County; and near Harleyville and Ridgeville in Dorchester County. These three areas are worthy of mention since the percentage of households that do not have access to any vehicles is quite high in relation to the rest of the BCDCOG rural area. The area near Ravenel, Hollywood and Meggett, for example, has 6.88% of its households with no access to any vehicles (3,298 households and 227 with no vehicles).

2.3 REGIONAL ECONOMY AND WORKFORCE TRAINING PROFILE

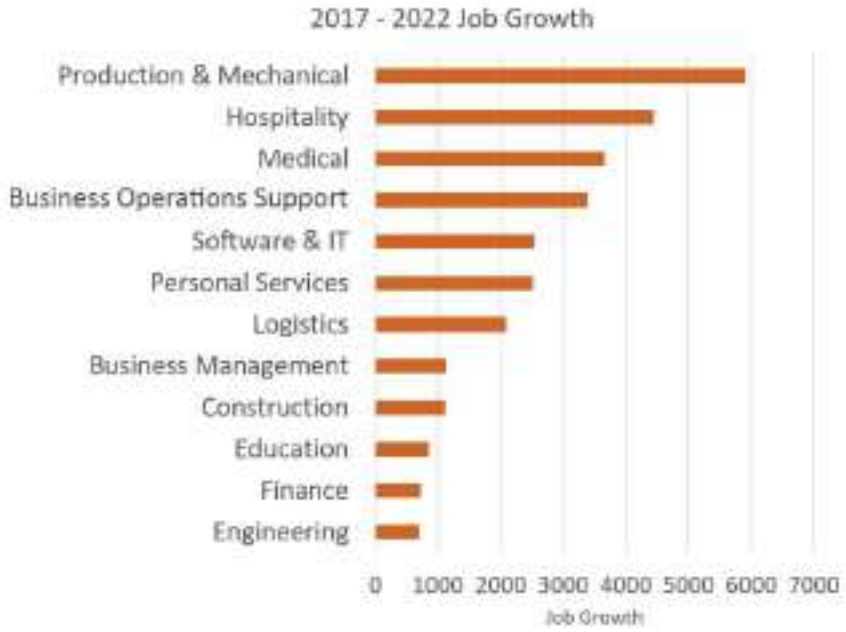
In addition to analyzing socio-economic and demographic trends, this study identified needs and gaps in regional jobs and training resources by taking a closer look at the regional economy and workforce.

Employers from different industry sectors, ranging from large to small, thrive in the region. The *Talent Demand Study* conducted in 2016 by the Charleston Metro Chamber of Commerce projected that there are 26,000 diverse new jobs anticipated in the region through 2022 alone. To meet this anticipated job growth in the region, it will be important to align training and education with exiting workforce talent to maximize the benefits of these economic development benefits. Understanding the top industries and employers, education and training centers and wages by occupations in the region are key for developing education and training transportation links between potential workers and opportunities.

2.3.1 TOP INDUSTRIES AND EMPLOYERS

The regional economy is made up of a diverse number of industry sectors. The Charleston Metro Chamber of Commerce forecasted that industries such as software and Information Technology (IT), production, mathematics, engineering, communications and medical sectors are expected to see a 10 percent increase in growth over the next five years. 80 percent of the growth is expected from the top twelve sectors listed on **Figure 12.** Sixty-six percent of the job growth is forecasted to take place in the top five industries: (1) Production & Mechanical, (2) Hospitality, (3) Medical, (4) Business Operation Support, (5) Software & IT.

Figure 12: Projected Job Growth by Industry Sectors from 2017 to 2022



Source: Center for Business Research, Charleston Metro Chamber of Commerce, June 2017.

As shown on **Figure 13**, most jobs in the region are densely concentrated in urban areas and fringes with some additional employment concentrations located near the rural areas of St. George and Pinopolis. Large hubs of major automotive or aeronautic manufacturing and assembly plants with a clustering of suppliers are a major source of employment in the region. A number of these manufacturing, assembly, production and distribution/warehousing operations extend along the I-26 corridor from Volvo Interchange at mile marker 189 east to mile marker 209 near Palmetto Commerce Parkway. These include Volvo, Daimler Mercedes Benz, Cummins Turbo Technology and Boeing Propulsions. Major Aerospace employers including Ventura Aero Bearings are clustered at Joint Base Charleston, further south of Palmetto Commerce Parkway.

IT and healthcare employers are more diversely located across the region. Hospital and healthcare centers like Roper St. Francis Hospital, Medical University of South Carolina (MUSC), Trident Health and East Cooper Medical Center are largely concentrated around Town of Mount Pleasant, City of Charleston, and City of North Charleston, in addition to the urban fringe areas of Summerville and

Goose Creek. Other IT industries include Blackbaud, Benefitfocus, Boomtown, Blue Acorn and Google, which are primarily located in the City of Charleston and Daniel Island.

Currently the highest number of employees by industry are reported in the trade, transportation and utilities industry (61,600), closely followed by the government sector (60,860), professional and business services (48,360), leisure and hospitality (46,360) and health services and private education (35,200). Regional tourism is another large employer in the region and is projected to add 4,400 additional jobs by 2022. The top five public and private employers by company are identified in **Table 5** below.

Table 5: Top Existing (2017) Public and Private Employers in BCDCOG Region

Public Sector		Private Sector	
Company	***Employees***	***Company***	***Employees***
Joint Base Charleston	20,000	The Boeing Company	7,400
Medical University of South Carolina	15,000	Roper St. Francis Healthcare	5,500
Charleston County School District	6,000	Trident Health System	2,500
Berkeley County School District	6,000	Walmart, Inc.	2,300
Dorchester County School District	3,500	Robert Bosch, LLC	1,800

Source: Center for Business Research, Charleston Metro Chamber of Commerce, June 2017

The *CEDS* report notes that the region is experiencing a shortage of local talent and, as a result, are recruiting out-of-state workers to fill growing job demands. A stakeholder database was used to review labor market projections and job gaps to identify industry sectors facing workforce shortages. Some of the jobs that are currently in the highest demand are 1) Assemblers & Fabricators, 2) Welders & Machinists, 3) Food & Culinary and 4) Carpenters & Electricians.

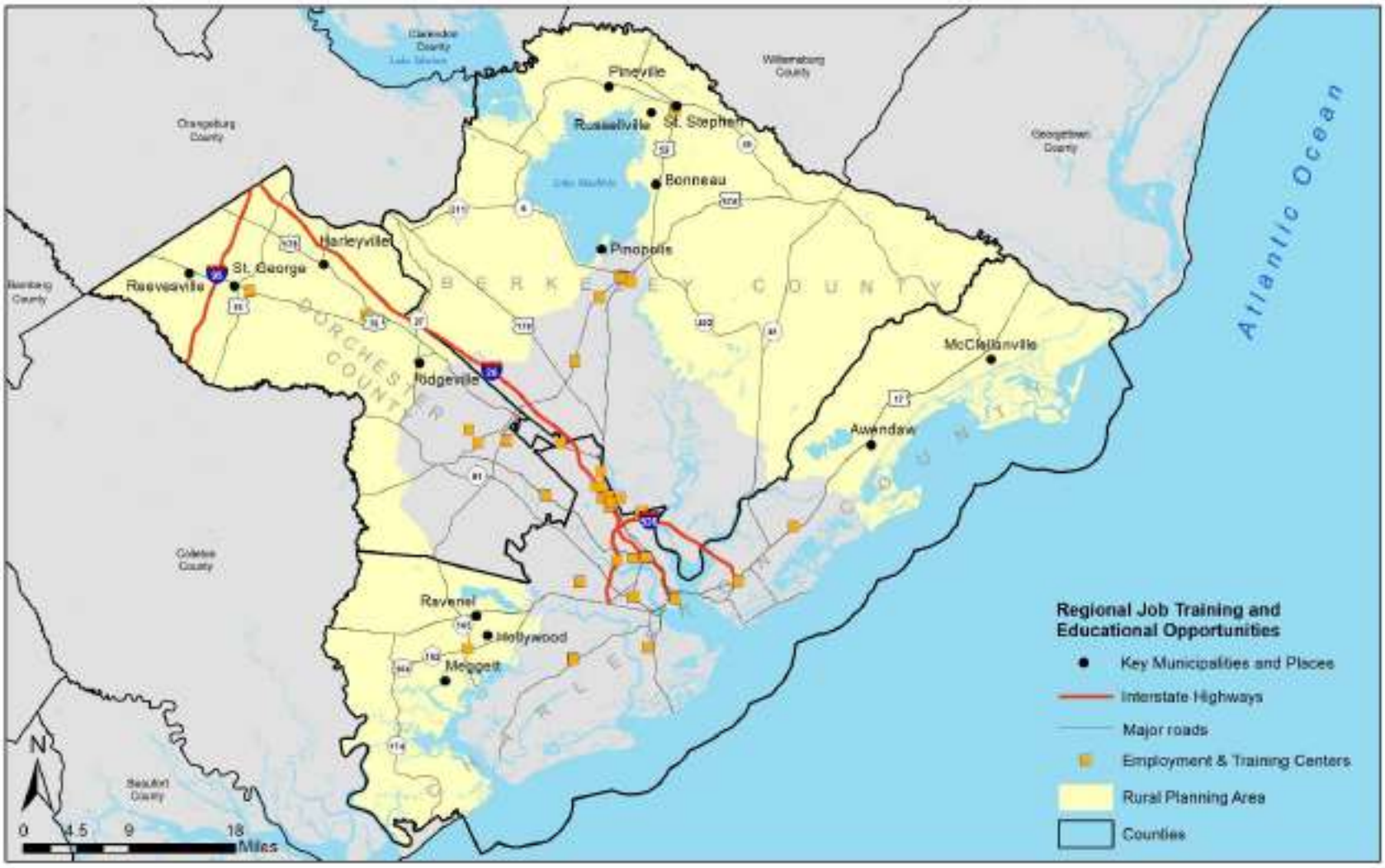
2.3.2 EDUCATION AND TRAINING CENTERS

BCDCOG's *CEDS* document reported that 90 percent of the fastest growing and highest paying jobs today require some post-secondary education, meaning education past high school. It added that there are skilled workforce shortages in the region and the gap is increasing as demands continue to grow. Knowledge of new and niche technologies are assets for the workforce as the region's economy diversifies and grows. Several targeted training and educational resources are available to the workforce in the region. These resources entail a combination of public and private training opportunities, which are used to train the workforce and meet available job opportunities and address unemployment and underemployment gaps in the region. As observed in **Figure 14**, most educational and training centers are concentrated near two areas in the region: downtown Charleston and North Charleston. Additionally, some centers are also located throughout the rural areas of each county in the tri-county region.

Figure 13: Major Regional Employers: Manufacturing, Healthcare and Information Technology

Source: Employer locations were developed by cross-referencing stakeholder provided locations with top regional employers list.

Figure 14: Regional Job Training and Educational Opportunities



Agencies within the Berkeley, Charleston, and Dorchester County region are actively engaged in community outreach activities to promote adult education programs. Several nationally recognized colleges, universities, and research facilities are all located within the region. Some companies also use in-house training programs for their operations.

Regional public-school superintendents work with the Charleston Metro Chamber of Commerce to develop career readiness standards and competencies for fastest growing business sectors. These standards serve as the foundation from which to build a curriculum to set students on a career path for future employment or college opportunities. The Charleston Metro Chamber of Commerce has various initiates for career academies and youth apprenticeships programs and has developed a Tri-County Cradle to Career collaborative aimed at supporting the workforce at different levels in their career development.

Ready SC, a division of the South Carolina Technical College System, is also active in developing training opportunities in the region. They work closely with companies to determine hiring needs and provide training information. The main industries that Ready SC provides training for today are aerospace, automotive, biotech, call centers, chemicals, distribution, food and food processing, metal plastics, and textiles. Ready SC has also been heavily involved in the development of the ManuFirst certificate program in the region, a short-term training program focused on essential manufacturing skills training. Trident Technical College has trained over 900 people for the ManuFirst certificate program in the last 24 months and 90 percent of those who started the program have completed the training. Additionally, the South Carolina Department of Employment and Workforce (SCDEW) directs efforts to link job seekers with training and provides support services in the region.

These various education and training providers work collaboratively across the region; however, reaching unemployed people in rural areas is still a challenge.

2.4 NEEDS ASSESSMENT FINDINGS

The technical needs assessment and analysis provided a breadth of information on rural transportation needs, gaps and opportunities. These findings were used to define what workforce mobility means to the rural areas, outline the key needs and existing, and identify industries facing workforce shortages.

2.4.1 DEFINING WORKFORCE MOBILITY

A broad goal of the study and needs assessment included establishing a definition for workforce mobility in the region. As a part of the stakeholder engagement process, the Study Team developed the following definition for workforce mobility using feedback from Stakeholder Meeting 1:

> *Workforce mobility not only refers to providing adequate transportation alternatives to connect individuals with opportunities to bridge the skills gap and secure in demand jobs, but it also refers to providing individuals the choice to move across grades and positions within a trade or make a complete change in occupation.*

Basic and competitive skills are necessary to meet the requirements of most regional employers. Individuals with skills gaps often lack some of the essential workforce skills and training to secure

quality jobs, particularly for high in-demand job opportunities in the region. Creating greater access to high in-demand job skills will help build a more competitive workforce, greater economic prosperity in the rural areas of the region and a diverse and growing economy.

2.4.2 KEY NEEDS AND BARRIERS TODAY

Several rural communities are located at long distances from employment and training centers and face long commute hours. Major employers and training and education centers are in the urban fringes and urban core, representing a critical barrier for rural residents to access training, education, and job opportunities. These factors, combined with a lack of transportation options, discourage rural residents from exploring job and training opportunities within the region.

Primary dependence on automobiles throughout the region and a lack of access to vehicles in rural communities further exacerbate the situation. There is increasing congestion on roads which, given the growth of population in the region, will only increase over time and put a strain on the existing infrastructure. While major infrastructure improvements, policies and initiatives are in the pipeline to improve roadway capacities, alternate modes of transportation are needed. Additionally, lessening the dependence on single occupancy vehicles by increasing the number of transportation options, and providing greater flexibility and frequency of existing transit service would improve rural access to training and employment opportunities.

Many rural communities face challenges in connecting to training and employment locations. A combination of factors are barriers to employment and training. This includes but is not limited to higher transportation costs, lack of access to vehicles, and higher unemployment and underemployment rates. Some of these factors are interdependent and providing solutions to one issue may address other challenges as well. There are various opportunities for training and employment within the region and making such information available to isolated communities will facilitate social mobility. In order to be able to effectively reach out to rural communities, there is an increased need to involve local community partners, employers, as well as traditional agencies in addressing workforce training and employment needs.

3 RURAL SERVICE AREA AND EMPLOYMENT/TRAINING PROFILES

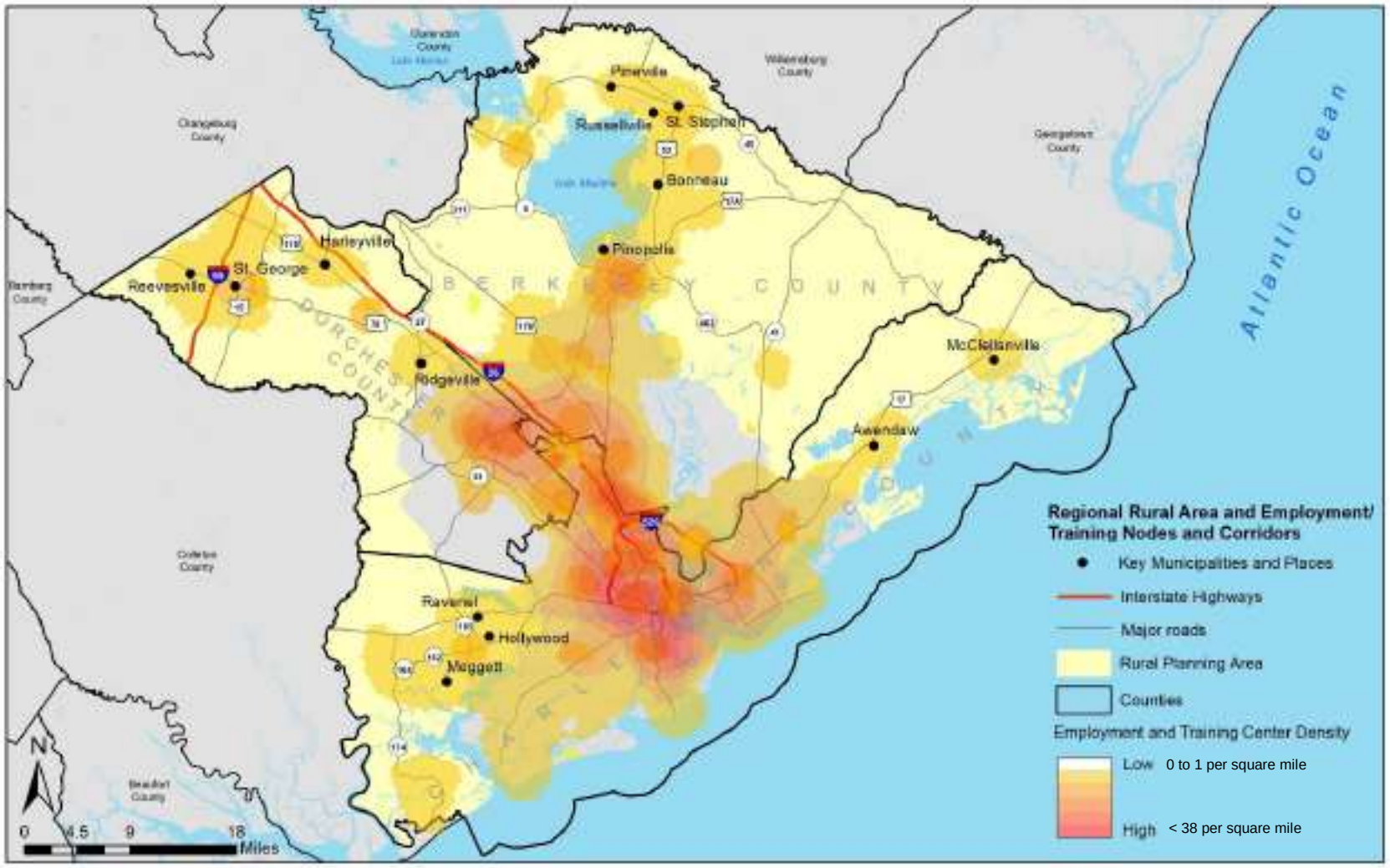
Developing workforce and training transportation solutions for rural communities presents specific challenges given how spread out populations and land uses are from one another. Additionally, travel origins and job and training destinations are less centralized than you find in more urbanized areas. Rural areas also present challenges in data collection and analysis, since many standard levels of analysis in rural areas, like the U.S. Census, are focused on larger geographic areas such as county or Census tract boundaries and may not always capture more specific demographic and socio-economic conditions within rural areas of a county.

Based on the needs assessment and additional input received as part of Stakeholder Meetings, key rural areas were mapped for employment, education, and training. Rural service area profiles were then developed to more closely understand each rural population area and potential training and employment needs and opportunities.

3.1 NODES AND CORRIDORS DEVELOPMENT

Data collected from the needs assessment and stakeholder engagement was used to develop a heat map identifying major nodes and corridors within the rural areas of the region and major jobs and training clusters to be served. The nodes and corridors were shared with stakeholders as part of Stakeholder Meeting #2 to verify these nodes and corridors. Breakout sessions occurred to obtain more input. The heat map of nodes and corridors in the region are shown on **Figure 15**. The heat map reflects employer and training locations identified from the assessment of needs and stakeholder meetings, tri-county employer locations and densities, major colleges and training centers, major adult education centers, private training locations, and existing transit routes and stops.

Figure 15: Regional Rural Area and Employment/Training Nodes and Corridors



3.2 UNDERSTANDING EMPLOYER AND TRAINING NEEDS

One-on-one interviews with stakeholders from community development organizations as well employment, educational and training organizations was conducted to better understand regional needs. Additional research was also conducted to supplement these findings and to better categorize education and training needs for key industries in the region. These analyses helped to better define employer and training needs to link the potential rural workforce to the training and education needed to fill employment gaps in the region.

3.2.1 STAKEHOLDER INTERVIEWS AND INPUT

Additional outreach to stakeholders in the region was undertaken and one-on-one interviews were conducted in May and June 2019. Outreach and interviews gave greater insights into existing programs, current conditions, future needs, potential partnership agencies and employment partners. It also provided a local perspective on job skills and gap analysis.

Project stakeholders included professionals from businesses, workforce agencies, economic development organizations, higher education, transportation agencies, chambers of commerce, community centers and churches. Outreach efforts were directed towards an array of over 25 key employers, training and educational institutions, and others. This included professionals from economic sectors ranging from manufacturing, healthcare, food & beverage, community development, training & education, logistics and industrial development. Stakeholders were presented with the data findings in above sections. The study team received valuable inputs via breakout sessions and exercises conducted. This information was used to not only identify needs and gaps, but to frame preliminary transportation and supporting strategies for the rural workforce. It also gave direction for strategic agency partnerships, a greater understanding of employer requirements and constraints, and an ability to further identify organizational structures to reach unemployed, underemployed and workforce trainees.

Appendix B contains information on interview questions and stakeholders interviewed.

COMMON THEMES IDENTIFIED

Several common themes emerged from the interviews, surveys and breakout sessions held as part of the overall study stakeholder meetings. The input received was further delineated by the types of partners interviewed to provide an array of perspectives on needs and issues related to community development and outreach, training and education, and employment in the region.

INPUT FROM COMMUNITY DEVELOPMENT PARTNERS

Effectively communicating existing as well as future opportunities to link rural residents to jobs and training was noted as a major challenge to be addressed. While there are number of job fairs, training and education opportunities, and other initiatives available in the region, effective and consistently reaching people that can benefit from these programs is challenging. Developing multiple mediums to reach a critical mass of those in need in the region will be needed. Because Wi-Fi coverage is not reliable in some rural areas of the region and many individuals may not have access to smartphones, alternate

modes of communication will need to be identified. This could include greater grassroots outreach through churches and other local community organizations in the region.

Stakeholders noted that agencies have programs that are available to help people access training and jobs; however, due to long distances from residential areas, access to transportation is a major barrier. Because many residents access a common family vehicle, there are limitations to commutes for other family members. Additionally, the lack of reliable or coordinated childcare options was a common issue that emerged in meetings. Community partners also stressed the need for affordable housing and systematic rideshares or greater frequency and reliability of transit options.

Regarding training needs, community partners expressed the need to potentially provide additional training in more basic education and soft skills. They noted that some of the major industries in the region have a focus on communication skills, which is a lacking skill among the workforce and may need to be addressed alongside other technical training.

In terms of opportunities, community partners noted that there are efforts underway by the BCDCOG to coordinate vanpooling, mobile training and onboarding pilot programs with local community organizations, such as churches and other community-led organizations who may be willing to assist with these efforts. Additionally, it was noted that many hospital and healthcare facilities have limited parking, which may decentralize facilities in the future and present additional opportunities for partnering with healthcare employers to meet job demands and parking capacity challenges. As future strategies for the region continue to move forward, surveys and other more direct outreach efforts to communities may be beneficial to address specific community challenges as it was noted that employees may not openly share personal concerns with HR staff.

Input From Training and Education Partners

A diverse array of training and educational opportunities is available in the region and there are options available for different stages in a career as well. Training programs that were noted to have the highest demands by training and educational partners interviewed include manufacturing training, and coding and computer programming. Another skill that is high in-demand in the region is welding. A major issue for training and educational partners is conveying these opportunities to potential employees.

Several organizations that offer training and education also provide some form of transportation stipend that could help to offset costs for enhanced transportation options to job skills training and education. Longer travel times to access training and education in the urbanized area are generally discouraging people in distant rural areas from more fully accessing opportunities. There are some educational partners who want to pursue more options of distance learning for this reason; however, some training cannot be done remotely and reaching a critical mass of participants is needed to justify creating new locations for training in rural areas.

Input From Industry Partners

Several industry partners identified access to transportation as a significant issue for their employees, particularly those earning less than $20-$25 per hour. Affordable housing was noted to be a coinciding and major issue, even among highly skilled employees. Since many employees cannot afford to live closer to their workplaces, this reduces their ability to continually work and perform, leading to high

turnover rates for companies. There are less opportunities for flexible and remote working, especially for manufacturing and hospitality workers, and those are key employment markets in the region. Distance and commute times affect the ability to use transit in both urban and rural areas as well.

Industries, especially manufacturing and IT, are facing a major shortage of skilled and semi-skilled workers. Companies, especially large-scale employers have in-house training programs or established training partners for their operations. Industry partners were in consensus about the need for greater transit-related partnerships. Making the business case for an effective public-private partnership is needed.

Because most entry level wages are too low to attract new talent in the region, this has led companies to seek applicants from counties outside the region. Some employees travel to the region from extended distances beyond regional boundaries, including Orangeburg, Calhoun and Hampton counties. Due to longer distances between workplaces and housing and a lack of transportation options, night shift work is less desirable for potential candidates, and it is difficult for employers to obtain and retain employees.

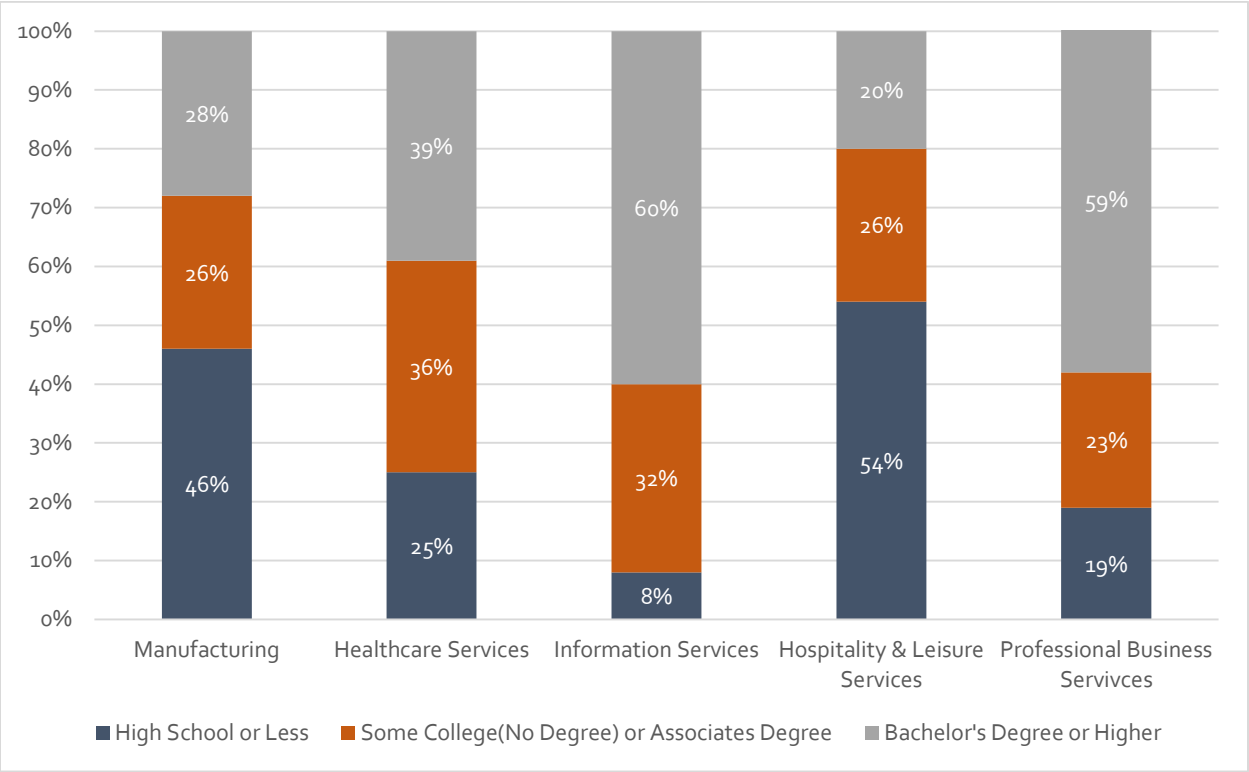
Some HR managers of companies in the region have previously initiated company stipends to join vanpools; these programs have been very successful. However, HR managers also noted transit partnership service in the region did not work because of long commute times.

3.2.2 ADDITIONAL RESEARCH ON EDUCATIONAL AND TRAINING NEEDS BY INDUSTRY

To supplement findings from the needs assessment and interviews, and to further match education and training needs to key industries and employer needs in the region, additional research was conducted to generally identify the levels of educational attainment required for placement in jobs by industry. Georgetown University's *Help Wanted: Projections of Jobs and Educational Requirements through 2018* report provided source data on several industries and educational attainment needs that was cross referenced to key BCDCOG regional employment sectors identified in the needs assessment and regional CEDS report, including manufacturing, healthcare services, information services (which comprised software and IT markets), hospitality and leisure services, and professional business services. **Figure 16** provides graphical information on desired educational attainment and requirements by these industry types.

Given the relatively lower educational attainment levels found in some rural areas of the region, focusing on industries requiring high school and some level of college or post-secondary training may represent opportunities for more short-term training and education to meet job demands.

Figure 16: Job Openings and Educational Demands by Industry (2018)



Source: Georgetown University, Center for Education and Workforce Development, https://cew.georgetown.edu/cew-reports/help-wanted/#report

Based on the information collected, approximately 72 percent of manufacturing job openings require skill levels associated with either a high school or less or some college education and close to 80 percent of hospitality and leisure service jobs require this level of educational attainment. Additionally, healthcare industries provide opportunities for shorter term education and training to meet job demands, with 61 percent of those jobs requiring either a high school or less or some post-secondary, non-Bachelor's degree education. Information services, such as software and IT as well as professional business services require a much higher level of educational attainment to become applicable for these jobs, with approximately 60 percent of those jobs requiring a Bachelor's degree or higher. These industries, and particularly the growing software and IT industry in the region, may require longer-term training and educational program development to properly match rural area populations with job opportunities in the regional market.

3.3 DEFINING RURAL SERVICE AREA PROFILES

Based on available data and the identification of places and municipalities within rural areas as part of the initial needs assessment, four main rural clusters were identified within the tri-county area that could comprise an overall rural service area for workforce transportation solutions: Berkeley County, western Charleston County, eastern Charleston County and Dorchester County. While the eastern Charleston County area has less concentration of rural populations and municipalities, it was identified for further analysis given socioeconomic factors, its relative proximity to employment needs in Mount

Pleasant and other areas of Charleston County and to also provide sufficient coverage and analysis of all rural area needs in the region. A map showing these four rural service areas is provided on **Figure 17**. They include rural service area clusters within Berkeley County, western Charleston County, eastern Charleston County, and Dorchester County.

Following identification of the rural service areas, several data points were then collected from the South Carolina Power Team (SC Power Team) Online Data Center, which consolidated findings from their recently completed *2019 Project Pioneer Labor Study*. This data helped to create more detailed rural profiles for each of the four rural service areas based on unemployment and underemployment and training and educational needs identified as part of interviews and additional research. This data ultimately better helped to refine best matches between rural areas and potential industries and training. Each of these rural service areas and profiles are further described below. Additional data for these rural area profiles may be found in **Appendix C** and are summarized herein.

3.3.1 BERKELEY COUNTY RURAL SERVICE AREA

Berkeley County has a population of 225,602, out of which 115,045 constitute the labor force in the County. Key rural places and municipalities identified within this rural service area include Bonneau (population- 496), Pinopolis (population- 1,858), Russellville (population- 713) and St. Stephen (population- 1,816). **Figure 18** shows the rural area cluster in Berkeley County in greater detail.

The 2019 Project Pioneer Labor Study reports, nearly 46 percent of the total population of the rural focus area, or 2,234 persons, have obtained an Associate's degree or less. Nearly half of the population has obtained education below a Bachelor's degree. A considerable number of persons within the rural region are underemployed, as well as working age eligible. There is above 16 percent underemployment in production and distribution sectors. Approximately 35 percent of the total population of the rural focus area, or 1,739 people are considered in the labor force and the current unemployment rate stands at 3.3 percent. 1,653 people are considered not in the labor force, which comprises 33 percent of the total population.

TRAINING AND EMPLOYMENT OPPORTUNITIES

The study team analyzed the number of existing businesses within the rural focus area to determine if any critical needs could be served within proximity to where the rural population resides. In total there exist three manufacturing and ten healthcare businesses within the bounds of the rural focus area that may contribute to in-demand jobs for the rural focus area.

Three larger industry employment hubs were identified that could be served from these rural areas to employment, and several training centers are in proximity to the rural service area and these employment destinations.

Figure 17: Map of Key Rural Service Area Clusters

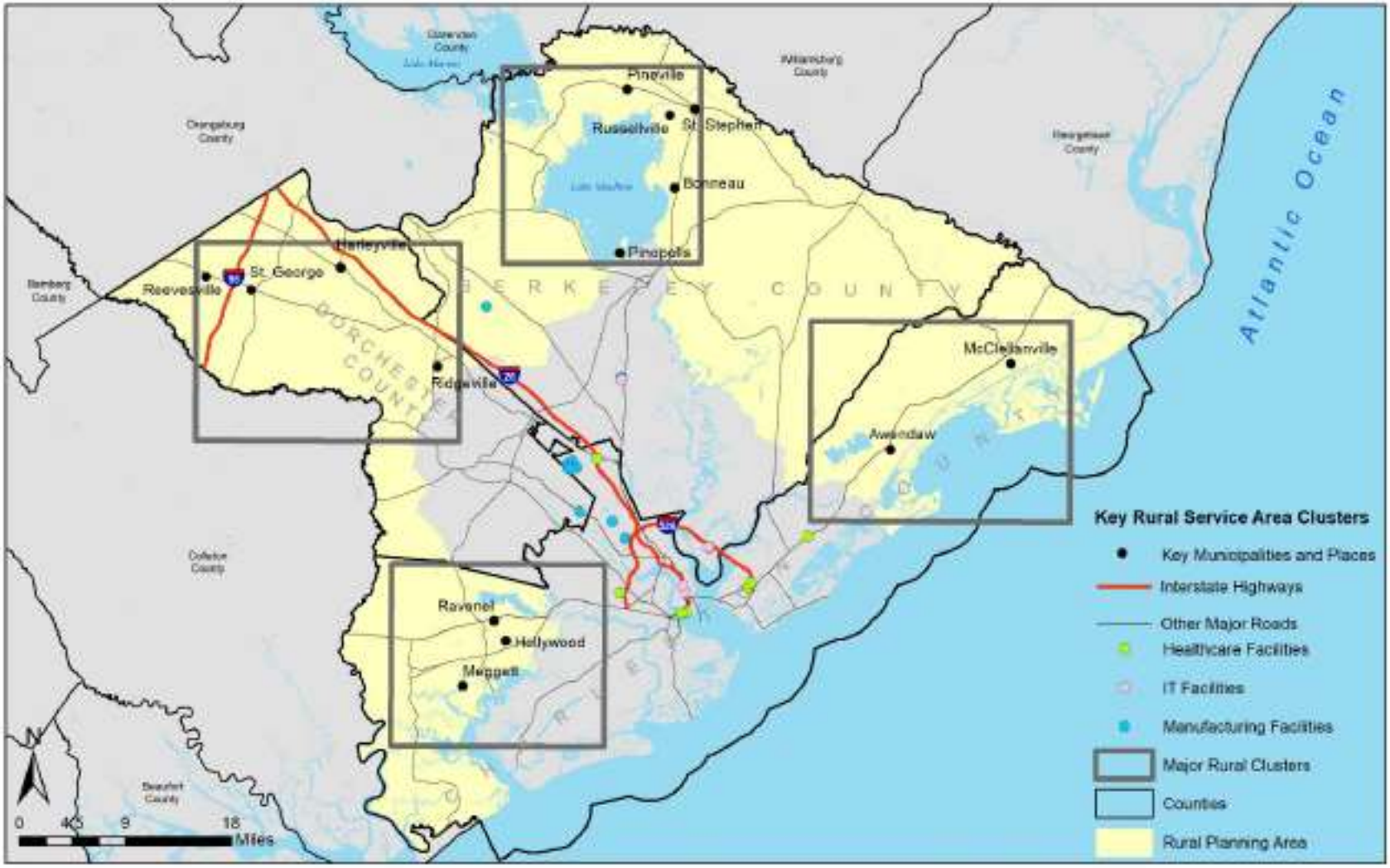
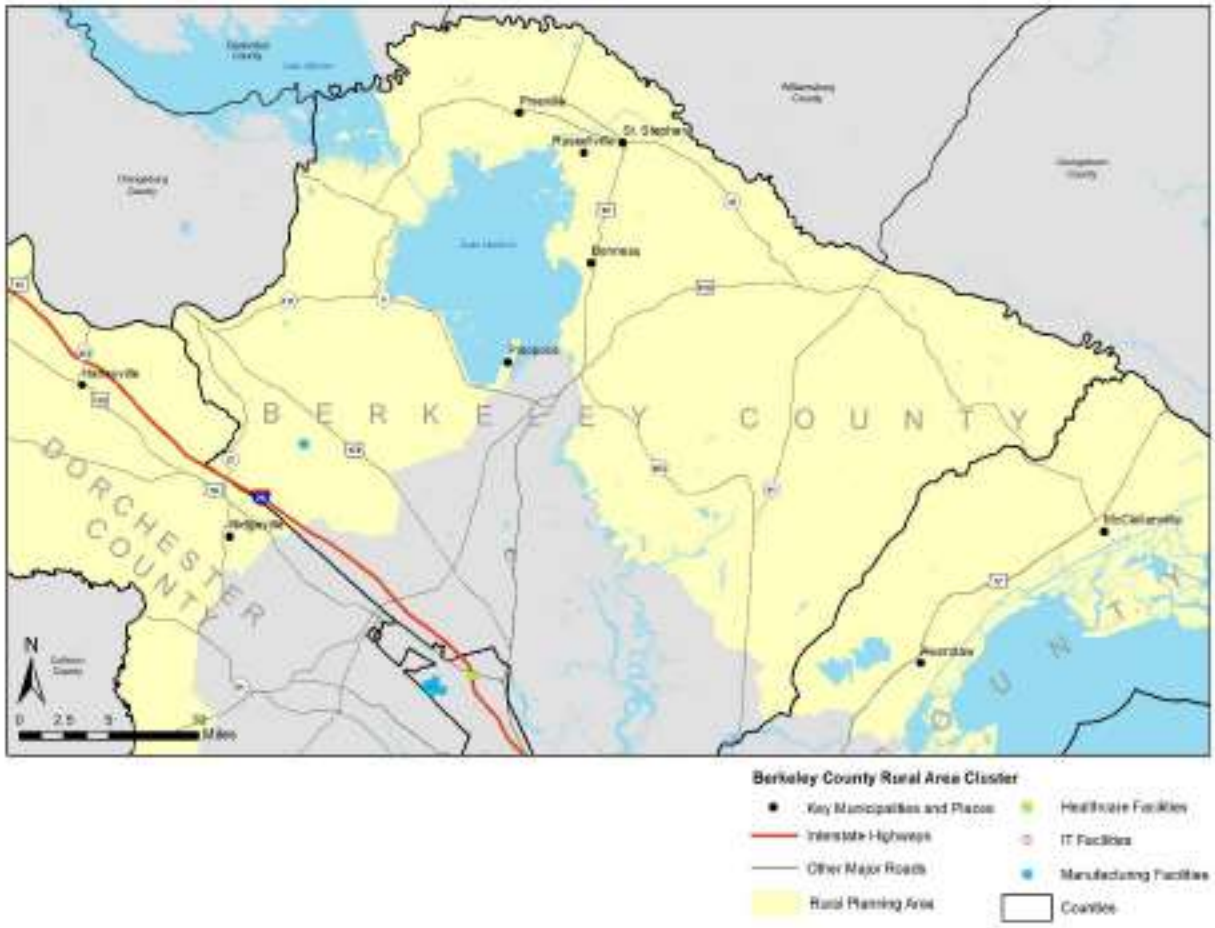


Figure 18: Berkeley County Rural Area Cluster



Some opportunities to connect rural residents to training and employment in this service area include:

- **Manufacturing Connections to Volvo:** At mile marker 189 along the I-26 corridor, the Volvo Berkeley Plant represents a major potential employer near the rural service area and trained rural workforce for this employment hub are a potential nearby opportunity for residents seeking education and employment in this area. Over the next three years, Volvo expects to continue their expansion of manufacturing in the region and hire and train approximately 2,500 more workers. Preparations for this expansion are expected to begin on the Berkeley County site as early as 2020 and site expansion to accommodate greater vehicle production will include an expanded body shop and final assembly shop. Services to connect rural communities to relevant training and employment at this location represent a relatively nearby and short-term opportunity for focusing efforts to connect rural communities to needed training and employment.

- **Manufacturing Connections to Palmetto Commerce Parkway in North Charleston:** Manufacturing companies serviced by these employment clusters include, but are not limited to Daimler, Boeing Interiors, Boeing Propulsion, Venture Aerobearings, Cummins Turbo Technology, and Bosch. Slightly south of Palmetto Commerce Parkway, the Boeing Charleston Plant and Joint Base Charleston could potentially be served but would require longer distances of travel.

- **Healthcare Connections Via SC 402 and SC 41 to US 17:** Healthcare providers along the Highway 17 corridor could be reached via SC 402 and SC 41. They include, but are not limited to: Roper St. Francis, Vibra Hospital of Charleston and East Cooper Medical Center in Mount Pleasant; the Medical University of South Carolina (MUSC) and Ralph H. Johnson Veterans Administration Medical Center (VA Hospital) in downtown Charleston; and Bon Secours St. Francis Hospital in West Ashley. Trident Health could also be served if services could be made available further south of the rural service area to North Charleston.

- **Training and Educational Center Connections:** There is a career technology and adult education center located at St. Stephen Elementary School, as well as the Berkeley Educational Center, United Way, SC Works office, Goodwill Job Link Center, and a Trident Technical College satellite campus (Berkeley Campus) located in Moncks Corner.

3.3.2 WESTERN CHARLESTON COUNTY RURAL SERVICE AREA

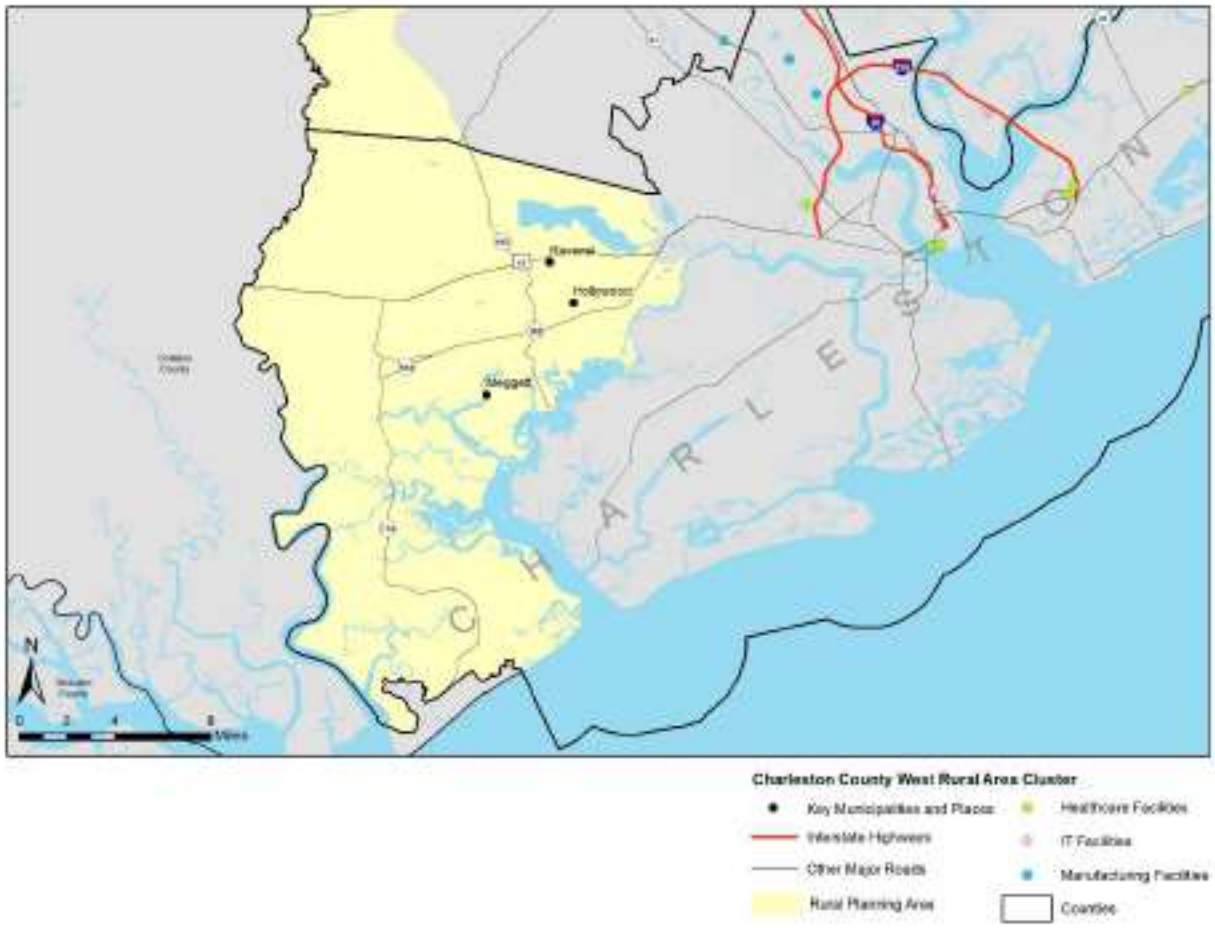
Two rural area clusters are identified within the Charleston County- western and eastern. Project Pioneer reports the total population in Charleston County as 411,009, with a labor force of 221,326. Notable places and municipalities in the western rural area of Charleston County are Hollywood (population- 5,252), Meggett (population- 1,291) and Ravenel (population- 2,679). This area has a comparatively higher population and over 92 percent underemployment in the labor force. **Figure 19** shows the rural area service area in western Charleston County.

For western Charleston County, the age 10 to 49 cohort comprises over 43 percent of the total population of this rural service area with 3,986 people, out of which the average working age participation rate is 78 percent. This age cohort is assumed to be the working population. Approximately 46 percent of the total population of the rural service area, or 4,214 people, are considered in the labor force. The current unemployment rate is 2.4 percent with 3,513 persons not in the labor force. This comprises of 38 percent of the total population of the service area. This area has a comparatively higher population and over 92 percent underemployment in the labor force.

TRAINING AND EMPLOYMENT OPPORTUNITIES

In total there are nine manufacturing, five IT, and fifteen healthcare businesses within the bounds of the rural focus area that may contribute to in-demand jobs for the rural focus area. There is potential to address connectivity to the several employment and training centers in this area.

Figure 19: Western Charleston County Rural Area Cluster



Some opportunities to connect rural residents to training and employment in this service area include:

- **Manufacturing Connections to Palmetto Commerce Parkway in North Charleston:** Manufacturing companies serviced by the employment cluster include, but are not limited to, Daimler, Boeing Interiors, Boeing Propulsion, Venture Aerobearings, Cummins Turbo Technology, and Bosch. Slightly south of Palmetto Commerce Parkway, the Boeing Charleston Plant and Joint Base Charleston could potentially be served but would require longer distances of travel.

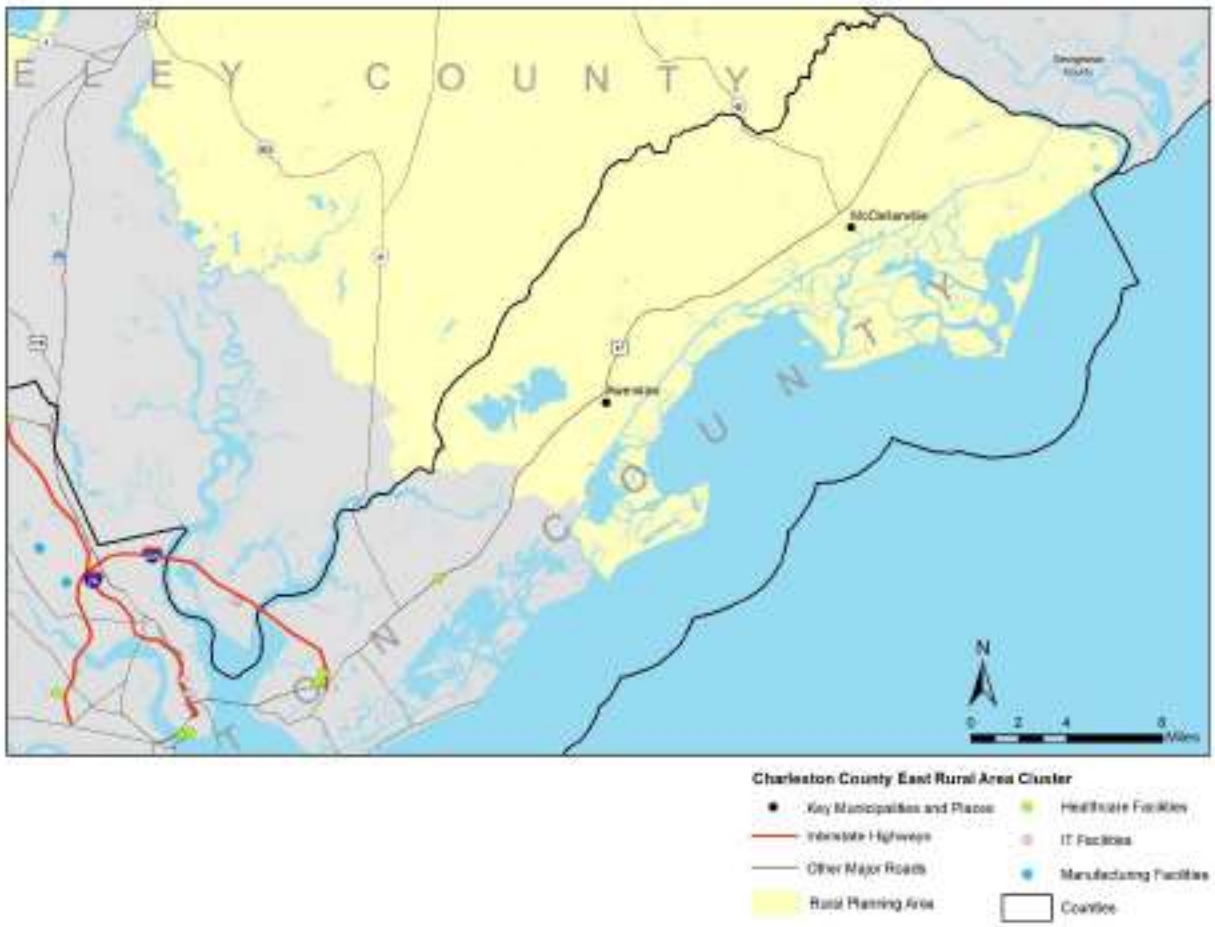
- **Healthcare along US 17 corridor from West Ashley to Mount Pleasant:** Healthcare providers along the Highway 17 corridor include, Bon Secours St. Francis Hospital in West Ashley; the Medical University of South Carolina (MUSC) and Ralph H. Johnson Veterans Administration Medical Center (VA Hospital) in downtown Charleston; and Roper St. Francis, Vibra Hospital of Charleston and East Cooper Medical Center in Mount Pleasant. Trident Health could also be served if services could be made available further south of the rural service area to North Charleston.

- **Training and Educational Center Connections:** There are several training centers located between rural population origins and employment destinations. There is a Trident Technical College satellite campus at St. Paul's Parrish between Meggett and Hollywood, as well as a Charleston County School District CATE center at West Ashley High School on the urban fringe. Trident Technical College also has satellite campuses in downtown Charleston at the Palmer Campus and North Charleston at the Thornley Campus.

3.3.3 EASTERN CHARLESTON COUNTY RURAL SERVICE AREA

Places within this rural cluster having sizeable populations are Awendaw (population- 1,401) and McClellanville (population- 531). **Figure 20** provides further context of these places in the eastern Charleston County rural service area. Over 46 percent of the total population of the rural focus area, or 901 people, are considered in the labor force. The current unemployment rate in these places stand at 1.6 percent. 751 persons are considered not in the labor force, which comprises close to 39 percent of the total population.

Figure 20: Eastern Charleston County Rural Area Cluster



According to the *Project Pioneer Labor Study*, close to one-third of persons within the rural region labor force are underemployed. In total there are one manufacturing and six healthcare businesses within the bounds of the rural focus area that may contribute to in-demand jobs for the rural focus area. The high percentage of underemployment in manufacturing, production and distribution suggests that this industry could present a targeted opportunity for linking populations to more specific employment in the region.

TRAINING AND EMPLOYMENT OPPORTUNITIES

There are two large hospital campuses in the Mount Pleasant urbanized area that may represent relatively nearby opportunities to connect this rural service area with employment and training. Additionally, manufacturing employment hubs exist in the region and connections between rural residents and these employment opportunities may also be desirable. Some opportunities to connect rural residents to training and employment in this service area include:

- **Healthcare providers along US 17 from Mount Pleasant to West Ashley:** Healthcare providers and employment south of eastern Charleston rural areas that could be served include, but are not limited to: Roper St. Francis, Vibra Hospital of Charleston and East Cooper Medical Center in Mount Pleasant; the Medical University of South Carolina (MUSC) and Ralph H. Johnson Veterans Administration Medical Center (VA Hospital) in downtown Charleston; and Bon Secours St. Francis Hospital in West Ashley. Trident Health could also be served if services could be made available further south of the rural service area to North Charleston.

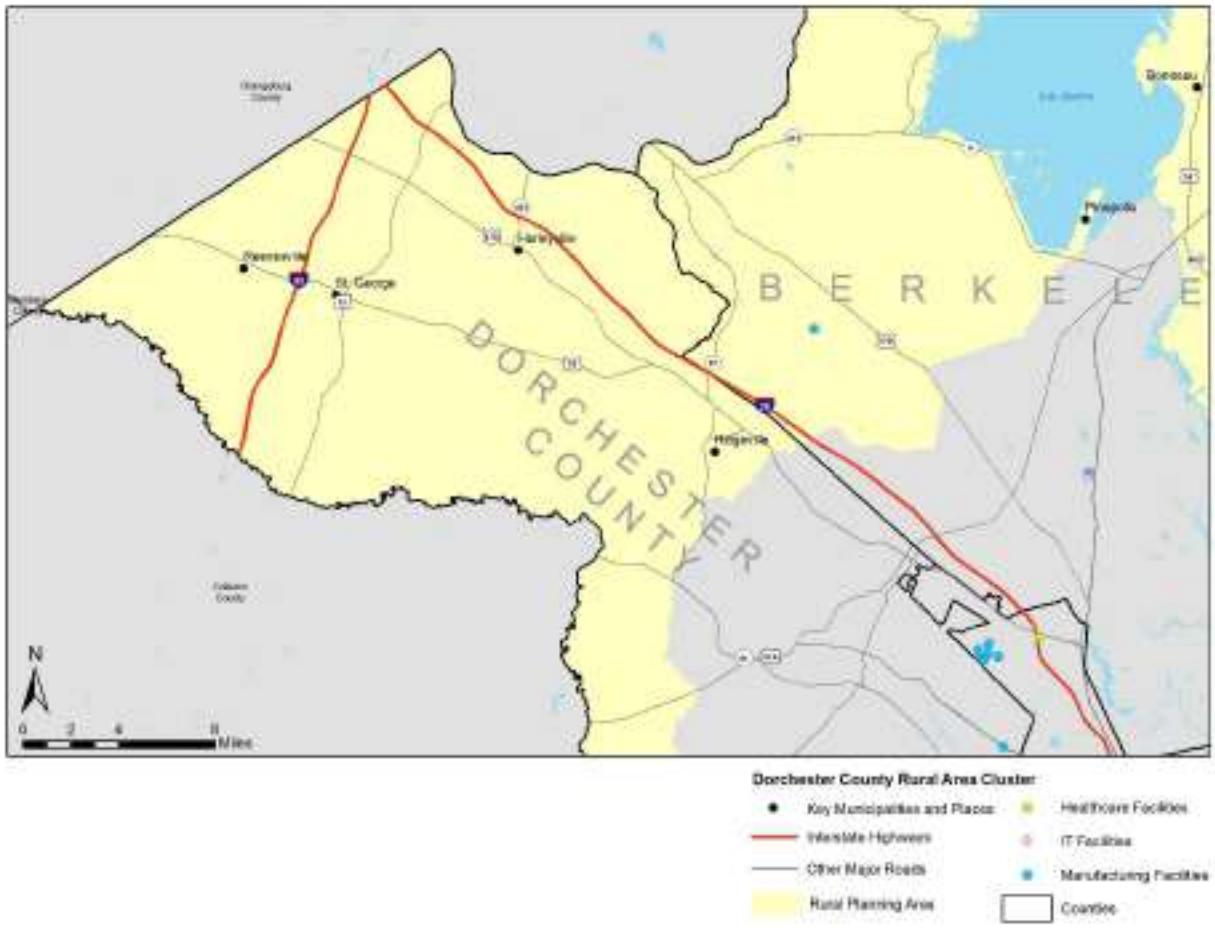
- **Manufacturing Connections to Palmetto Commerce Parkway in North Charleston:** Manufacturing companies serviced by the employment cluster include, but are not limited to, Daimler, Boeing Interiors, Boeing Propulsion, Venture Aerobearings, Cummins Turbo Technology, and Bosch. Slightly south of Palmetto Commerce Parkway, the Boeing Charleston Plant and Joint Base Charleston could also be served but would require longer distances of travel.

- **Training and Educational Center Connections:** There are several training centers located between the rural population origins and employment destinations. These include a Career and Technology Education (CATE) center for Charleston County School District located at Wando High School in Mount Pleasant, as well as Trident Technical College satellite campuses at Mount Pleasant, downtown Charleston (Palmer Campus) and North Charleston (Thornley Campus). A private welding training center, ArcLabs, is also located in North Charleston near destination clusters.

3.3.4 DORCHESTER COUNTY RURAL SERVICE AREA

Dorchester County has a total population of 160,038 with a labor force of 80,759. Key Municipalities and places identified within the County are Harleyville (population- 693), Ridgeville (population- 1,707), Reevesville (population- 192) and St. George (population- 2,145). **Figure 21** provides a geographical context of this rural service area.

Figure 21: Dorchester County Rural Area Cluster



Of the total population in the rural focus area, approximately 33 percent, or 1,582 people, are considered in the labor force. The current unemployment rate is 2.5 percent. 2,521 persons are considered not in the labor force, which comprises 53 percent of the total population. The rural focus area reported a total of 1,374 people as underemployed, which is about 29 percent of the of the total rural focus area population and nearly 87 percent of the total labor force. Underemployment can be addressed by access to better work opportunities. Combined, there is over 26 percent underemployment in the manufacturing, production and distribution sector.

TRAINING AND EMPLOYMENT OPPORTUNITIES

There are critical industry partners, such as manufacturing, located in the vicinity of the study area that may represent relatively nearby opportunities to link this rural service area with training and employment. Additionally, healthcare providers located further away from the area may also represent longer distance opportunities to better link rural residents with major employment in the region. Some opportunities to connect rural residents to training and employment in this service area include:

- **Manufacturing Connections to Volvo:** At mile marker 189 along the I-26 corridor, the Volvo Berkeley Plant represents a major potential employer near the rural service area and trained

rural workforce for this employment hub are a potential nearby opportunity for residents seeking education and employment in this area. Over the next three years, Volvo expects to continue their expansion of manufacturing in the region and hire and train approximately 2,500 more workers. Preparations for this expansion are expected to begin on the Berkeley County site as early as 2020 and site expansion to accommodate greater vehicle production will include an expanded body shop and final assembly shop. Services to connect rural communities to relevant training and employment at this location represents a relatively nearby and short-term opportunity for focusing efforts to connect rural communities to needed training and employment.

- **Manufacturing Connections to Palmetto Commerce Parkway in North Charleston:** Manufacturing companies serviced by these employment clusters include, but are not limited to Daimler, Boeing Interiors, Boeing Propulsion, Venture Aerobearings, Cummins Turbo Technology, and Bosch. Slightly south of Palmetto Commerce Parkway, the Boeing Charleston Plant and Joint Base Charleston could potentially be served but would require longer distances of travel.

- **Healthcare Provider Connections Along I-26:** Healthcare providers along the I-26 corridor include, Trident Health in North Charleston and the Medical University of South Carolina (MUSC) and Ralph H. Johnson Veterans Administration Medical Center (VA Hospital) in downtown Charleston.

- **Training and Educational Center Connections:** There is a Dorchester Quickjobs Training Center located near St. George and a Dorchester County School District CATE center located in the town of Dorchester near the junction of US 78 and US 178. There are several other employment and non-profit resources located in the urban fringe, including SC Works, Trident United Way, and Goodwill.

4 TRANSPORTATION STRATEGIES DEVELOPMENT AND EVALUATION

The needs assessment along with one-on-one interviews, rural service employment and educational profiles, and additional stakeholder outreach helped to generally define the region's rural training and workforce challenges and opportunities. Following these analyses, potential measures of effectiveness (MOEs) for meeting the needs of the study and evaluating transportation strategies were developed. Several potential transportation strategies and other supporting strategies were also identified. The array of potential transportation strategies and MOEs were shared as part of Stakeholder Meeting # 2 to obtain additional feedback and direction on feasible solutions in the region to better link rural communities to training, education, and jobs. At this meeting, information was also shared on key nodes and corridors identified through earlier study efforts and to obtain additional confirmation on key origin and destinations to be served as part of regional rural transportation solutions.

Based on feedback received, consensus was reached on a preferred transportation strategy and additional analysis was conducted to further refine the preferred transportation strategy. These findings and recommendations were then shared with stakeholders as part of Stakeholder Meeting #3 to obtain additional feedback. Steps in these processes are further described and summarized in the section below.

It should be noted that providing comprehensive strategies for the region may in the longer-term involve a mixture of several of these transportation strategies to create a sufficient level of options for both rural and urban commutes and to meet a variety of specific travel needs and other considerations. Rural master planning efforts help to address the broader goals of connecting the rural area with transportation access. This study is focused specifically on identifying transportation strategies and further developing a preferred transportation strategy to address training and employment in rural areas of the region.

4.1 IDENTIFICATION OF POTENTIAL TRANSPORTATION STRATEGIES

Four broad initial transportation strategies were identified and reviewed with stakeholders and are described below in no order of importance. MOEs, identified as part of Stakeholder Meeting #2, are further discussed for each strategy and, alongside stakeholder input, helped to define a preferred strategy.

While no one transportation strategy may meet the needs of all potential system users, these strategies helped to frame an array of alternatives available and to allow for evaluation of potential strategies and selection of a preferred strategy to specifically address rural transportation workforce and training needs.

4.1.1 STRATEGY 1: EXPAND TCL SERVICE COVERAGE AND/OR FREQUENCY

Enhancing the frequency, modifying existing TCL deviated fixed-routes, or creating new TCL deviated or fixed-routes to service more coverage areas was identified as a potential strategy to leverage existing services. New seasonal or more specific modification of routes could be proposed to coordinate with training programs and durations. Currently, the local TCL routes may only operate once a day, while commuter routes operate either throughout the day or make one to two trips on their route, typically in the morning and evening. Providing more frequent service, particularly around shift schedules and along specific training and educational institution roadways could better connect rural populations to job skills training and employment opportunities.

TCL currently provides some shift employment services to employees (e.g., Santee Cooper) and was identified as a potential strategy to further connect clearly defined nodes in rural centers to employment hubs. Enhancing service areas of TCL routes or creating new routes within rural areas could also be considered. Several existing TCL routes offer services near industry employment hubs noted. Most notably, the C203 in eastern Charleston County provides services near several hospital employers like Roper St. Francis and MUSC as well as training and educational centers such as Trident Technical College Mount Pleasant and Wando High School. The D305 (Summerville Connector) provides service near manufacturing hubs like Boeing and could be modified to provide additional employment connections. Additionally, the D306 provides service between Summerville and St George and could be modified to provide additional service to Volvo. Additional coordination with specific employers and training centers to be served would be needed to determine exact routing modification and new routing needs.

4.1.2 STRATEGY 2: MICRO-TRANSIT/RIDE HAILING AND SHARING OPTIONS

Ride hailing or ridesharing companies, also known as transportation network companies (TNCs), are currently available within the region but are focused on individual ride hailing in urbanized areas of the region where there are more drivers to provide this service. These private companies match passengers with vehicles and drivers via websites and mobile applications on smartphones and are more cost effective for users than traditional taxi provisions, particularly in less populated and more economically disadvantaged areas.

In recent years, a number of TNC partnerships with local governments and non-profits have been made around the nation to coordinate existing transit services with more direct first and last mile connections to existing routes like TCL services or stops in the rural areas of the region and/or to provide free or reduced-price rides to low-income, and mobility impaired people. These programs also provide opportunities for employers to directly partner with TNCs to provide more specific services as well as other services to help agencies and others coordinate rides for those without access to smartphones and web services. New services have been developed with some of these TNCs specifically to partner with non-profits and government entities to support rides to and from job training programs, job interviews, and the first few weeks of employment.

4.1.3 STRATEGY 3: CAR SHARING

Car sharing strategies are part of larger trends in shared mobility solutions being offered by a variety of private entities across the nation. Car sharing is a type of car rental where people can rent cars for short periods of time, often just hours. Car sharing can be organized through provisions of cars by companies or public agencies, other cooperatives, or even individuals. Cars are made available to users in a variety of ways, most commonly using mobile applications that can unlock cars in real time to one on one meet ups with owners to exchange keys. Fleets of car shares could be made available at various centralized locations within a rural area, at existing or planned regional park-and-ride locations or arranged more independently.

While most car sharing arrangements across the nation require pick up and drop off of cars used at the same location, there are some arrangements such as those in Massachusetts, that have allowed for pick up and drop off locations to be different. This would be an important consideration for this strategy to work in the region since costs for these services are typically based by the hour and paying for services when they are parked is not desirable or cost efficient for users.

4.1.4 STRATEGY 4: NEW TRAINING AND EMPLOYMENT SPECIFIC CARPOOLS OR VANPOOLS

New carpool or vanpool options specific to meeting training and employment locations and needs were identified as another potential transportation strategy. This strategy would not replace existing TCL services, which meet an array of user needs in the region but would instead be focused on providing greater connectivity between rural residents and their training and employment transportation needs. Considerations for replacing TCL services with vanpools would require greater detailed route and service analysis and passenger surveys to demonstrate alignment with passenger needs and are beyond the scope of this larger regional study to link rural communities specifically to jobs and training. Public transportation serves many purposes for users that are not confined to jobs and training destinations.

New carpools or vanpools could provide rural communities with direct access specifically to jobs or training in the region and users could either meet up at specified locations for group pick-up service or provide direct services from rural user homes to job or training locations. Unlike enhancing existing TCL routes, this service would provide more direct access to jobs and training for this specific purpose and have limited intermittent stops between origins and destinations. Specific vanpools or smaller carpools could be scaled to serve a specific number of riders with the same or similar origins and destinations.

Several options for providing, operating, and managing carpools are possible, from independent or community-led van or carpools to employer-led services, BCDCOG operated or managed services, privately contracted services, or some combination of operations and management between agencies, private entities, and/or community organizations.

Community-led vanpools or carpools were considered early in strategy development. Under this option, churches or other organizations with existing car or van fleets could provide vehicles for this purpose or volunteer drivers to provide carpool or vanpool service. This option is challenging to implement with federal funding requirements. While vans or cars used may be considered safe and effective, to continue to utilize federal funding there are federal rules governing vehicle/fleet useful life standards as

well as Americans with Disabilities Act provisions that must be demonstrated. Additionally, drivers for any federally funded services must undergo background checks and have periodic driver training. Tracking to manage and demonstrate that these requirements are being met is challenging and would require enhanced coordination between agency staff and community organizations. If services were provided through 100 percent private funding, these requirements would not apply but costs for providing adequate insurance, fuel and other charges would be the responsibility of community led organizations. Additionally, this strategy is not scalable over time and does not provide the same level of reliability given their voluntary nature for service provision throughout the region. Given the complexities of administering this type of program with use of federal funds, the lack of scalability to provide greater services over time should the program be successful, and a need for greater reliability and consistency in service provision throughout the region, this option was eliminated from further consideration.

Employer operated and managed vanpools or carpools were also considered early in strategy development. Employers are direct beneficiaries of vanpools or carpools for their employees. There are two main challenges is implementation of new services by an employer. First, while generally employers in the regions were supportive of vanpools or carpools, employers are reluctant to provide these services themselves as a start-up service due to the costs of purchasing and operating vehicles and are not well-skilled in operating transit services. As such, they are often reluctant to expend the time and energy in managing these programs without demonstratable benefit-cost analyses. Secondly, to demonstrate that benefits outweigh or at least equate to costs incurred, employers often need to quantify the usefulness of these services. This is challenging for implementing new services since ridership estimates and benefits they receive from new pools of employees are not yet available. As vanpools or carpools are implemented and serve specific employers, a greater case can be made to demonstrate these benefits, but for new start up services like these, additional subsidy and investment from public agencies is needed first.

Two options for vanpools or carpools were further considered and evaluated with stakeholder input through this study: a BCDCOG-operated vanpool service or a privately contracted vanpool or carpool service managed through BCDCOG. An agency operated and maintained vanpool would function like other public transportation services in the region, and BCDCOG would be responsible for acquisition of new van fleets to provide the service and maintenance of vehicles. The agency would subsidize fuel, insurance, and maintenance. Drivers could be provided by BCDCOG at additional costs for drivers or drivers could consist of volunteers to lead vanpools, if they have a valid drivers' license and meet any other requirements established by the agency to provide safe and effective services.

A second option would use a contracted provider to provide vehicles on a monthly fee basis. Drivers would be users of the service, with valid drivers' licenses and who meet any other requirements established by BCDCOG and the operator. Additional costs to provide fuel and maintenance reimbursement and for insurance coverage would be needed to subsidize full costs of the service. While still heavily subsidized by BCDCOG, the agency benefits from not needing to purchase additional fleet and more expensive costs for staff to maintain fleets. Based on national experience, vans purchased by a transit agency range from $35,000 to $60,000 depending on vehicle size, make and model.

4.1.5 MEASURES OF EFFECTIVENESS DEVELOPMENT

Measures of effectiveness (MOEs) are tools used to frame the desired results of a proposed solution and help evaluate the effectiveness of strategies comparatively. MOEs are used to evaluate the effectiveness of strategies and support future decision making in determining how to modify, expand or reduce services in a measurable process. Based on stakeholder input and analyses undertaken, several MOEs were identified based on overall goals for service between rural communities and employment and training. These included:

- **Service Effectiveness:** Services need to be flexible to accommodate different training and job locations throughout the region and to provide different hours of service to accommodate different training or shift hours. For services to be effective, it also needs to be relatively fast and provide reliable and cost-efficient service. Some stakeholders also noted that some of the service needs for those seeking training or employment transportation could be short-term in duration and that service provided needs to account for shifting needs of users. They also noted that for some users, transportation is an obstacle in initially obtaining training and gaining employment but that over time some of these users would opt to purchase their own vehicle with money earned and no longer require transportation aid. Strategies that can be flexible to changing needs for service are therefore desirable.

- **Accessibility and Connectivity:** Services provided to link rural communities to jobs and training needs to be available and accessible to a broad array of users. The sparsely populated nature of rural areas often translates to fewer customers in any one service area and longer distances between rural areas and concentrations of training and employment. Strategies that can effectively connect sparsely populated rural areas and longer distance travel most effectively throughout the region are therefore desired. Strategies that can provide direct point to point access for users from their origins and destinations or those that can provide enhanced access to collective meet-up locations, such as park and rides or other community meet-up locations were determined to be more desirable.

- **Ease of Use/Effective Communications:** The ease of use and visibility of services is also important. Rural communities need to be aware of services available to them to take advantage of services available. Services need to provide multiple ways of requesting services, from cellular or smart phones to calling by telephone or requesting services by computer. Many stakeholders noted that broadband performance in rural areas is currently challenging and that rural communities needing access to training and jobs may not have access to cellular or smart-phones and that providing several ways to request and use services are desired. Strategies accommodating the potential for requesting services through cell phone, telephone, and computers were determined more desirable than those which rely on only one form of communication for accessing and requesting services.

- **Community Partnerships and Collaboration:** Leveraging partnerships between governmental agencies, training and educational organizations, and employers in the region are needed to meet joint goals and needs for linking rural communities to training and employment. Input from stakeholders and analysis in this study indicate that there is a need to better leverage and

combine efforts between governmental agencies and other training organizations and employers to develop a successful cost and service effective strategy. Strategies that can help leverage partnerships to share costs for services, promote the use of services, and that create a sense of joint community ownership of services are therefore desired. This sense of ownership of service relates to both provision of the actual service and coordination with other agencies as well as making users of the system feel a sense of community and partnership with each other. Two qualitative measures were used to evaluate the effectiveness of partnership and collaboration goals.

- In leveraging partnerships, strategies that can leverage cost sharing, that could involve joint promotion of services between agencies and organizations, and particularly where partners would have some level of responsibility in making the service successful were desired outcomes.
- In enhancing communication and collaboration among users, the ability of strategies to create a greater sense of community amongst users of the service was noted as a desired outcome. Strategies that can help to develop potential cohorts of users with similar destinations for work and training were determined to be more desirable that standalone, individual user-based services that would not promote creation of cohorts of users.

Costs are also an important consideration in determining the feasibility and to comparatively evaluate transportation strategies. Costs for both users and agencies were therefore also integrated into MOEs and further considered in evaluating strategies and selecting a preferred strategy.

4.1.6 STRATEGIES EVALUATION

For each of the MOEs identified, measures were developed to evaluate the effectiveness of each strategy on a qualitative high, medium, and low scale. High rankings refer to strategies with the greatest ability to meet goals for the service while low rankings least meet the goals of the study. These measures included both qualitative and quantitative considerations and served to communicate relative advantages and disadvantages of strategies to stakeholders and obtain additional feedback in selecting a preferred transportation strategy. Tables are provided for each of the MOEs to summarize factors included in evaluating each measure and for each strategy.

SERVICE EFFECTIVENESS AND ACCESSIBILITY/CONNECTIVITY EVALUATION

Measures of service effectiveness and accessibility and connectivity are interrelated factors and for the purposes of this evaluation included (1) directness of services to and from origins in dispersed rural communities across the region and an array of employment and training locations, (2) travel time and reliability, and (3) flexibility of services in meeting different training or educational times and worker shifts. **Table 6** provides further information and quantitative data, as available, for each strategy identified and evaluated. Assignment for a high, medium, or low ranking for each of these three variables was defined as follow:

Directness:

- High: Provides potential for direct point to point service from a rural user's home to a specific employment or training location

- Medium: Provides relatively direct services using a group meet up or drop off location, such as a park and ride lot or other community facility and can be scaled to community needs for cost efficiency
- Low: Pick up and drop off locations are only at standard stops or locations or may present other challenges in costs or operations to provide more direct service

Travel Time and Reliability:

- High: Comparable travel time to regular automobile travel in the region
- Medium: Like privately owned automobile travel but variable reliability due to unknown or external circumstances
- Low: Significantly slower than regular automobile travel

Service Flexibility (Time of Day Services):

- High: Can provide services at any time of day or night and weekends
- Medium: Can provide flexible service hours day or night and weekends, but external factors impact availability of services
- Low: Can provide service at more limited times of day and week and is constrained by costs or other external factors

Each factor was evaluated qualitatively and quantitatively, where possible, based on these thresholds. Using a quantitative score for each low, medium, or high ranking, an average overall score was established. Where average overall ranking was determined to be between low and medium or between medium and high, overall scoring is identified accordingly.

Table 6: Service Effectiveness and Accessibility Evaluation

Strategy	Service Effectiveness and Accessibility Considerations	Overall Effectiveness Ranking
Strategy 1: Enhance TCL Routes or Frequency	**Directness (LOW):** Because TCL routes serve a wide range of travel needs, frequent stops would still be likely between origin points and destinations. Group meeting places, such as park and rides, would help to alleviate some additional time for providing services to individual rural locations but would still require dispersed pick up points. While TCL routes currently provide some access to specific employer hubs, providing direct services to a host of training and employer locations throughout the region would require significant investments in more vehicles and direct services would not be efficient, since the efficiency of costs for the agency in providing these services is based on the number of aggregate users.	LOW
	Travel Times/Reliability (LOW): Due to frequent stops required for regular routes and the variety of origins and destinations that would need to be served, travel times are not competitive with automobile travel times. Additionally, costs for services are dependent on miles for service provided. Based on 2018 National Transit Database information, existing costs per revenue mile for TCL services is $2.67 per unlinked passenger trip. Trips become even more expensive to provide in even more remote rural communities given longer distances between origins and destinations.	

Strategy	Service Effectiveness and Accessibility Considerations	Overall Effectiveness Ranking
	Flexibility in Time of Day (LOW): Current TCL service is offered either once or twice a day or a few times per day and later evening. Enhancing frequency is costly. Based on 2018 National Transit Database information, existing costs per revenue hour for TCL services is $56.49 per unlinked passenger trip (e.g., this is the cost for each passenger boarding, meaning this cost is doubled for each round-trip passenger trip from home to work and back). Developing services to be flexible to time of day would further increase costs of service since costs for providing service are related to the number of passengers using the service.	
Strategy 2: Micro-transit or Ride Hailing Services	**Directness (HIGH):** Micro-transit or ride hailing services can provide direct service between rural resident homes and job or training destinations and do not require meeting up at centralized locations.	LOW to MEDIUM
	Travel Times/Reliability (LOW): Travel times for these services are comparable to single occupancy travel times. However, reliability of service is dependent on external factors, most importantly the number of available drivers. In rural areas, driver availability is often low, and this further impacts the timing for arrival of drivers and overall reliability of the service from day to day for users.	
	Flexibility in Time of Day (LOW): Like the directness of service, this strategy has the advantage of flexibility of service times since it is an on-demand service. Flexibility in time of day, however, is dependent on the availability of drivers and supply.	
Strategy 3: Car Sharing	**Directness (LOW):** Car sharing options provide cars at specific locations near commuting populations and employment hubs. Once accessed, cars provide direct service to and from desired locations. Accessing locations to make travel arrangements can be difficult if users do not own vehicles and locations are not in proximity of users. Given the distances between rural communities, this could impact directness of service.	LOW TO MEDIUM
	Travel Times/Reliability (LOW): Cars are available at designed lots for use, and once accessed, travel time would be like that of a privately-owned vehicle. Assuming that cars can be picked up and dropped off at different locations (as is preferred for this type of service in the rural area), there could be impacts to reliability since the number of cars available at any one location may differ depending on the day and uses of the service.	
	Flexibility in Time of Day (MEDIUM): Cars are available at designated lots at all times of day, providing flexibility in availability of the service at different times of day. However, like with reliability issues mentioned above, if cars can be picked up and dropped off at different locations, there could be variability in availability of a car at different times of day.	
Strategy 4: New Carpools or Vanpools	**Directness:** Carpools or vanpools would be organized by users with the same or similar destinations to provide greater direct connections between home and work or training locations, with limited stops. Groups would organize carpool or vanpools either directly from home or work and training locations or through use of group meet up and drop off locations.	MEDIUM to HIGH
	Travel Times/Reliability: Travel times would be relatively comparable with regular automobiles given the directness in origins and destinations served. Reliability of the service, however, is dependent on the availability of other users seeking the same travel arrangements. As use of the service increases, more vanpool or carpools would be available and enhanced reliability would be expected.	

Strategy	Service Effectiveness and Accessibility Considerations	Overall Effectiveness Ranking
	Flexibility in Time of Day: Like travel time reliability, flexibility in service time of day would be dependent on a group of users having similar travel needs at different types of day. Services would be available for different times of day if there are groups of people requiring service. The size of the vehicle could be customized based on users at a given time. Additionally, emergency ride home services are generally provided with vanpool strategies to aid in special cases where changes in service time needed occur.	

EASE OF USE AND COMMUNICATIONS

Visibility and the ways in which services can be accessed or requested are important elements impacting ease of use and communications. The following were defined to evaluate rankings of high, medium, or low on the ease of use of strategies.

Table 7 provides a summary of these considerations for each strategy.

- High: Services are highly visible to potential users and can be identified readily without additional direction from providers or other organizations to make them aware of service availability. Service requests can be made through telephone, computer, cell phone and other methods
- Medium: Services are generally visible to potential users but may require some additional searching or direction from providers or other organizations to make them aware of service availability. Service requests can be made through telephone, computer, cell phone and other methods
- Low: Services are not visible and service requests are made through less than three potential methods or require access to cell phones or smart phones and broadband access only

Table 7: Ease of Use and Communications Evaluation

Strategy	Ease of Use and Communication Considerations	Overall Effectiveness Ranking
Strategy 1: Enhance TCL Routes or Frequency	TCL routes can currently be accessed by "flagging" drivers at different points along a route. Some marked bus stops exist as well as park and ride lots to provide visibility for the service. Service hours and availability are less visible to potential users, but can be accessed through review of schedules on the computer, by calling for service, and through existing LowCountry GO cell phone/smart phone applications	MEDIUM
Strategy 2: Micro-transit or Ride Hailing Services	These services have gained popularity in recent years and are generally known to potential users, although visibility of the service is generally limited to review of available services on a cell phone or smart phone. The primary way to order these services is through cell phones/smart phones and additional support to help potential users request services is limited	LOW

Strategy	Ease of Use and Communication Considerations	Overall Effectiveness Ranking
Strategy 3: Car Sharing	These services are less popular and generally known outside of major metropolitan areas. Services are visible through signage at car sharing lots. Use of and requests for services are made through cell phone/smart phones only.	LOW
Strategy 4: New Carpools or Vanpools	This would be a new service and require additional marketing to enhance visibility of the service as well as additional signage should joint meet up and drop off locations be included in implementation. Availability and requests for services could be made on the computer, by calling for service, and through existing LowCountry GO cell phone/smart phone applications	MEDIUM

COMMUNITY PARTNERSHIPS AND COLLABORATION

The ability to obtain cost sharing in the short or longer term from private industry and the ability to foster community collaboration and use of services were identified as important goals for effective service strategies. **Table 8** provides a summary of these two coinciding considerations. The following criteria were used to evaluate the effectiveness of strategies in meeting these measures.

Partnership Opportunities:

- High: Partnership cost sharing opportunities are available and can be leveraged over time to provide greater private investment in services that directly benefit employers
- Medium: Partnership cost sharing opportunities are available but have not historically led to greater cost sharing with the private industry
- Low: Partnership cost sharing is limited or more costly in terms of subsidies needed to support the service in the near and long-term

Table 8: Community Partnership and Collaboration Evaluation

Strategy	Community Partnership and Collaboration Considerations	Overall Effectiveness Ranking
Strategy 1: Enhance TCL Routes or Frequency	**Partnership Opportunities (MEDIUM):** Partnerships with employers to share costs and offer additional services on TCL routes are available and could be further leveraged in expanding service area or frequency on specific routes. Employers can provide transit passes or funding for service as a fringe or before-tax benefit to their employees to encourage transit use.	MEDIUM
	Community Collaboration (MEDIUM): Stakeholders noted a desire for services that could help to create a sense of community between users of a service with similar training and employment needs to help empower communities and enhance success of services. The nature of public transportation lends to the ability for users with similar origins and destinations to interact but does not specifically advance community interaction. Users with different needs access public transportation and enhancing routes and/or frequency would not specifically help foster rural users seeking specific training or employment.	

Strategy	Community Partnership and Collaboration Considerations	Overall Effectiveness Ranking
Strategy 2: Micro-transit or Ride Hailing Services	**Partnership Opportunities (LOW):** Services like these have some ability to enhance partnerships but long distances, dispersed populations and small number of users, and variability in travel times associated with the service, may be less successful than partnerships that aim to address smaller first and last mile connectivity issues and shorter distance travel needs. These services are more expensive than regular public transit and offer fares like a taxi service. As such, they would require more expensive subsidies from cost sharing partners to make them affordable to users, especially if successful and if people take advantage of services. An average TNC ride, based on 2019 data from online sources like Ridester estimates average cost per mile (including booking fee) to range between $2-3 per mile. Given the long distances between rural areas and employment hubs, large subsidies would be needed to make this option comparatively affordable and attractive to users and establishing cost sharing in this amount would be more challenging than other services that can be offered at lower subsidized costs.	LOW
	Community Collaboration (LOW): While there are some pooled services available for options like these, there is no specific way in which users are matched up based on a "cohort" of users and enhancing community collaboration for joint training and employment needs is anticipated to be low.	
Strategy 3: Car Sharing	**Partnership Opportunities (LOW):** Similar to micro-transit or ride hailing options, services like these have some ability to enhance partnerships but long distances, dispersed populations and small number of users, and variability in travel times associated with the service, may be less successful than partnerships that aim to address smaller first and last mile connectivity issues and shorter distance travel needs. Costs per hour are very expensive, and according to a 2019 private vendor estimate, average $9/hour, with additional fees for monthly subscription services ($7/month), and an initial application fee ($25) for users. Subsidies and requests for cost sharing between agencies, employers, or training organizations would require greater contribution to offset costs to users and incentivize use of the service.	LOW
	Community Collaboration (LOW): Individualized car sharing services would not support the creation or additional fostering of community cohorts and collaboration amongst rural communities accessing training or employment.	
Strategy 4: New Carpools or Vanpools	**Partnership Opportunities (MEDIUM-HIGH):** Like enhancing TCL service areas and/or frequencies, partnerships with employers to share costs are available and could be further leveraged in developing specific partnerships with employers or training organizations. Employers can provide transit passes or funding for service as a fringe or before-tax benefit to their employees to encourage vanpool or carpool use. Employers realize some benefits to offering this incentive in a reduction in overall payroll taxes. Partnership in the long term could include larger cost sharing from the private industry as this service matures and as agencies can demonstrate quantitatively that employers are obtaining benefits of the service and that demands for serving their locations are high.	MEDIUM to HIGH
	Community Collaboration (HIGH): Because services are self-organizing between users with the same or similar training or employment needs, fostering of community ownership over the service and creation of new communities of users are greatest with this strategy compared to others evaluated.	

Community Collaboration:

- High: Specifically targets users with similar training and employment travel needs and helps to foster cohorts of users in a community
- Medium: Does not directly or specifically target users with similar training and employment travel needs but could be used to foster a community of users over time based on the service type
- Low: Does not promote more direct interaction between users with similar training and employment travel needs.

HIGH LEVEL COST CONSIDERATIONS

Comparing costs for differing strategies can be challenging because different strategies have different pricing calculation factors and can range depending on travel distance and time associated with individual trips as well as other external and specific calculations embedded into these. For a high-level analysis of cost considerations, data was gathered form a variety of sources to identify both costs to users as well as costs to providers for services. Some general assumptions were identified for each service to provide a general cost comparison per trip for a user so that comparative strategies could be compared, and additional qualitative considerations of additional costs relevant to specific strategies were also noted. High level costs considerations are summarized in **Table 9.** More detailed cost analysis and findings will be provided for the final preferred strategy.

Table 9: High Level Cost Considerations

Strategy	High Level Cost Considerations	Overall Effectiveness Ranking
Strategy 1: Enhance TCL Routes or Frequency	**Cost to Users (HIGH):** (Based on TCL Existing 2019 rates) • $2.25/trip ($4.50 roundtrip) • Weekly Passes: $18; Monthly Passes: $70)	MEDIUM
	Cost to Providers (LOW): (Based on 2018 National Transit Database data) • Fleet: $35,000-65,000 per vehicle • Operating Cost per Passenger Trip: $ 27.58 • Cost per Revenue Mile of Service: $2.67 • Cost per Revenue Hour of Service: $ 56.49	
Strategy 2: Micro-transit or Ride Hailing Services	**Cost to Users (LOW):** (Based on average Uber rates calculator) • $20-40/trip (Assuming $2/mile base rate with booking fee and 10- to 20-mile distance)	LOW
	Cost to Providers (LOW): • No additional fleet needs or operations and maintenance costs • Costs for subsidizing trips, assumed to be 75% of trip cost to make service successfully used - $15-30 per trip, similar to operating cost per trip as TCL routes • Subsidizing costs increase to agencies with greater use by rural community	

Strategy	High Level Cost Considerations	Overall Effectiveness Ranking
Strategy 3: Car Sharing	**Cost to Users (LOW):** (Based on 2019 private vendor website data) • Average $9/hour (based on standard car rental, higher for SUVs and larger vehicles • Monthly User Fee: $7/month • Initial Application Fee: $25	LOW
	Cost to Providers (LOW): • No additional fleet needs or operations and maintenance costs • Costs for subsidizing trips, assumed to be 75% of trip cost to make service successfully used – for a one-hour, one-way trip = $6.75 per trip • Subsidizing costs increase to agencies with greater uses	
Strategy 4: New Carpools or Vanpools	**Cost to Users (HIGH):** (Based on 2019 private vendor data and similar agency costs) • $1,000-$1200 per month for vans seating between 7 to 12 passengers • $120 to $170/month Costs are approximate and range from 6 to 10 passenger vanpool use of service • $3.00 - $4.25 cost per trip: (assumed at 5x per week over 4 weeks in a given month – all costs are calculated using monthly estimates of rentals)	MEDIUM to HIGH
	Cost to Providers (MEDIUM): • Additional fleet costs: $35,000-65,000 per vehicle if owned and operated by agency • Lesser capital costs if leasing vehicles and less staff costs for operations and maintenance of vehicles • Additional costs for subsidizing service costs – fuel, and other regular maintenance payment	

4.1.7 STAKEHOLDER FEEDBACK AND SELECTION OF A PREFERRED STRATEGY

Based on feedback received during Stakeholder Meeting #2, direction was provided on a preferred transportation strategy to meet rural workforce and training needs. While stakeholders were generally receptive to all transportation strategies provided, during breakout sessions consensus was reached with stakeholders that moving forward with a carpool and vanpool-oriented strategy would best meet rural workforce training and job transportation needs. Stakeholders suggested that this option provided not only more flexible and reliable services but had the potential to incorporate employers to support these transportation strategies and could help to establish the types of "cohort" models desired to bring a sense of community to rural workers seeking transportation options to meet training, education, and job placement needs.

Another key element of feedback received from stakeholders on the preferred strategy was a desire to focus on either geographic or industry-specific pilot programs to better facilitate the enhanced coordination that would be needed between BCDCOG, employers, education and training coordinators, and economic and employment partners. When asked about which industries to focus on, there was consensus that focusing on manufacturing, healthcare, and/or technology/IT industries would best align with regional forecasts for growth and needs for further skills training opportunities.

OTHER SUPPORTIVE STRATEGIES

Several additional supportive strategies were identified and supported by stakeholders in the development and implementation of the preferred strategy. Stakeholders reiterated the need for integration of technology, such as BCDCOG's LowCountry Go application, leveraging partnerships between agencies and the private sector and developing a strong communications, coordination, and marketing strategy as key elements of a successful implementation plan. These are discussed in further detail below.

TECHNOLOGY INTEGRATION AND EXPANSION

The need for accessible technology and an integrated platform with all transit-relevant information was underscored in all stakeholder meetings. LowCountry Go is a BCDCOG program which helps with scheduling and planning commutes. It is currently comprised of a website as well as an online mobile application that houses available transit options in the region. As workforce transportation and other regional and rural master planning efforts are initiated, there is a desire by stakeholders to expand and integrate the LowCountry Go platform to include proposed vanpool programs, transit routes, commute options and other subsidy and payment information. This existing platform could be leveraged and integrated with other activities like creating carpools or vanpools, making payments, identifying available transportation options for specific trips. While not all rural workforce and training users may currently have access to these technologies, creating a comprehensive one-stop source for accessing available transportation options in the region is desired to provide greater flexibility to both transit-dependent and choice riders throughout the region and could be used in tandem with telephone reservation systems and other ways to coordinate rides for technologically disadvantaged people. Additional public relations campaigns and making the application comprehensive in terms of options available are important in enhancing awareness and use of this application in the region.

Additionally, coordinated efforts in the region to enhance the accessibility of broadband service in the region and make cell phones more available are also desired to more fully integrate services and provide transportation choices. There are some government programs available that provide cell phones to low-income and disadvantaged populations, and there is also a potential for employers to partner with agencies provide basic work smart phones and phone lines either on a temporary or permanent basis to provide greater access to this technology and transportation services. Training/educational partners in the region noted that they could help to train members of the community that may need help learning how to use these technologies as well.

LEVERAGING PARTNERSHIPS – SUBSIDIES AND INCENTIVES

The *Internal Revenue Service (IRS)* provides employees with a qualified transportation benefit pre-tax contribution for transportation. Various third-party providers like WageWorks can help process such pre-tax deduction for commuters. It will be instrumental to direct employers to relevant agencies and foster partnerships for pre-tax deduction on commuter expenses. Further educating riders on the commuter benefits and diverse transit options could boost participation in these programs.

Employers and agencies can incentivize daily commuters in the form of subsidized daily or monthly passes and commuter benefits. Providing incentives to employers for participation in these programs can promote intra-regional partnerships. This could be in form of 'preferred memberships' or based on

'premium location.' Such strategies would provide greater private sector buy-in. Employers can also create and/or promote programs for group carpooling. This will also be a good source of user data for future project needs in the region. By leveraging grant funding, private sector funds, existing transportation stipends, and other tax resources, a shared cost for providing additional services can be obtained.

Enhancing Communication, Coordination, and Outreach

Communication was identified as a key barrier in both connecting rural communities with information on job and training opportunities and transportation options available. Closer coordination with employers and training or educational providers is needed to help develop transportation solutions that accentuate job shifts and training/education programs.

To coordinate training and employment, efforts should focus on developing and promoting a cohort model for trainees and employees. This could be a part of the future communication strategy between training programs and their candidates to allow people to sync up with fellow commuters from origins to destinations. Flexible scheduling options would be preferred by most employees and should be considered. Industries that may be able to provide flexible work schedules and telecommuting options for work should be considered.

To promote greater coordination and outreach to rural workforce and training applicants, churches and other local community organizations are key partners to integrate into outreach and relations campaigns. These local, grass-roots organizations can be very effective at reaching the rural workforce, but communication needs to be consistent and repeated over time. Communities that are not well connected to technology could be provided with pamphlets, paper registration forms, and newsletters or other traditional forms of communication at local centers to inform residents about jobs, training, and transportation opportunities. One common element in most of the above options is a strong need for communications to be consistent and reliable; this is to ensure that commuters are aware of training, jobs, and transportation options available to them. The idea is that once you obtain critical mass in communications and it is reliable, the program becomes self-sustaining.

Additionally, coordination between training, education and employment centers to address other external challenges for rural workers, such as childcare provision, was also raised as an issue requiring additional support in developing comprehensive solutions. Expanding or better integrating childcare service options with training and workforce solutions was desired by stakeholders to more comprehensively address transportation needs. Coordinating with employers, training and educational centers, other childcare organizations and private entities to provide coinciding and reliable childcare facilities could also support greater rural workforce and training participation.

4.2 PREFERRED ALTERNATIVE REFINEMENT

Stakeholders did not indicate a preference on the proposed operational structure of a carpool or vanpool service. As noted earlier, there are two main operational structures that could be used for implementing the preferred transportation strategy in the region: BCDCOG could purchase fleets and manage services or could contract out to a private vendor for this carpool/vanpool fleet and coordinate and manage services. To provide the greatest flexibility possible in how this program is implemented,

both options and high-level planning costs are presented in this final report in **Chapter 5**. Each of these types of services have been employed successfully in a variety of places across the nation. Some of the most successful vanpools in the nation, like those that operate in suburban areas outside of Seattle, Washington and Chicago, Illinois have tended to be agency-operated services. These service models allow the agency to work more closely with elected officials, other agencies and the community to tailor and customize solutions and monitor service performance more closely than privately operated models allow. Federal subsidies and grants can help to support services like these relatively easily. Disadvantages are that the agency assumes all costs and risks of the service and staff resources must be dedicated to coordinating services on a day to day basis.

Privately operated options are also prevalent across the nation. Services such as these have been initiated in several places across the nation, including in rural areas of North Carolina (GoTriangle), Pennsylvania, and New Jersey. These outsourced services mean that the agency does not have to maintain and directly coordinate services, leading to a more administrative role in coordinating the vanpool program. The agency still typically addresses costs for liability and insurance and coordinates all contracts. Vanpool fleets can also be changeable and more flexible in that users can pick a van or car size that is appropriate to the number of users of the vanpool. This model still requires regular day to day BCDCOG support to help coordinate the service, work with the vendor, and to support the successful implementation of the program. Establishing websites, call centers, and other mobile applications to match riders with available services would still need to be coordinated through the agency.

Capital costs and operations and maintenance costs would have different implications for each of these options. Capital costs per vehicle for purchasing vehicles can range from $35,000 to $65,000 based on national averages and procurement of vehicles by an agency generally takes 12 to 18 months. Purchasing vehicles is costly and contains several risks for implementation of a new service like this. Each new vehicle procured represents not only an investment of capital outlay, it includes greater operational and maintenance costs associated with maintaining this asset. Operations and maintenance costs to an agency are ongoing and funding assistance at a federal level for operations and maintenance are more limited than assistance for one-time capital purchases.

While there are high-level cost comparisons possible between purchase and leasing options when capital and operational costs are combined and calculated, these are not the only consideration for whether to lease or purchase vehicles. Funding availability and resources for both capital and operating expenses can differ between purchasing and leasing options and funding resources available. Addiitonally, the level of subsidy provided to users to off-set costs for either option varies over time and may influence cost comparison between options. The goal of successful carpool or vanpool services in the region should be that they are self-sustaining and pay for themselves over time. While this is a long-term goal, monitoring ridership and subsidies and incentives against the costs to provide and manage service operations is important to ongoing monitoring of a cost-effective system. Should vanpool or carpool demands from specific service areas and at specific times of day grow to more than 50 to 60 passengers served from a specific location and time of day (i.e., the loading limit of a large bus), fixed route express services could be further considered and evaluated against costs of vanpools versus providing capital and operational costs of new fixed routes.

5 IMPLEMENTATION, COSTS, AND FUNDING CONSIDERATIONS

Developing a regional strategy to better connect rural areas with training and employment opportunities in the region is the key purpose of this study. Based on the evaluation of potential strategies, stakeholder input, and additional considerations on how to operate a new vanpool or carpool program, the preferred strategy to move forward is a new vanpool or carpool service with a contract agreement a private vendor to provide fleets. BCDCOG would help to coordinate these services and manage these contracts and help to incentivize participation by employers.

Implementation of this regional strategy will require greater and more focused outreach and partnerships between agencies, organizations, and specific employers. As such, incremental service implementation is recommended and further described in this section. High level planning costs for implementation and potential funding opportunities are also provided.

5.1 INCREMENTAL IMPLEMENTATION OF THE REGIONAL STRATEGY

Establishing a demonstration pilot vanpool is recommended first to fully develop the vanpool service and needs, and then services could be expanded to serve all regions. This allows lessons learned to be identified along the way that may have cost and success related impacts in the region. As vanpool demonstration projects are identified to move forward, coordination with other transportation agencies, such as SCDOT, are also recommended to further support vanpool costs and time saving benefits. Often, the most successful vanpools in the nation are ones that provide these services alongside use of high occupancy vehicle (HOV) lanes and other transportation demand strategies.

Analysis conducted as part of this study help to define four rural service areas for vanpool or carpool programs: Berkeley County, western Charleston County, eastern Charleston County, and Dorchester County. Within each of these rural service areas, a variety of vanpool or carpools are possible and would focus on linking potential users to manufacturing, health care, and/or training and educational centers. Employment hubs identified included manufacturing concentrated employment along Palmetto Commerce Parkway, concentrations of healthcare providers and employment along US 17 and near North Charleston, and different training and educational centers located near each rural area as well as near these manufacturing and healthcare hubs. These are not all—inclusive of potential carpool or vanpool services that could be offered throughout the region but represent a starting place for more detailed discussions with specific employers and training or education centers to implement and identify demands for service.

A total of 14 potential service areas from each of the four rural areas to these major employment or training locations have been identified as part of this study: four in Berkeley County, three in western Charleston County, three in eastern Charleston County, and four in Dorchester County. Depending on

actual user demand for services to specific locations, the number of vanpools needed would be expected to increase over time.

To make these services as cost and service effective as possible and meet actual demands, beginning regional implementation with a demonstration pilot program is recommended. The demonstration pilot program could be implemented in a few ways:

- Demonstration of a pilot vanpool or carpool program could be established in each of the four rural service areas defined in this study and focus on further coordination and partnerships with a specific industry cluster, such as manufacturing along Palmetto Commerce Parkway or Healthcare Providers along US 17 and in North Charleston.
- Alternatively, a pilot vanpool or carpool could be established in each of the rural service areas and focus on coordination with a specific employer. Volvo was identified as a nearby manufacturing employment location, for instance, in Berkeley and Dorchester counties, and is an employer that is expected to increase its needs for workers in the near-term as they expand the Volvo Berkeley County plant location. Implementation first in Berkeley and Dorchester Counties, where distances are shortest between rural areas and this employment location could be prioritized.
- Demonstration of a pilot program vanpool or carpool could focus on one of the rural service areas defined (Berkeley, western Charleston, eastern Charleston, or Dorchester County) and implementation could include work with one or more the concentrated manufacturing and healthcare hubs along Palmetto Commerce Parkway or along US 17 and in North Charleston, respectively.

The number of vans or cars needed, and local support for these programs should dictate what demonstration program is chosen and high-level planning costs are provided. The advantage of implementing the carpool/vanpool service incrementally through demonstration projects is the ability to more closely work with employers and training organizations to make the service successful, and to apply lessons learned in implementing this service on a region-wide level.

5.2 PLANNING LEVEL COST ASSUMPTIONS

Several costs can be anticipated depending on the level of investment and implementation of a demonstration pilot program and some of these high-level costs are identified below. While this may not be all-inclusive of cost items for specific demonstration pilot programs, these are the most important cost considerations in developing a successful program.

5.2.1 VANPOOL FLEET COSTS

Vanpool fleet costs differ depending on whether a leasing or purchasing option is pursued.

VANPOOL FLEET PURCHASE COSTS

As noted earlier, fleet purchase costs may differ depending on the make and model chosen and the desired fleet capacity. Based on nationwide experience, costs can range between $35,000 to $60,000 per vehicle. Given most recent estimates provided by BCDCOG, vehicle costs are expected to be closer to the higher end of this range for purchasing. FTA useful life standards are available and help to estimate the general lifespan of vehicles before they require replacement. Based on a standard minivan or van vehicle type, an eight (8) year lifespan is assumed. This lifespan reflects the need for BCDCOG purchased vehicles with federal funds to meet specific standards and ratings for vehicle condition. It should be noted that the typical procurement timeframe for transit agency fleet implementation (from purchase to operation) takes between 12 and 18 months.

Potential Costs: $51,000 per vehicle, average eight-year lifespan before replacement.

VANPOOL LEASING OPTION COSTS

Pricing for leasing vanpools varies depending on the type of vehicle, the monthly commute miles, and the number of people in a vanpool. Based on most recent estimates obtained for the region from a private rental car/van vendor, the typical cost of leasing a van, not including gas, can range between $1,200 and $1,500 per month per vehicle to accommodate fleets holding between 7 and 15 passengers and is shared between users of the system and through the level of agency-desired subsidy to riders. The more riders, the lower the cost per person. Based on an examination of other services in the nation, monthly costs for users of a vanpool are between $80 and $150 per month depending on distance and number of users. Monthly subsidies can be offered to reduce the cost of a vanpool or provide free short-term subscriptions for trainees or workers.

Potential Costs: $1,200 - $1,500 per vehicle per month (equates to $14,400-$18,000 per year per vehicle) – does not include fuel and other routine maintenance costs

5.2.2 RIDE MATCHING SOFTWARE

Paid software services are available and most typically used to manage data collection and matching riders to available vanpools. Costs will depend on the level of functionality that is desired and other factors. For instance, there are static applications to match people to a vanpool or more dynamic and real-time assignments of passengers to services. No one data source is available to estimate these costs since they are tailored to service needs and handled through private vendors. Estimates of potential costs here are based on national experience and to provide a reasonable range of potential costs. As implementation planning occurs, obtaining more refined costs based on the scale and needs of software platforms will be needed. As BCDCOG considers these options and works with vendors, they could consider also linking ride match software to the LowCountry Go application and providing some additional marketing services on websites and applications to better manage marketing programs to support use of the system.

Potential Costs: $30,000-$50,000 (initial cost, assumes development of an overall ride matching software throughout the region). Annual subscription costs of $25,000-$50,000 depending on software company and platform. A $30,000 initial and annual subscription rate is identified based on BCDCOG recent experience with software vendors for planning level cost estimation.

5.2.3 VANPOOL OPERATIONS AND MAINTENANCE COSTS

Operations and maintenance cost estimates are based on different assumptions, as discussed below.

PURCHASE OPTION – OPERATIONS COSTS

Operations and maintenance costs should BCDCOG choose to purchase vehicles are based on a review of directly operated and purchased transportation experience with transit agency vanpool operating costs across the country as reported by 2018 National Transit Database (NTD) information. For the purposes of this planning-level estimate and based on a high-level analysis of comparative vanpool experience across the nation, operating costs per van in a year can range between $13,156 and $14,605 per year and an average of $13,881 was used for conservative estimation. This is assumed to not include fuel and regular maintenance costs, such as tires and oil changes, and those would be incurred by vanpool drivers as noted below in leasing options cost assumptions. These costs are assumed to not include any costs for drivers, and drivers would be approved users of the vans. It should be noted that over time, operating costs could increase as aging vehicles may require more than standard regular maintenance assumed in this planning-level estimate.

Potential Costs: $ $13,881 per vehicle per year based on NTD data analyzed on similar vanpools across the country.

FUEL AND REGULAR MAINTENANCE

Fueling and regular maintenance from wear and tear of vehicles are not included in costs for leasing or purchasing options and would be the responsibility of vanpool drivers. Vouchers or credit cards can be provided to users for these regularly incurred costs. Costs will depend on the number of vanpools or carpools in operation and actual origin and destination distances. For the purposes of high-level cost estimating, re-fueling costs assume $60 per week per vehicle over 52 weeks in a year. Oil changes are anticipated on a schedule of every three months (four times per year) at an average cost of $35 per vehicle, and regular maintenance such as carwashes, tire replacement, or other general maintenance assume a contingency of $500 per vehicle per year as these costs cannot be easily quantified.

Potential Costs: $3,760 per vehicle per year

5.2.4 INSURANCE COSTS

Insurance costs for vehicles are not included in purchase costs or general leasing terms and can be arranged with a company that is contracting vehicle leases or separately with other insurance providers. Costs for insurance vary depending on the type of vehicle, make and model, and other factors such as driver history and trip purposes. This high-level cost estimate is based on outreach to insurance providers on anticipated costs in current year dollars, considering differences in vehicle types and for commercial services like these. As part of implementation, obtaining more detailed insurance costs with potential providers should be conducted. There may be additional cost savings possible for obtaining a group insurance policy for multiple vans or cars and this should also be explored in obtaining actual quotes for rates and annual costs. This outreach to vendors will also help to determine any additional requirements desired for drivers of a vanpool/carpool to keep insurance costs within reasonable ranges and provide safe services. Insurance rates were based on online research of insurance service providers for a range of vehicle types, including minivans as well as SUVs. SUVs tend

to be more costly for insurance and should be considered in selecting vehicles as part of implementation planning.

Potential Costs: $165-430 per month per vehicle, or $2,000 to $5,200 per year per vehicle

5.2.5 STAFF AND OFFICE SUPPORT COSTS

Successful vanpool coordination requires dedicated staff to support the program and initial start-up staff time may be more intensive. Programs often use one staff member to oversee operations, budgets, and governmental and contractual relations and existing staff within the BCDCOG could potentially be used or may require additional staff investments. Additional call center staff may also be necessary if telephone reservation demand outpaces online reservations in a service area. If operated and maintained by the BCDCOG, there could also be additional maintenance staff needs as vanpools grow in the region. Potential costs are based on national averages of different position types, from customer service to logistics coordinators, to account for differing levels of staff support that may be needed. These costs assume not just staff salaries but also attempt to account for additional costs to the agency for fringe benefits of new staff as well.

Potential Costs: $50,000-$85,000 annually for additional staff support; additional $3,000 assumed for contingency in office supplies, printer/copier fees, and printing/graphics needs

5.2.6 EMERGENCY RIDE HOME PROGRAM COSTS

Guaranteed rides home provides the level of flexibility needed to support commuter vanpool services like these. These services reimburse users of the vanpool for any costs for transit, taxi, or TNC services due to unexpected or emergency situations. These types of benefits are typically constrained to a certain number of uses in the year by users of the vanpool to control these costs. Costs can vary depending on how much this service is needed or used each year. Limits may be imposed on how many times a customer could use this service.

Potential Costs: $25-100 per claim, depending on the emergency service distance and type of service provided to meet emergency ride home needs

5.2.7 MARKETING BUDGETS

Marketing will be essential to the success and use of this service investment and to increase visibility, knowledge, and ease of use of the vanpool program. Especially as demonstration pilots and start-up of the service is initiated, allocating money towards marketing will be greatest. A standard rule of thumb for transit service marketing budgets is to allocate between three and five percent of overall budgets for marketing efforts. An estimate is provided here based on professional planning judgment and experience on start-up costs and will need to be further developed based on the identified demonstration pilot program and overall budgetary needs.

Potential Costs: $50,000 in upstart; 3-5% of annual operating budget for ongoing marketing (for this program)

5.2.8 SUMMARY OF ANTICIPATED COSTS

High level cost assumptions for this service are provided for both capital costs and operational and management costs for initiating a demonstration program. These are based on an anticipated annual cost. Actual costs will depend upon the number of vehicles desired for the first demonstration program, desired expansion of the program over time, and fluctuating costs, like emergency ride home claims and payments, insurance and claims, and other items that can be more accurately projected following implementation. This cost estimate provides a high-level assumption for costs of implementing services and will need to be refined as part of the implementation program defined in the next section of this report. Because both operating and capital costs vary and are contingent on the number of vehicles in service, for this high-level cost breakdown, costs have been assumed at varying levels of investment, including buying or leasing and implementation of four, eight, or 12 vehicles. This provides an overall understanding of both capital and operating costs depending on the level of initial investment made in developing a demonstration project and in expanding the program over time. A minimum of four vehicles, which could be combination of six- to 12-passenger vehicles, is assumed based on the four major rural service areas defined in this study. Further implementation planning will determine the appropriate number of vehicles for a demonstration project and in defining future needs and expansion.

CAPITAL COSTS

For the purposes of establishing comparative costs, capital costs are assumed to include costs for purchasing or leasing vans/cars and initiating ride matching software costs. Some maintenance costs are embedded into the costs for leasing vehicles since leased vehicles would be replaced with other available rental vehicles if found to have deficiencies, such as when brakes are worn or age. Annual operating costs for ride matching software subscription services are included in annual operating cost assumptions and would be the same for either the purchase or lease vanpool options.

Capital costs for purchasing vans are assumed at $51,000 per vehicle based on national and local experience and can vary by make, model, and year purchased. Vehicle life is assumed as eight years for purchased vans or minivans based on FTA useful life benchmarks for this vehicle type.

While capital costs for leasing will vary based on the capacity and make and model of vehicle leased, an average of the anticipated range of costs associated with leasing ($1,300 per vehicle per month) are assumed for high level cost estimating purposes. The number of vans to be purchased initially will be contingent upon further implementation planning for a demonstration program in the region that can then be expanded based on additional outreach to more employers and other partners in the region. To provide a general sense of anticipated vehicle. These costs do not estimate how much of the actual costs for leasing vehicles could be subsidized by employer benefit programs. While local governments and agencies may have to initially pay for these costs, the longer-term goal of these services should be to be self-sustaining with private employers helping to pay some portion of these costs incurred for providing the service and enhancing contributions over time as demands for service can be demonstrated to specific employers.

Rideshare matching software, discussed above, is an additional capital investment cost. As noted above, these costs can vary depending on functionality. Needs and service area covered, and full scope and

costs will need to be confirmed and coordinated with vendors. For the purposes of this high-level estimate, an initial cost of $30,000 is assumed based on existing vendor contracts BCDCOG current has experience with. A $30,000 annual subscription fee is assumed based on a review of available vendor pricing information and BCDCOG experience.

Table 10: Annual Capital Costs Assumptions (For Four, Eight, or Twelve Vehicle Implementation)

		Four Vanpools	Eight Vanpools	Twelve Vanpools
Vehicle Fleet Costs*	*Vehicle Purchase Cost*	$204,000.00	$408,000.00	$612,000.00
	Leasing Vehicle Cost	$62,400.00	$124,800.00	$187,200.00
Ride Matching Software		$30,000.00	$30,000.00	$30,000.00
GRAND TOTAL:	**Purchase Option**	**$234,000.00**	**$438,000.00**	**$642,000.00**
	Lease Option	**$92,400.00**	**$154,800.00**	**$217,200.00**

**Vehicle purchasing and leasing options differ in how capital costs are incurred. While purchasing vehicles requires up-front capital investment reflected here, van life extends up to 8 years. As such, while vehicle leasing costs may appear less expensive, when considered across an eight-year life cycle, they are approximately 2.5 times more expensive than purchase costs. At the same time, some larger vehicle maintenance or replacement costs are embedded in leasing prices, so if a vehicle is no longer in good condition, it is replaced for users without additional maintenance cost to the agency.*

As more detailed implementation planning occurs, any needed park and rides for mutual pick up or drop off locations may be determined needed or desirable. Park and ride location and evaluations were not part of this study and would need to be coordinated with other ongoing park and ride study plans in the region to coordinate with services. Initial start-up services do not assume costs for park and rides, which can vary in cost for implementation based on the location and work needed on site. If desired, park and rides would increase capital costs. Interim and low-cost solutions, such as working with and using church, or other community organization sites, are possible and further discussed in the final section of this report.

OPERATIONAL COSTS

Operational costs differ between purchase and leasing options, as noted in **Section 5.2.3** above. While the first demonstration program will determine the number of vans and help to further refine operational costs, this estimate provides examples of costs associated with initial implementation of either four, eight or twelve vanpools for comparative purposes and to provide further insight on how the number of vans may impact operational costs over time. As can be seen, as more vehicles are operated, certain costs, such as operational and maintenance costs, emergency ride home payments, and insurance, increase. This underscore the need for developing cost sharing opportunities with employers and enhancing contributions over time to create self-sustaining services.

An average cost of $50 per claim was used to estimate emergency ride home costs. Up to three emergency ride home claims annually per user were assumed for this cost estimate, and users in each vanpool were assumed to be six. These costs could be higher or lower depending on the number of claims that will be allowed under the program and actual implementation experience. Insurance costs for a leasing option were assumed to be at the higher level of estimated costs, approximately $430 per month per vehicle (or $5,200 annually) given unknowns about actual insurance coverage rates. These

costs may vary depending on actual vehicles utilized and arrangements with insurance companies. Some additional costs for office equipment, printing, and supplies are included as a flat fee and these costs should be refined as part of implementation planning, as plans and responsibilities for marketing and outreach are further detailed. A planning level contingency of five percent of total initiating capital and operating costs combined was assumed given additional unknown factors that may be associated with costs for operating the service beyond those identified here.

Table 11: Purchase Option: Annual Operating Cost Assumptions (For Four, Eight, or Twelve Vehicle Implementation)

	Four Vanpools	Eight Vanpools	Twelve Vanpools
Operations Costs (Agency)	$55,522.00	$111,045.00	$166,567.00
Fuel, Maintenance Costs	$15,040.00	$30,080.00	$45,120.00
Rideshare Software Subscription Fees	$30,000.00	$30,000.00	$30,000.00
Staff Support	$65,000.00	$65,000.00	$65,000.00
Office Equipment, Printing, Supplies	$3,000.00	$3,000.00	$3,000.00
Emergency Ride Home Claims/Payments	$2,400.00	$4,800.00	$7,200.00
Marketing Budget	$50,000.00	$50,000.00	$50,000.00
Additional Insurance Costs	$20,800.00	$41,600.00	$62,400.00
Planning Level Contingency (5% of total costs)	$12,088.10	$16,776.25	$21,464.35
GRAND TOTAL:	**$253,850.10**	**$352,301.25**	**$450,751.35**

Table 12: Lease Option: Annual Operating Cost Assumptions (For Four, Eight, or Twelve Vehicle Implementation)

	Four Vanpools	Eight Vanpools	Twelve Vanpools
Fuel, Maintenance Costs	$15,040.00	$30,080.00	$45,120.00
Rideshare Software Subscription Fees	$30,000.00	$30,000.00	$30,000.00
Staff Support	$65,000.00	$65,000.00	$65,000.00
Office Equipment, Printing, Supplies	$3,000	$3,000	$3,000
Emergency Ride Home Claims/Payments	$2,400.00	$4,800.00	$7,200.00
Marketing Budget	$50,000.00	$50,000.00	$50,000.00
Additional Insurance Costs	$20,800.00	$41,600.00	$62,400.00
Planning Level Contingency (5% of total costs)	$8,272.00	$9,144.00	$10,016.00
GRAND TOTAL:	**$194,512.00**	**$233,624.00**	**$272,736.00**

5.3 FUNDING CONSIDERATIONS

5.3.1 LOCAL GOVERNMENT AND EMPLOYER CONTRIBUTIONS

In services such as these, local governments and transportation agencies can help to subsidize costs, including liability and insurance coverage and to support costs to users. These can include a variety of local partner and employee subsidies and should be developed as part of demonstration pilot programs. In a number of cases around the country, successful implementation of these services has involved some level of cost sharing with users of the system, but longer term the service is 100 percent funded through cost sharing between employers, other agencies, and employees that choose to use the service. At initial stages of development and implementation of a pilot demonstration project and as costs for the service are more accurately forecasted, coordination with specific employers and training/education centers should be undertaken to identify the level of subsidy that will be available.

AGENCY AND EMPLOYER CONTRIBUTIONS OR SUBSIDIES

Stakeholders indicated that transit subsidies are available to some existing training and educational that may be used to create short-term vouchers or free monthly subscriptions for users. As of 2019 commuter benefits are no longer tax deductible for the employer; however, costs of the service for users can also potentially be offset by employers, who can obtain tax benefits via lower FICA taxes on the salary reduction amount of the cost of the service to employees. The current federal mandated limit for pre-tax contributions to commuter benefit accounts by employees has increased to $265 per month in 2019. Employers within the region willing to provide these types of subsidies should be identified. Given the anticipated monthly user fees of between $80-$150, a combination of existing training or education subsidies and contributions from major employers could help to subsidize up to 75 percent of user costs. Additional partner support could help to provide short-term, free services to training and jobs as well.

COUNTY CONTRIBUTIONS AND SUBSIDIES

Some counties may choose to enact a transportation local option sales tax. Revenues from the tax could be used to fund vanpool programs within the respective county. This tax is imposed specifically to defray the debt service on bonds issued for transportation projects in the counties that impose this type of local tax. The South Carolina Department of Revenue (SCDOR) collects this tax on behalf of these counties. This local sales tax, not to exceed 1 percent, is used for transportation needs such as roads and bridges. This tax may be imposed in addition to the local option sales and use tax. Charleston and Dorchester Counties first enacted this tax in 2005. Berkeley County followed in 2009. Charleston County renewed its 0.5 percent sales tax in 2017. A potential vanpool project would need to be added to a referendum question upon renewal of local option sales tax in each respective county.

5.3.2 GRANT FUNDING OPPORTUNITIES

In addition to local partner support to offset user costs for participating in a vanpool program, there are also potential state and federal funding and grant opportunities as well as other unique funding sources that could be used to help support start-up and implementation of a vanpool demonstration pilot program or programs.

FEDERAL AND STATE GRANT SOURCES

FEDERAL TRANSIT ADMINISTRATION COMPETITIVE GRANTS

1. **Integrated Mobility Innovation:** This competitive grant program funds projects that demonstrate innovative and effective practices, partnerships and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety and improve the traveler experience. In 2019 the program funded $15 million for demonstration projects focused on mobility on demand, strategic transit automation research and mobility payment integration. One of the goals of the program is to explore new business approaches and technology solutions that support mobility, as well as to enable communities to adopt innovative mobility solutions that enhance transportation efficiency and effectiveness, while facilitating the widespread deployment of proven mobility solutions that expand personal mobility. This grant funding could be leveraged to procure ride matching software or enhance the Lowcountry Go software platform.

2. **Access and Mobility Partnership:** This competitive grant program seeks to improve access to public transportation by building partnerships among health, transportation and other service providers. By supporting innovative projects for the transportation disadvantaged, the program's goal is to improve the coordination of transportation services and non-emergency medical transportation services. In 2018, there were two funding opportunities for the ICAM Pilot Program.

US DEPARTMENT OF COMMERCE, ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)

The federal level also offers funding opportunities from the Economic Development Administration (EDA):

1. **2017 Supplemental Disaster Recovery Funds for 2018 disasters:** This program is an appropriation of $587 million for eligible grantees impacted by 2018 disasters with opportunities to pursue additional disaster funds. Applications are coordinated with the South Carolina Disaster Recovery Office to evaluate options for EDA funding for economic recovery and resilience for rural Low to Moderate Income (LMI) residents in the region. Projects that improve the economic resilience of LMI residents through specific job and skills training, public infrastructure that enhances economic resilience in an area impacted by the disaster, and public services to the extent they were included in the initial disaster recovery action plan could be addressed through supplement DR funds.

2. **Opportunity Zones Program**: provides attractive tax incentives for private investments, under certain conditions, in economically distressed communities. There are 14 Opportunity Zones in the BCD Counties including rural areas identified in this study. EDA issued a NOFO in FY 2018 making Opportunity Zone areas eligible for funding from ED through the Special Needs Category and in 2019 added Opportunity Zones to EDA's 5 investment priorities to expand opportunities to leverage Opportunity Zone investment with EDA funding opportunities. EDA funds focus on job creation and attracting private investment to support development. This program could potentially be used to enhance private investments from businesses to support a targeted transportation to jobs project.

USDOT BUILD/TIGER GRANTS

Another federal funding opportunity for larger capital expenditures comes from the United States Department of Transportation (USDOT).

This program is a discretionary grant which provided nearly $2 billion in funding for transit projects over the past 9 years. By integrating rural LMI mobility into a transit program and strong application could be presented on behalf of SCDOT, BCDCOG, or one of its member governments. More recent years has focused on rural communities with funding awarded for passenger facilities, new buses, neighborhood mobility centers, and park and ride lot improvements. The maximum grant award is $25 million.

SOUTH CAROLINA DEPARTMENT OF COMMERCE, STATE CDBG GRANT PROGRAM

At the state level there are several funding sources available through the Community Development Block Grant (CDBG) allocation to the South Carolina Department of Commerce. These are competitive discretionary grant programs subject to Housing and Urban Development (HUD) regulations. For 2019, South Carolina was allocated $20,128,358 in funding for the program. The three programs identified below and CDBG funding for Economic Development and Public Services could be used to support a pilot vanpool program, technology applications and marketing initiatives to LMI populations focusing on the needs of LMI populations within eligible communities. CDBG Entitlement jurisdictions are not eligible, which includes Charleston County, the City of Charleston, and the City of Summerville. State CDBG Funding allocated through several programs:

1. **Community Infrastructure:** This program is designed to produce outcomes that improve citizens' quality of life and create a competitive environment for jobs and investment by addressing priority community development needs. This source could be used to fund construction of central passenger shelters at employment area, etc. Grant awards can range from $50,000 to $750,000.

2. **Community Enrichment:** This program is designed to fund public facilities, services and other activities that strengthen existing communities and support a high quality of life within the priority areas of economic competitiveness, education and workforce development, and safe and healthy communities. This source could be used to fund public services focused on economic competitiveness, workforce development, etc. Grant awards can range from $50,000 to $500,000.

3. **Special Project Programs:** This program funds projects for alternative grant activities and partnerships that meet the community development needs of eligible municipalities. First priority is given to projects that impact economic development or increase economic competitiveness. Grant awards can range from $50,000 to $150,000.

NON-PROFIT SOURCES OF FUNDING

There are additional non-profit sources of grant funding, which could also be leveraged to fund potential pilot projects. Based on a recent review of available programs, the following have been identified and could be further investigated as a demonstration pilot program is identified.

BANK OF AMERICA (BOA) FOUNDATION

Funding priority is made for projects that enable economic mobility for LMI neighborhoods. The foundation released 2 RFPs in 2019 with a similar RFP release anticipated in 2020. The BOA Foundation staff is headquartered in Charlotte, North Carolina.

AWS FOUNDATION WELDER WORKFORCE GRANTS

The American Welding Society provides grants to improve and expand welder training and increase the number of welding graduates. A collaborative application between a major local employer expected to hire more than 1,000 qualified welders, a training provider and a transportation provider could include financial support for access to training and an employer. During the stakeholder interview process, concerns were expressed regarding workforce availability. AWS grants up to $25,000 through their program. Funds can be used to improve educational and training facilities and provide welding and other related equipment for training purposes. While this would not be able to fund the transportation program, it could be considered as specific vanpools are developed to enhance training center capabilities near key employer nodes, particularly manufacturing.

WALMART FOUNDATION

During the stakeholder meetings, Walmart was mention as a potential partnership to leverage. The Walmart Foundation offers a grant program with funding categories including market access, work dignity (i.e., access to skill enhancement and career progression leading to enhanced job satisfaction), and diversity equity and inclusion. Walmart provides grants to local communities, entrepreneurs, and other groups to strengthen local communities and improving neighborhoods. Funds are available to enhance quality of life and opportunities in the local community.

COASTAL COMMUNITY FOUNDATION (CCF) OR UNITED WAY

The CCF and United Way support access to training and employment. An existing non-profit entity, such as United Way or Coastal Community Foundation with tax exempt status and known experience managing programs and financial resources would be an excellent partner for private funding opportunities. Access to Economic Opportunity is one of the top three focus areas of the Civic Engagement agenda for CCF.

VOLVO CAR USA COMMUNITY INVESTMENT GRANT

Volvo Car USA Community Investment Grant issues requests for applications three times a year, providing up to $25,000 to non-profit organizations for projects that share Volvo's values for safety, quality, education, and protecting the environment. The BCD Counties are preferred counties in South Carolina. Several programs could be identified from this study that would address all four of Volvo's values.

6 CONCLUSIONS AND NEXT STEPS

This purpose of this study was to define a regional strategy for linking rural communities to jobs and training and educational opportunities. Four main rural geographic service areas and several potential industry partners were also identified. Implementing a new carpool/vanpool program from the ground-up will require significant effort and buy-in from industry and other agency partners to be successful. As a first step following this study, a determination will need to be made by BCDCOG and their respective community partners on whether a purchase or lease option for the vanpool will be implemented. Information provided within this study report as well as other factors, such as funding and partnering opportunities, will help to determine the appropriate path forward for implementing either option.

Key next steps that will help establish the foundation for the program and help to build the program in targeted ways are further described in this section. In addition, considerations for continual monitoring of the program to help build an ultimately self-sustaining program in the region are provided. A general timeline for these steps is provided at the end of this section.

6.1 LAYING THE FOUNDATION FOR THE PROGRAM

To lay the foundation for a successful program, additional work to identify key industry partnerships in the region will be needed. This work will serve to (1) define the size and scale of an appropriate first demonstration program (2) establish regular coordination and working groups to discuss ways to encourage and facilitate the program within the region, and (3) develop an overall educational campaign to communicate benefits of the program. Some of this work will happen incrementally and others, like developing overall education campaign materials, should be done in concert with other outreach tasks.

Work at this foundational stage will require identification of and work with elected official and agency champions at the local level and significant involvement by workforce and economic development agencies as well as with employers.

6.1.1 STEP 1: DEFINING THE SIZE AND SCALE OF THE DEMONSTRATION PROGRAM

Defining the size and scale for a first demonstration program will require more significant work with employers, existing employees, as well as those currently seeking training and employment that need additional transportation access. Outreach to employers and their employees as well as additional outreach to the potential pool of users seeking training and employment opportunities are further discussed below.

ESTABLISH EMPLOYER PARTNERS

This study defined several key employers in the region with workforce needs and where a concentration of industry-focused employment and nearby training centers are present. Manufacturing and healthcare industries were identified target markets to serve with this vanpool program given relative proximity to some of these rural areas, concentrations of employers that could represent sufficient levels of travel demands to warrant vanpool implementation and success, and the ability to further train

or educate potential employees relatively quickly. Other industry partners, such as those in Information Technology or others, could also be targeted but manufacturing and healthcare are identified as early targets for program foundational development.

BCDCOG and other organizations, such as local government staff, elected officials, and economic development partners in the region should conduct further outreach to these potential partners to obtain buy-in and interest in pursuing and contributing to the vanpool program. Key manufacturing employers to work with in establishing industry partners include the following: *Volvo, Daimler, Boeing Interiors, Boeing Propulsion, Venture Aerobearings, Cummins Turbo Technology, Bosch, Boeing Charleston Plant, and Joint Base Charleston*. Key healthcare employers to work with in establishing industry partners include: *Trident Health (North Charleston), MUSC, Ralph H. Johnson Veterans Administration Medical Center (VA Hospital) in downtown Charleston, and Roper St. Francis, Vibra Hospital of Charleston, and East Cooper Medical Center in Mount Pleasant, and Bon Secours St. Francis Hospital in West Ashley*.

Once employers interested in the program are identified, more detailed interviews or additional surveys of employers on available fringe benefits to help pay for services can be conducted. Having employers implement surveys of employees to identify interest in the program are also recommended to provide further information on potential users of the system from existing employees, where they reside in context of rural service areas defined in this study, and what incentives may be needed to attract users that could serve as vanpool organizers or drivers. As noted in development of this study, use of employer benefits programs can help to offset costs of service, and federal IRS rules note that vanpool or carpool reimbursements are those with at least six passengers and at least half of vanpool participants must be using the service to go to employment. Additional incentives to pay for costs of vanpool organizers or drivers may be considered to reimburse their costs and incentivize participation.

IDENTIFYING RURAL COMMUNITY USERS

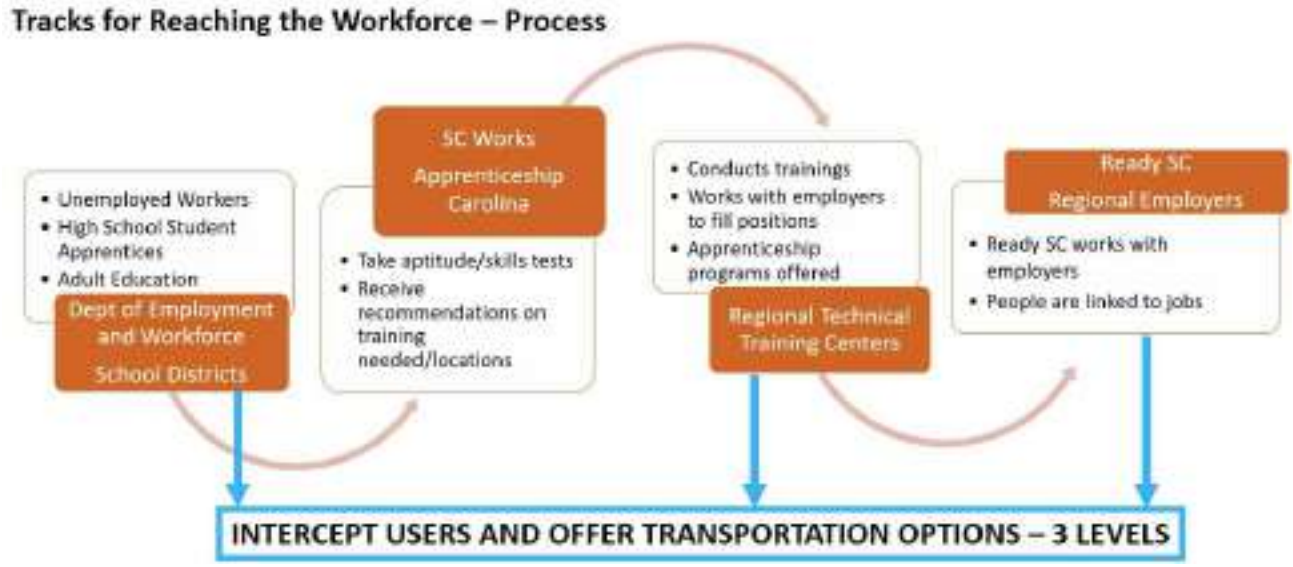
Through stakeholder outreach and interviews, a major finding from all those interviewed was that effectively reaching the potential workforce in rural areas represents a major challenge. While there are several agencies and stakeholders involved in some level of communication with these pools of people in need of training, education, and job placement, there is no single agency responsible. The multiple ways in which the process of job training and placement occurs may require greater coordination to intercept and inform potential rural workforce participants about transportation opportunities in the region for accessing training, education, and jobs.

Based on the input received, four key intercept points were identified within existing programs in place that may require greater coordination and communication efforts in developing demonstration pilot programs. The sequence of tracks used today for reaching the workforce, and these potential intercept points, are shown on **Figure 22** and are further described below.

As a first point of contact with potential users of the vanpool service, the Department of Employment and Workforce (SCDEW), SC Works, and school districts provide tracks for unemployed workers, high school student apprentices and adults seeking education. Obtaining consistent ways and information to reach out to these potential workers and communicate new opportunities for training, education, and employment is an important first point of contact for potential users of the service.

Additionally, SC Works, as well as The South Carolina Technical College System's Apprenticeship Carolina regularly conduct aptitude and skill tests and provide recommendations on training needed and potential locations where training is available. Reaching out to potential users at this stage and as part of these efforts can help make potential users of the system aware of transportation options.

Figure 22: Intercept Points for Workforce Development



Additional support may also be provided to help those without access to computers or mobile devices identify and secure vanpool rides.

Regional technical college training centers also conduct training and work with employers to fill positions. Various apprenticeship programs are offered at these centers as well. Obtaining contact information for these applicants for training is another key intercept point. These training centers could also provide information to their rosters of students on vanpool services and financial assistance available.

Finally, Ready SC, a division of the South Carolina Technical College System, works with technical colleges and links potential employees with regional employers. Many training programs offered by Ready SC are coupled with incentive packages from the South Carolina Department of Commerce and used to bring industry to the state. This intercept point can be leveraged to further work with employers on vanpool needs and potential subsidies that could be provided and to make potential employees aware of vanpool services and financial assistance or other benefits available.

Close coordination with each of these agencies or organizations and potentially surveying potential users to obtain more detailed information on user needs, in concert with outreach to potential employer partners, will help to further refine the scope and scale of the demonstration program.

6.1.2 STEP 2: DEVELOP AND IMPLEMENT REGULAR WORKING GROUPS TO STEER DEVELOPMENT OF THE PROGRAM

One of the key findings through outreach to stakeholders during this study was the need for continuous and close coordination between governmental agency partners, education and training program partners, and private industry. This will be of paramount importance in successful implementation of the program. BCDCOG currently has a Human Transit Services Coordination (HTSC) Plan that can help in establishing a framework for ongoing and regular coordination between agencies, employer partners, and the community. Recommendations for coordination improvements in the HTSC Plan include creation of subcommittees or working groups to further develop ideas and recommendations for services with schools, governmental agencies, and others.

Establishing more specific subcommittees or working groups is recommended to lead direction in defining pilot demonstration program service areas based on outreach with industry partners, identifying additional training or educational destinations that could be served in a particular geographic area, and to identify any potential community meet up spots or park and ride needs based on survey feedback and community outreach. This working group will also be essential in helping to develop and steer effective and consistent messaging about the program and identify and support more targeted marketing and outreach for specific vanpools/carpools. Membership on the subcommittee should be identified based on the potential industry partners identified and other potential partners or interested parties in the pilot, such as training or educational organizations, transportation agency and workforce development organizations, and economic development organizations. Key employers that will serve as partners on a demonstration program should also participate in regular these working groups.

It is recommended that as part of demonstration pilot implementation planning, monthly meetings be established to track progress, identify and maintain schedules, and facilitate decision making at key milestones. Additional detailed planning for implementation of an initial pilot may take between 12 and 18 months of these regular meetings, so obtaining regular and consistent participation by major stakeholders and agencies will be essential to successful implementation. During these working groups, more refined costs for demonstration programs can be further developed and funding and cost sharing options can be further detailed.

6.1.3 STEP 3: DEVELOPING AN EDUCATIONAL CAMPAIGN ON VANPOOL/CARPOOL BENEFITS

Having information and educational materials available for both employers and potential users of vanpools or carpools should be developed in concert with employer and employee outreach efforts referenced in Step 1 above. An overall educational campaign plan should be developed to identify materials needed, define at a high level the audience to be reached, and to define the ways in which educational materials can be distributed throughout the region. Sources such as *Best Workplaces for Commuters* and obtaining samples of educational materials used by other agencies in implementing vanpool or carpool services like these should be consulted to fully define the desired content for these educational materials. Additional work may be needed to calculate specific benefits for the BCDCOG region, such as reductions in vehicle miles traveled or time savings that could be realized by the

program, to fully communicate local conditions and benefits of the program. The working group, identified in Step 2 above, will help in defining this overall educational campaign plan and can help to support dissemination of materials as well.

6.2 BUILDING THE PROGRAM

Once the foundation has been established for the program, more detailed planning will be needed to build and implement the program. As the program framework is developed, there may be additional steps needed in building the program. The following represents the major steps needed to build the program, further develop any additional infrastructure needs, and to target specific marketing and outreach efforts for successful use of the services.

6.2.1 STEP 1: DEVELOP RIDESHARE/RIDE MATCHING SOFTWARE

During this study, a key need identified was to make software in the region, such as the Low Country Go application, more functional for users and to better integrate transportation options and requests for service into applications so that users have a "one-stop shop" for meeting their commuting and training needs. Several software services are available to manage data collection and match user needs to available rides. Some of these include: EZRide, Next Insight, RidePro, NuRide, RideAmigos, Rideshark, and others. In addition to these basic ride matching functions, software like these can also offer rider incentives and transit marketing functions to alleviate burdens of intensive staff time for some of the marketing efforts of the program.

BCDCOG has been working with one of these providers, RideAmigos, to enhance technology capabilities in the region and, as such, may consider using this same platform to further develop ride matching software needs for this vanpool/carpool program. Further developing the scope of desired functions for this software will be a key task in building the program for implementation.

6.2.2 STEP 2: DEFINING ADDITIONAL PARK AND RIDE OR OTHER COMMUNITY MEET UP LOCATIONS PLANNING AND IMPLEMENTATION

Carpools or vanpools can operate in several ways and are proposed here to provide flexibility in meet up and drop off locations that meet mutual user needs. As more in-depth surveys are conducted to identify potential users of the services, identification and further planning for implementation of any desired park and ride locations can occur. These efforts should be coordinated with other planning efforts undertaken in the region to date, such as the BCDCOG's *Park and Ride Study* recommendations, to develop additional infrastructure to meet all transit services in the region, not just this service. As an interim solution, and if meet up locations are desired and determined to be needed rather than direct pick up locations, BCDCOG and others could also work with local churches near desired vanpool demonstration services to offer pick up and drop off locations at those locations. Existing and underutilized parking spaces may be available and could be offered at a church's discretion and could represent a near-term low-cost option for coordinating meet up and drop off locations.

6.2.3 STEP 3: TARGETED MARKETING AND OUTREACH CAMPAIGNS

A comprehensive marketing campaign will need to be established to market new services and incentivize participation in the program. Elements must include branding, determining the methods of reaching diverse audiences, and incentivizing participation, among other things.

Effective marketing and outreach efforts require an array of approaches to reach potential customers. Marketing and outreach efforts should take advantage of the existing process for reaching the workforce and opportunities to intercept potential vanpool users discussed in defining the scope and scale of a demonstration program above. This includes outreach to high-school graduates, participants in apprenticeship and skills training in the region, participants in regional training centers across the region, and to employers.

Data obtained at these levels will help to reach the potential rural workforce at different levels in their training and employment. Data mining of such centralized information can be helpful to target outreach and marketing efforts most effectively to potential users. It can also aid in fostering partnerships, and further marketing of services to support vanpool success.

Stakeholder feedback throughout this study also emphasized the need for a strong "bottom up" or "grass roots" approach for outreach and marketing as well. Including local community organizations, such as churches and neighborhood associations from the beginning can be a powerful tool in making rural residents aware of the vanpool/carpool program, financial assistance available, and other opportunities for training and employment. More direct surveys of rural residents using some of these community-led organizations can gain greater insight of user specific needs and in further developing communication and service that addresses these needs.

Online tools and resources, as well as paper forms and vouchers should be used to reach those with and without access to the Internet through this bottom up, grass roots marketing and outreach effort. Job fairs and other "vanpool" fairs could be used to recruit users of the vanpool service. These types of efforts can further help in providing the level of support needed to capture potential users that may not have the same level of access or knowledge of technologically driven mobile and website platforms.

6.3 INITIATING THE PROGRAM AND MONITOR PERFORMANCE

As a first demonstration program is implemented, lessons learned from the foundational and building the program elements detailed above should be documented and used to support subsequent successful implementation throughout the region.

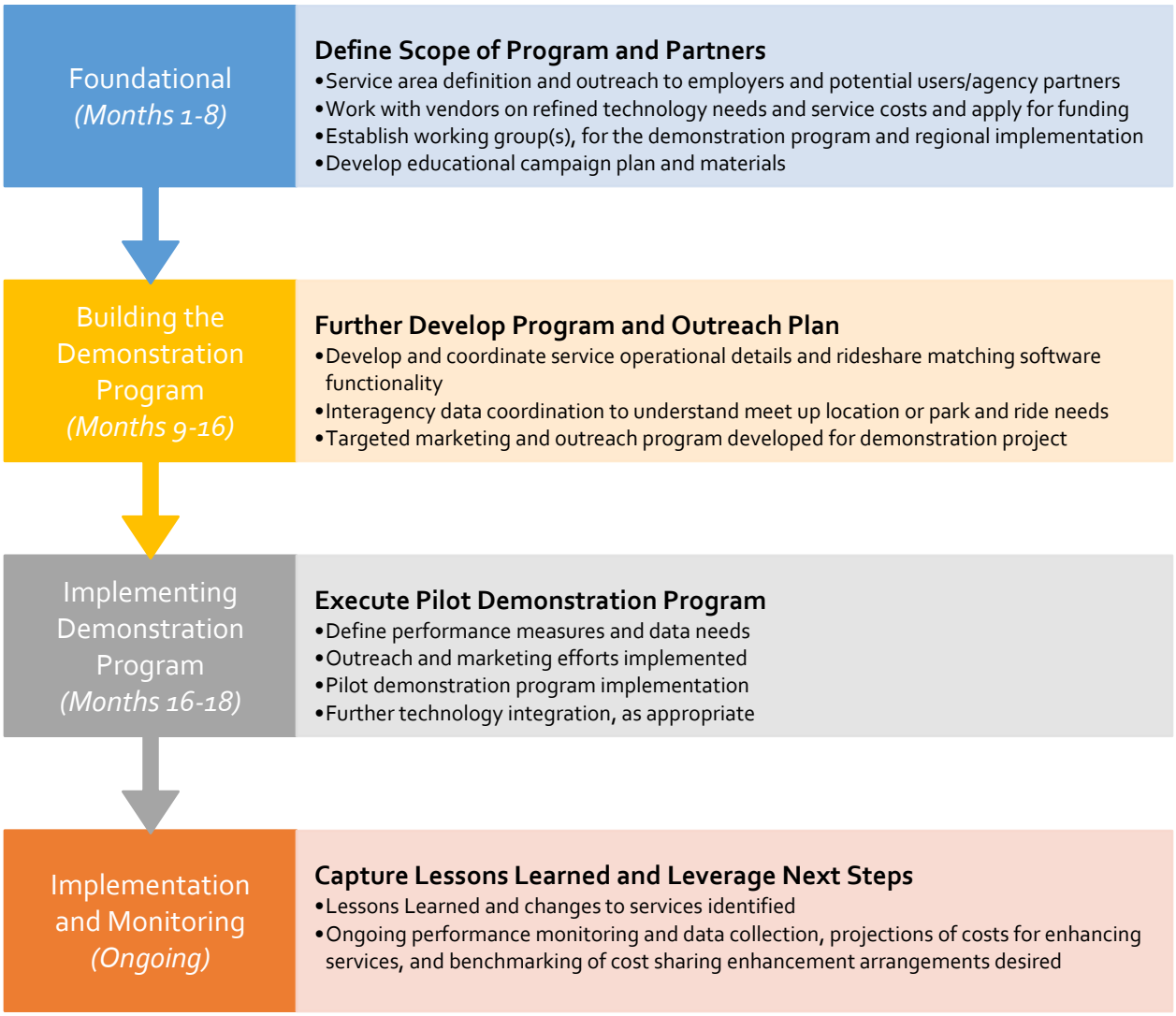
The ultimate, long-term goal of a regional vanpool/carpool program is to make it self-sustaining. As implementation occurs, understanding and projecting operational costs for services will be particularly important to solidify cost sharing needs and to target enhanced cost sharing between public and private sectors over time. Annual monitoring and reporting on service costs and use of the service are recommended as vanpool/carpool services are implemented and expanded in the region.

Performance measures and data supporting desired performance metrics should be collected and maintained as well. These measures will assist in making future business cases to employers and training and educational organizations to support ongoing funding of the program in the region. They can also help to establish baseline conditions and in helping to set achievable targets for improvement of service and cost effectiveness. At minimum, these should include monitoring of ridership, mileage and hours of use, and operational costs. These allow for reporting and monitoring of service efficiency and effectiveness measures that are typically reported on through federal NTD data.

6.4 KEY STEPS AND MILESTONES

It is anticipated that additional planning required to fully develop a specific demonstration program will take approximately 12 to 18 months. The timeline will depend on the demonstration program selected and can vary depending on the level of implementation desired. While the sections above provide greater details on each of the coordination and decision-making requirements to be considered, understanding key steps and milestones can help to further define planning needs for implementation. These steps, key milestones, and anticipated duration or schedule are shown graphically on **Figure 23**.

Figure 23: Generalized Schedule and Key Milestones for Demonstration Program Implementation



APPENDIX A:
Stakeholder Meetings Presentations and Notes

APPENDIX B:
Stakeholder Interview Questions and Listing

APPENDIX C:
Rural Service Area Profiles