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**WORKFORCE OCCUPATIONS AND SKILLS PROJECTIONS:
UPPER SAVANNAH COUNCIL OF GOVERNMENTS REGION
2000-2016**

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Executive Summary



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EXECUTIVE SUMMARY

This study provides guidance for the counties served by the Upper Savannah Region in planning workforce development programming. Principal goals included:

- Identifying the industries and occupations for which future employment growth is most likely;
- Documenting the WorkKeys skills (a skills testing program developed by Academic Achievement Test) required in those occupations;
- Comparing the current skills distribution to the WorkKeys skills needed for the projected jobs to identify skill deficiencies (gaps) in the region; and,
- Informing regional workforce education professionals in the high school Career and Technology Education (CATE) program and in regional job training programs of the occupations and related workforce skills that the region's industry will need over the next decade.

A four step process was used to identify industries and occupations that were most likely to grow in both the Upper Savannah region and in proximate metropolitan counties.

Step 1: Identify Industry Clusters in the Region and Make Employment Projections by Industry. The industry targeting methodology of the Clemson University's EDA University Center for Economic Development was used to identify industry clusters in the Upper Savannah Region with good prospects for future growth and most favorable impacts on the regional economy. U.S. Bureau of Labor Statistics projections from 2006 to 2016 for expected growth across three digit NAICS industry categories were used to project industry employment growth in the Upper Savannah region and in proximate metropolitan counties, in both the targeted industry clusters and other industries in the region.

Step 2: Identify Occupation Growth Patterns in the Region. The industry employment estimates from Step 1 have specific occupational needs. U.S. Department of Commerce, U.S. Bureau of Labor Statistics data sources, and the South Carolina Industry/Occupation matrix were used to *project the number of new hires in occupations* associated with targeted industry clusters and with Jobs in Careers Clusters from the SC Department of Education.

Step 3: Identify Labor Force Skills Needed in the Region. The occupations identified in Step 2 have specific core knowledge and skill requirements. The desired knowledge and skills for principal occupational categories were identified using the U.S. Department of Labor ONET System and the WorkKeys scores needed for different occupations.

Stage 4: Identify Skill Gaps That May Impede Industry Growth. Labor skills available in the Upper Savannah Region (using data from the South Carolina WorkKeys database) were compared with skills needed for the growth of industry in the region to identify skill gaps in the region. Interviews with area business leaders were used to refine and augment the findings from the data analyses.

Key Findings

Growth Industries. The industries expected to provide the most new job openings over the next decade in the Upper Savannah Region are identified in Table 1xs. Six industries were identified as “growing industry clusters” in the Upper Savannah Region: *animal production* (NAICS 112); *heavy and civil engineering construction* (NAICS 237); *health and personal care stores* (NAICS 446), *warehousing and storage* (NAICS 493); *nursing and residential care facilities* (NAICS 623); and *religious, civic, professional, and similar organizations* (NAICS 813). These industries have a significant local presence, positive employment change at the regional and national level from 2001 to 2006 and projected national growth from 2006 to 2016.

Table 1XS. Targeted Industry Clusters, Upper Savannah Region, 2006

NAICS Code	Industry
A. Growing Industry Clusters	
112	Animal Production
237	Heavy and Civil Engineering Construction
446	Health and Personal Care Stores
493	Warehouse and Storage
623	Nursing and Residential Care Facilities,
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations
B. Emerging Industry Clusters	
236	Construction of Buildings
522	Credit Intermediation and Related Activities
541	Professional, Scientific, and Technical Services
551	Management of Companies and Enterprises
561	Administrative and Support Services
721	Accommodation
722	Food Services and Drinking Places
812	Personal and Laundry Services
C. Regional Strengths	
111	Crop Production
311	Food Manufacturing
321	Wood Product Manufacturing
325	Chemical Manufacturing
331	Primary Metal Manufacturing
333	Machinery Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
447	Gasoline Stations
517	Telecommunications

In the Upper Savannah Region, eight additional industries are “emerging industry clusters.” These industries are: *construction of buildings* (NAICS 236); *credit intermediaries* (NAICS 522); *professional, scientific, and technical services* (NAICS 541); *management of companies* (NAICS 551); *administrative and support services* (NAICS 561); *accommodation* (NAICS 721); *food services and drinking places* (NAICS 722); and *personal and laundry services* (NAICS 812). These industries lack a substantial regional presence but they exhibited employment growth at the national and regional levels from 2001 to 2006 and they have projected national growth for 2006-2016.

Nine industries were regional strengths with a strong presence in the region and strong regional growth from 2001 to 2006 but with negative growth nationally. The nine industries are: *crop production* (NAICS 111); *food manufacturing* (NAICS 311); *wood products manufacturing* (NAICS 321); *chemical manufacturing* (NAICS 325); *primary metal manufacturing* (NAICS 331); *machinery manufacturing* (NAICS 333); *electrical equipment, appliance, and component manufacturing* (NAICS 335); *gasoline stations* (NAICS 447); and *telecommunications* (NAICS 517).

Growth in Occupations. Projected job growth in the target industries (by occupations) is provided in Tales 2XS. Job growth in the Upper Savannah Region is expected to be most robust in the following occupations: healthcare services, food services, consumer services, and general services for businesses including lawyers, accountants, paralegals, and civil engineers.

Occupational opportunities in the proximate metropolitan counties showed a similar pattern. However, professional opportunities (such as financial managers) and skilled trades (such as electricians) had stronger projected growth rates in the metropolitan counties. Industry cluster development in the Upper Savannah Region offers few professional employment opportunities relative to the broad selection of employment opportunities in professional and skilled trade occupations available to residents willing to commute to nearby metropolitan counties.

In addition to target industries, the occupations expected to grow in the region include those in current industries that are not expected to be key players in the future of the regional economy. However, these “legacy” industries will continue to need employees over the next decade. Adding the target industry occupations to expected occupational growth in all other industries yields the projected occupational growth in all sectors of the regional economy. The fastest growth in new hires expected across all sectors in the region are displayed in Table 3XS. The new hires in the final column of Table 3XS include two components. First, there is either positive or negative job growth as the industry’s that hire these occupations grow or decline. Second, there is an expected retiree replacement component of the expected new hires over the decade.

Skill Gaps. Skill gaps exist where the number of jobs with specific skill requirements (the demand side of the labor market) exceeds the number of individuals with requisite skills to fill those jobs (the supply side of the labor market). Skills analysis focused on the three areas deemed as most critical (applied math (AM), reading for information (RI), and locating information (LI)).

Sample comparisons of skills supplies (labor force) and demands (jobs) are presented in Figure 1. First, employment prospects for individuals with low math and reading scores are not promising in the Upper Savannah Region or in the Commuting Area with 10.6% of tested individuals having very low scores in applied mathematics and reading for information, yet only 2.5% or less of job openings in the region and metropolitan areas within commuting distance are projected for occupations with those skill requirements.

Table 2XS. Projected Employment by Occupation, Targeting Industry Clusters, Upper Savannah Region, 2006-2016

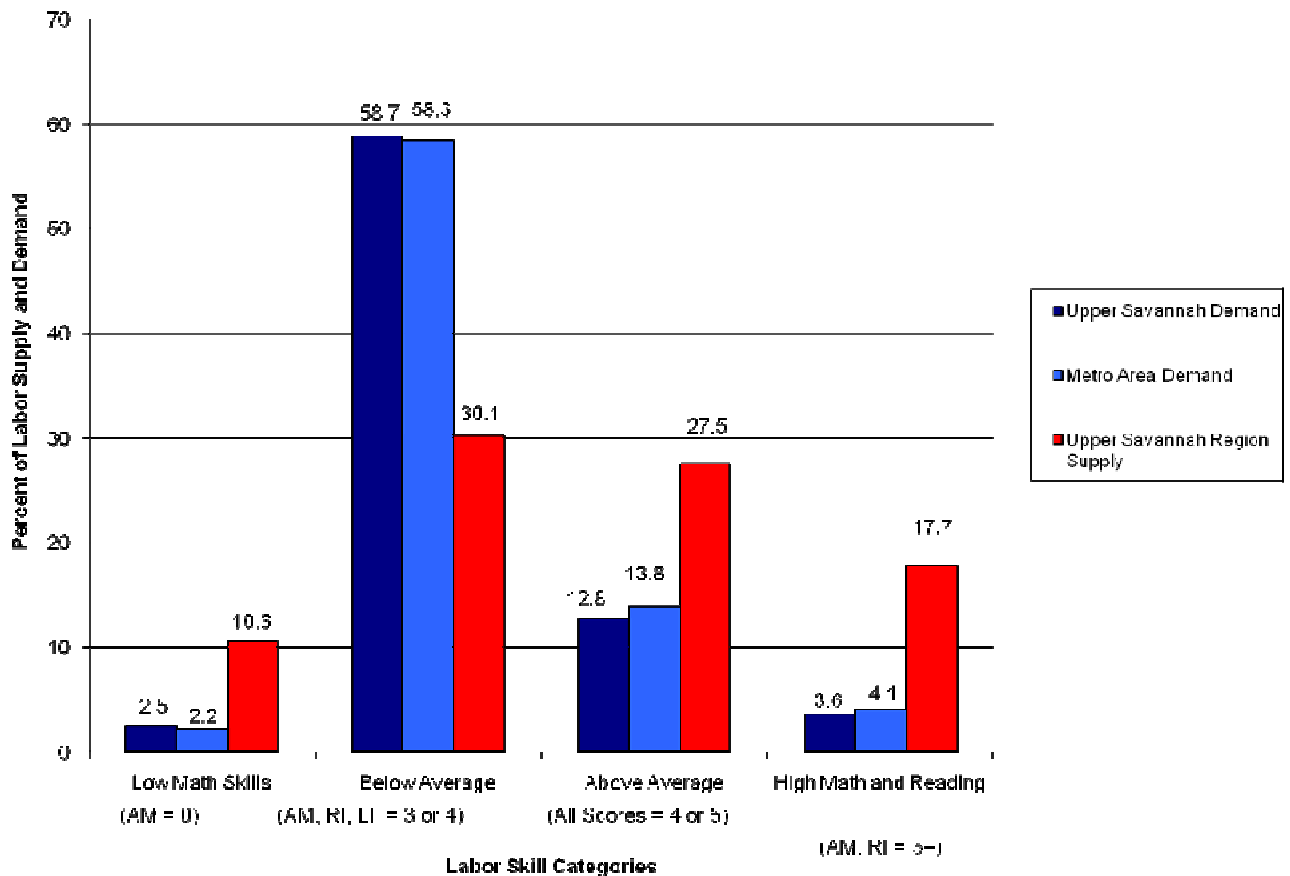
Occupation Name	2006 Occupation Employment	2016 Projected Employment	Projected Change In Jobs
Nursing Aides, Orderlies, and Attendants	679	835	157
Waiters and Waitresses	994	1101	107
Laborers and Freight, Stock, and Material Movers	920	1008	88
Janitors and Cleaners, Except Maids and Housekeeping	514	602	88
Combined Food Preparation and Serving Workers	757	837	81
Home Health Aides	289	356	67
Licensed Practical and Licensed Vocational Nurses	270	332	62
Office Clerks, General	390	445	56
Landscaping and Groundskeeping Workers	283	335	52
Maids and Housekeeping Cleaners	263	311	47
Security Guards	255	299	45
Cashiers	745	789	44
Secretaries, Except Legal, Medical, and Executive	281	324	44
Customer Service Representatives	405	446	41
General and Operations Managers	400	441	40
Cooks, Fast Food	373	411	38
Food Preparation Workers	284	320	36
Cooks, Restaurant	339	374	35
Lawyers	117	150	34
Bookkeeping, Accounting, and Auditing Clerks	282	315	33
First-Line Supervisors/Managers of Food Preparation	277	308	32
Registered Nurses	139	170	31
Stock Clerks and Order Fillers	232	263	30
Packers and Packagers, Hand	334	362	29
First-Line Supervisors/Managers of Office and Administrative	227	255	29
Accountants and Auditors	209	236	27
Paralegals and Legal Assistants	88	114	26
Legal Secretaries	85	109	24
Receptionists and Information Clerks	140	163	23
Cooks, Institution and Cafeteria	125	148	23
Construction Laborers	202	224	23
Personal and Home Care Aides	99	121	22
Dishwashers	187	208	21
Industrial Truck and Tractor Operators	426	446	19
Carpenters	248	267	19
Tellers	221	240	19
Executive Secretaries and Administrative Assistants	198	216	19
Packaging and Filling Machine Operators and Tenders	357	375	18
Counter Attendants, Cafeteria, Food Concessions	151	166	15

Table 3XS. Projected Occupation Employment Growth, Upper Savannah Region, 2006-2016, New Hires from Job Growth and Retiree Replacement

Occupation Name	2006 Occupation Employment	2016 Projected Employment	Projected Change In Jobs
Cashiers	1657	2128	471
Laborers and Freight, Stock, and Material Movers, Hand	1608	2063	455
Retail Salespersons	1330	1704	374
Waiters and Waitresses	1015	1362	347
Nursing Aides, Orderlies, and Attendants	735	1075	341
Office Clerks, General	826	1112	286
Combined Food Preparation and Serving Workers, Including Fast Food	817	1096	279
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	674	932	258
General and Operations Managers	799	1035	236
Truck Drivers, Heavy and Tractor-Trailer	762	983	221
Stock Clerks and Order Fillers	741	951	210
Customer Service Representatives	687	896	209
Team Assemblers	1248	1456	208
Home Health Aides	382	569	187
Secretaries, Except Legal, Medical, and Executive	520	705	185
Child Care Workers	322	502	181
Bookkeeping, Accounting, and Auditing Clerks	564	744	180
Maintenance and Repair Workers, General	878	1058	180
Licensed Practical and Licensed Vocational Nurses	360	530	170
Landscaping and Groundskeeping Workers	379	545	167
Registered Nurses	338	499	161
Industrial Truck and Tractor Operators	651	795	144
Maids and Housekeeping Cleaners	374	518	143
Packers and Packages, Hand	575	717	142
First-Line Supervisors/Managers of Office	424	565	141
Receptionists and Information Clerks	317	449	132
Food Preparation Workers	365	492	127
Cooks, Fast Food	380	506	126
First-Line Supervisors/Managers of Retail Sales workers	421	539	118
Cooks, Restaurant	346	462	117
Personal and Home Care Aides	229	345	116
Security Guards	295	410	115
Inspectors, Testers, Sorters, Samplers, and Weighers	794	907	113
Packaging and Filling Machine Operators and Tenders	499	612	113
Sales Representatives, Wholesale and Manufacturing	487	596	108
Executive Secretaries and Administrative Assistants	350	458	108
Helpers--Production Workers	675	783	108
Construction Laborers	312	419	106
Carpenters	340	444	104
First-Line Supervisors/Managers of Food Preparation and Serving Workers	296	399	103
Accountants and Auditors	308	405	98
Truck Drivers, Light or Delivery Services	335	421	96
First-Line Supervisors/Managers of Production and Operating Workers	765	856	91
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	564	653	89
Shipping, Receiving, and Traffic Clerks	428	515	87
Medical Assistants	159	241	82
First-Line Supervisors/Managers of Construction Trades	242	320	79

Second, a potential shortage exists for individuals to fill jobs with “Below Average” scores (AM, RI, LI = 3 or 4) with about 58% of the projected job opportunities in such occupations but with only 30.1% of the individuals' test scores meeting (but not exceeding) these desired minimum scores. This job gap (demand for jobs exceeds the supply of appropriately skilled workers) can be reduced by (a) employers accepting workers with skills less than the desired minimum (from the “Low Math Skills” surplus labor), and/or (b) area workers taking jobs with skill requirements below workers' skill levels (from “Above Average” surplus labor).

**Figure 1. Employment Opportunities and Labor Force Availability:
Upper Savannah Region and Commuting Area**



Third, 27.5% of the labor force had above average or above average scores (AM, LI and RI of 4 or 5) but occupations requiring those score combinations (such as computer programmers, health technologists, tool and die makers, and teacher assistants) are projected to provide 12.8 % of need in the Upper Savannah Region. Many individuals with above average test scores will face the choice of commuting outside the region for jobs that need their skills or working in an occupation that does not use all of their skills.

Fourth, over 17% of the area workforce scored above average or high on math and reading (AM and RI = 5 or greater) but only approximately 4% of the projected jobs in both the Upper Savannah Region and the Commuting Area are in occupations that require these skills. Occupations in these two skill clusters include operations research analysts, numerical tool programmers, industrial engineers, electricians, and pharmacy technicians. These individuals with strong test scores but relatively few local employment opportunities represent prime candidates for a "brain drain" out-migration. This potential brain drain can be reduced if (a) new industries are attracted or developed (entrepreneurial activity) that are skilled-labor intensive, or (b) the skilled workers commute to nearby metropolitan areas for employment but they continue to reside in the Upper Savannah Region.

Finally, workforce supply and demand skills appear to be well matched in some cases. For example, our industry growth analysis indicates relatively strong growth in jobs in health care related occupations. Many of these occupations are in occupation-skill cluster AM 4, LI 4, RI 4 (e.g., radiological technologists, licensed practical nurses, medical laboratory technologists) and cluster AM 4, LI 4, RI 5 (e.g., registered nurses, dietitians and nutritionists, occupational health specialists). Approximately 20% of the individuals tested had WorkKey test scores consistent with the skills required for the health-related occupations. The supply and demand for skilled workers in these occupation-skill categories are a relatively good match.

Jobs in Career Clusters. High school Career and Technology Education (CATE) majors can be promoted that reflect the region's labor force needs in the future. Future occupational opportunities were projected for each of the "Jobs in Career Clusters" (SC Department of Education) for the Upper Savannah Region and proximate metropolitan counties. Figure 2 shows the expected distribution of new hires over the next decade in each of these Career Clusters for the Upper Savannah Region.

In the Upper Savannah Region, a minimum of 1,000 new hires are expected in the career clusters in Business, Management, and Administration (3,307), Not Considered Career Options (2,192), Manufacturing (2,003), Health Sciences (1,741), Transportation, Distribution and Logistics (1,600), Law, Public Safety and Security (1,519), and Architecture and Construction (1,122). The expected new hires in specific occupations within each career cluster are shown in Appendix Table A-13. The 20 occupations that are expected to have the largest numbers of new hires in the region through 2016 are displayed in Table 4XS.

Work Skill Needs Identified by Business Focus Groups. A needs assessment concerning barriers to growth, general strengths and weaknesses, and current and future gaps in regional labor skills was also conducted with local businesses in each of the Upper Savannah counties. While differences exist, communities share similar strengths and weaknesses regarding issues faced in workforce development, general economic growth, and K-12 and higher education partnerships. The majority of interviewed firms indicated expansion plans despite the current national economic downturn. However, firms generally indicated that finding both good skilled and unskilled labor served as a challenge to expansion plans in several cases. Market demand and financial issues were also barriers to growth in some cases.

In terms of labor skill gaps, a general theme was the lack of basic computing, math, and problem solving skills and even writing and verbal communication skills. Computer skills are critical now and in the future, but workers do not necessarily possess such skills. Certain industries faced problems in finding specialized labor, such as welders, who are in high demand across the region, and Registered Nurses (RNs) and other nurses for the healthcare sector. Workers with highly specialized skills, such as processing engineers, usually have to be attracted from elsewhere and firms generally have difficulty in competing for such people in a national market. Area firms are also drawing from the same, often shallow, labor pool.

The need for soft skills, including strong work ethic and enhanced leadership, is becoming increasingly important-in part due to reductions in the size of middle management. However, many new workers lacked soft skills. Several firms indicated a greater need for more focus on the K-12 educational system in meeting the needs of students who will not attend a four year college or university. Many felt that a strong partnership between local school systems, businesses and community colleges should be used to strengthen training efforts and to market a wide range of career and training opportunities to students at a younger age.

Figure 2. Career Cluster Ranked by Total New Hires, Upper Savannah Region

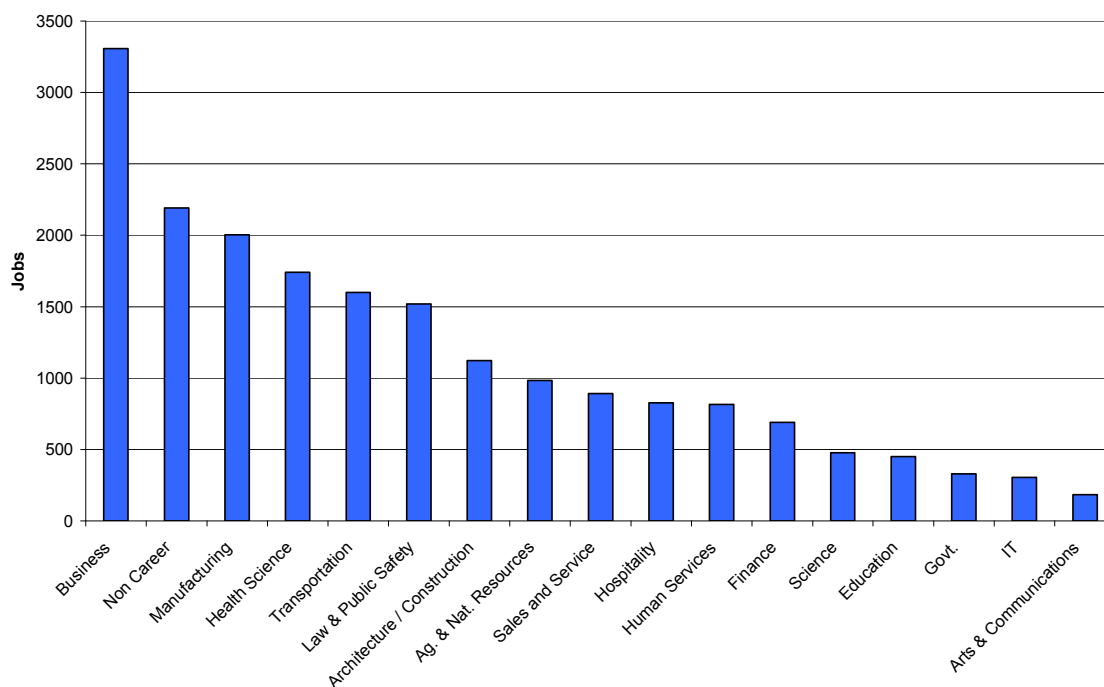


Table 4XS. Top 20 Occupations Across All Career Clusters, Ranked by New Hires, Upper Savannah Region

Occupation Name	Jobs in Career Cluster Category	2006 Occupation Employment	2016 Projected Employment	Projected Change in Jobs
Office Clerks, General	Business, Management, Administration	1485	1966	481
Laborers and Freight, Stock	Transportation, Distribution, Logistics	1688	2167	479
Cashiers	Non-Career Options	1662	2135	472
Retail Salespersons	Non-Career Options	1350	1730	380
Nursing Aides, Orderlies, and Attendants	Health Science	783	1138	355
Police and Sheriff's Patrol Officers	Law, Public Safety and Security	1175	1523	348
Waiters and Waitresses	Non-Career Options	1015	1362	347
Maintenance and Repair Workers	Manufacturing	1424	1766	342
Secretaries, Except Legal, Medical	Business, Management, Administration	962	1278	316
Janitors and Cleaners, Except Maids	Business, Management, Administration	809	1107	298
Home Health Aides	Health Science	737	1029	292
Combined Food preparation and Serving	No-Career Options	827	1108	281
Correctional officers and Jailers	Law, Public Safety and Security	945	1225	280
General and Operations Managers	Business, Management, Administration	923	1196	273
First-Line Supervisors/Managers of Office	Business, Management, Administration	865	1137	272
Registered Nurses	Health Science	617	860	243
Truck Drivers, Heavy and Tractor-Trailer	Transportation, Distribution, Logistics	829	1070	241
Bookkeeping, Accounting, and Auditing	Finance	765	1005	240
Customer Service Representatives	Business, Management, Administration	760	990	231
Stock Clerks and Order Fillers	Marketing, Sales and Service	791	1016	225

Firms felt that the general small town nature of their local communities was a strength and a weakness with aspects such as affordable housing and a safe, caring community serving as a plus, and the lack of urban amenities as a disadvantage. Some communities were somewhat isolated (viewed as a distinct weakness) while others had very good access through the Interstate Highway system with its accompanying benefits (such as ease of attracting outside firms) and problems (such as retail leakage to urban areas).

The Upper Savannah Region has many areas of strength. The quality of life can be leveraged to attract a variety of new businesses and many, if not all, qualified employees. Stronger partnerships between local businesses, K-12 education, and local community colleges, training and education programs would enhance the retention of young people and attract former residents back to the area.

The complete report for the Upper Savannah Region is available at www.clemson.edu/uced under the heading: Workforce Occupations and Skills Projections.