

**Athens-Clarke County and
The City of Winterville**

SUPPLEMENTAL PLANS

**Community Assessment
and Appendixes**



ATHENS-CLARKE COUNTY
ECONOMIC DEVELOPMENT PLAN:
A STRATEGY FOR A STRONG ECONOMY



PROFILE OF TARGET BUSINESS CLUSTERS

APRIL 7, 1999

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PREPARED FOR:

The Athens-Clarke County Economic Development Authority
The Unified Government of Athens-Clarke County
The Athens Area Chamber of Commerce

INTRODUCTION

In terms of local economic development marketing, business development has often been analogous with business attraction and recruitment efforts. However, business development is a "catchall" term that also encompasses the myriad of activities necessary for the expansion, retention, or further development of businesses in the local economy.

This profile identifies target business clusters that represent strong economic development opportunities for Athens-Clarke County. The six recommended target business clusters are **Biotechnology, Environmental Technologies, Value-Added Manufacturing, Software Development & New Media, Health Care, and Tourism & Hospitality**.

At the outset, it will be useful to define each of the target business clusters.

- *Biotechnology* is a broad cluster encompassing the use of organisms or cell structures to make products, or genetically engineer plants and animals. Production typically requires the application of technology, biological processes, or mechanical and electronic power to create agricultural, chemical, diagnostic, pharmaceutical or other products.
- *Environmental Technologies* are a variety of products and services intended to reduce pollution released in the natural environment and produce economically viable products.
- *Value-Added Manufacturing* is a broad cluster comprised of manufacturing sectors that apply knowledge, skills or technology to production processes. The sectors most applicable to Athens-Clarke County are electrical and mechanical equipment, plastics, and auto parts.
- *Software Development & New Media* is a cluster that includes both the production of programs to perform specific functions on computers, and the development of content for the Internet and other related forms of new communications.
- *Health Care* consists of the varied health services and diagnostic products used by health care providers.
- *Tourism & Hospitality* entails the promotion of destinations and entertainment to visitors, and the provision of numerous travel services. These services include lodging, recreation, entertainment, food and beverage, retail, and transportation.

A combination of business attraction efforts and local business development programs tailored to these target business clusters has the potential to expand and diversify the local economic base. We also urge that entrepreneurial development should be made a constant priority of economic development officials in Athens-Clarke County.

The recommendations of this report represent a single component of the economic development strategy currently under development for Athens-Clarke County. This plan, the *Athens-Clarke County Economic Development Plan: A Strategy for a Strong Economy*, will provide policy guidance and action steps regarding workforce development and education, developing a sustainable economy, the role of the University, quality of life issues, and regional relationships and leadership.

BUSINESS LOCATION AND EXPANSION DECISIONS

In trade journals, business publications and newspapers, "winning" a competitive site selection project is often touted as the goal of economic development marketing. A closer examination of the business location decision-making process reveals that the objective should be to avoid exclusion, or "not losing," in the initial screening process. The remainder of this section presents the general site selection process from the perspective of the relocating company. This is followed by a discussion of who the key decision-makers are and what types of marketing affect their decisions. In all, these two items provide a clear understanding of the business location decision-making process and some insights into how to positively influence the process.

The Site Selection Process

Most phases of a typical site selection process focus on several basic factors: workforce availability and cost, workforce skills, market access, utility service and capacity, site and building availability, infrastructure and growth capacity, and quality of life. The volume of quality information available on the Internet is substantially altering site selection research. With the Internet, a company can conduct most of the site selection research online, and screen candidate communities based upon real-time information. Companies have already reported conducting 80% of their site selection search via the Internet, and saving weeks of time in the process.

Although the Internet will continue to change site selection practices, there is still value in understanding the basic site selection process. The steps of the traditional site selection process can be refined to a series of tasks and questions. The actual process and site selection factors, however, vary according to the specific needs of the relocating businesses. The following steps outline the basic process.

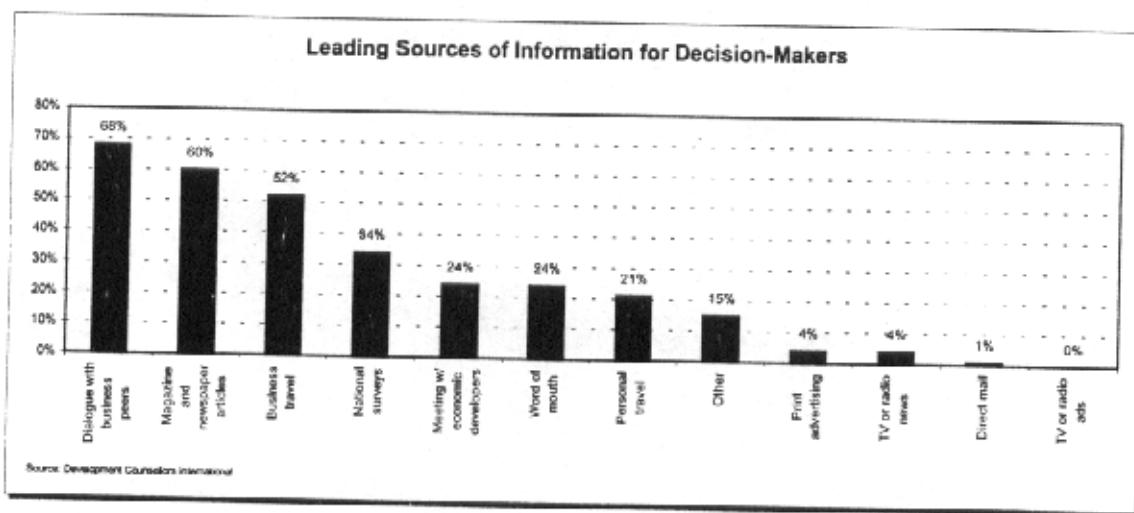
- 1. Define the Company Strategy:** Why does the company need a new facility, and what are the strategic objectives for the project?
- 2. Assemble the Project Team:** A small working group representing the necessary business units must be convened. A team leader, preferably a manager or executive, should lead the team.
- 3. Establish a Realistic Project Schedule:** Ideally six to eight months are necessary for a thorough site selection process. This time period covers the project from inception through property acquisition. The schedule can be compressed somewhat without sacrificing quality if additional staff are available.
- 4. Define Location Criteria:** Consideration is given to standard criteria regarding labor, accessibility, operating costs, environmental issues, and physical operating requirements. Subcategories under these general areas are often used to address specific project requirements. Weighting these factors on a point scale reflects the relative importance of factors and helps to differentiate among locations.

5. **Address Special Circumstances:** Are any competitors located in particularly advantageous locations? Are there any limiting assumptions that restrict the options? What are the specific operating requirements of the facility?
6. **Establish the Research Methodology:** Most site selection processes have two or three phases. The first phase is a Favorable Area Analysis conducted to find suitable regions of the country for a new facility based upon fundamental parameters. The Micro-Level Analysis and final selection occurs in the second or third phase, depending on whether an intermediate screening phase is necessary. Often more general data are collected for the Favorable Analysis, and more detailed location criteria are used for the community screening in the Micro-Level Analysis.
7. **Select Trial Communities:** Fifteen to 20 trial communities are selected during the Favorable Area Analysis to compare regions of the country using the project location criteria. These trial cities are for comparative purposes and are not necessarily selections to be screened.
8. **Data Collection:** Collect comparable data from federal agencies, state governments and local economic development organizations.
9. **In-House Data Analysis:** Process data regarding the trial communities for the Favorable Area Analysis.
10. **Recommend Favorable Areas:** Review the findings of the Favorable Area Analysis in a working group meeting. Reaffirm agreement on the project requirements, location criteria, and the research methodology. Then select the region that is most suitable for the project.
11. **Select Candidate Communities for Field Investigation:** Identify a large pool of candidate communities (roughly 40-50) in the selected region; then, screen the communities to arrive at eight to ten quality communities for further field investigation.
12. **Critical Field Investigations:** Perform critical field investigations of each community looking for *reasons to remove each community* from consideration. Communities remaining at the end of this round are finalist communities.
13. **Analyze Finalist Communities:** Perform Micro-Level Analysis on the finalist communities.
14. **Recommendation of the New Location:** Review the analysis findings, project methodology, assumptions and the logic of the selections (and removals) to date. Then, the working group should recommend the selected location. If a definitive choice is not evident in this analysis, develop a short list of two or three communities for discussion.
15. **Tour Community:** Prior to a final decision, some or all of the working group should tour the selected community or short-listed communities. One day per community should be allocated to conduct confidential interviews with businesses, local officials, utilities, etc. Tours of training schools and neighborhoods should be conducted, as well as tours of questionable areas.
16. **Negotiate Development Incentives:** Earnest negotiations over incentives should be started once a selection has been made, or for the shortlisted communities, to arrive at a favorable deal.
17. **Acquire/lease the selected property:** Once incentives have been discussed, it is time to close on the selected property.

Decision-makers and Marketing Considerations

Survey research about site selection decisions has provided insights about the decision-making process. Marketing and client services of the local economic developers should be tailored to address these factors. Realizing who makes these decisions is one such factor. According to surveys of executives recently involved in business location decisions, corporate real estate executives have the highest involvement in determining the finalist communities and making the actual selection. This remains the case with the final location decision, but the roles of Vice Presidents, Presidents and Chief Executives increase at that point. In small and medium-sized businesses, the President or Chief Executive plays a greater role than a real estate manager does in both decisions. Notably, site selection consultants have a significant degree of involvement identifying finalists, but a greatly reduced role in the final selection.

The sources of information for these decision-makers have a real impact on marketing strategies. The leading sources of information about business locations are dialogue with business peers (68%), newspapers and magazines (60%), and business travel (60%). The following graph depicts the responses for all types of information sources.



Knowing the least-used sources of information is as important as knowing the leading sources. According to surveys, print advertising, television and radio ads or newscasts, and direct mail are rarely used as information sources for site selection. Local economic development organizations must strategically market the community to maximize marketing funds.

Determining effective marketing techniques is a related issue of great importance. Planned visits with corporate executives were considered the leading marketing technique among 53% of the surveyed executives. Three different activities were ranked as the next most effective marketing tool: publicity, hosting special events, and trade shows. Direct mail (25%) and advertising (19%) were viewed favorably by a smaller percentage.

of decision-makers. Telemarketing, television ads, and radio ads are widely seen as the least effective marketing techniques. While there is not a current body of research about the use of the Internet, initial indications are that websites are an efficient source of information for site selectors. The ease of conducting Internet searches, coupled with its global access, increases the importance of having an effective Internet presence. Given current trends, there is a strong possibility that the Internet will become the central information resource in the site selection process.

Client Services

In the current economic environment, prospective businesses require speed and responsiveness from local economic development organizations. This means local economic developers need to learn as much as possible about a prospect's business requirements and try to customize any assistance accordingly.

Prospects most often contact local economic development organizations for assistance obtaining information on taxes and financial incentives and general community information. Local economic developers must also have a strong knowledge about incentives, and regularly update community information such as demographic and economic profiles. To minimize delays, direct and indirect assistance with permitting processes is important. Also, the process can be accelerated if the local economic development organization has identified specifically applicable financial incentives and suitable sites or buildings.

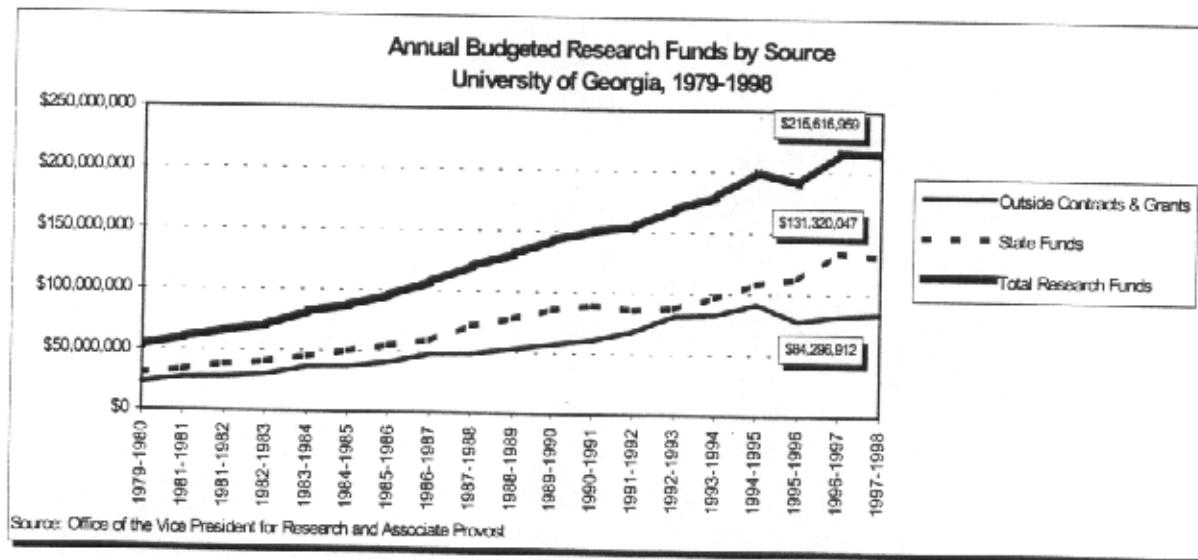
STRATEGIC ANALYSIS AND COMPETITIVE ASSESSMENT OF ATHENS-CLARKE COUNTY

Athens-Clarke County has several valuable assets that make the community an attractive place to operate a business. The University of Georgia is the foremost asset of Athens-Clarke County, both as a source of economic inputs, such as research and potential workers, and as an economic engine that generates substantial economic activity in the region. Like most communities, Athens-Clarke County must also address existing weaknesses and challenges to develop a business climate that successfully meets the needs of businesses in the community. At present, the availability and quality of the workforce are the most pressing challenges affecting the community's competitiveness.

Before drawing conclusions about the competitiveness of the local economy, a strategic analysis of the research capacity of the University and the mix of existing businesses has been performed. These two factors will greatly influence the competitiveness and potential of Athens-Clarke County.

Research & Development at the University of Georgia

The University of Georgia at Athens has a substantial and growing research capacity. Research is a primary element of the University's mission, and presently is the largest budget item as it accounts for 23% of the annual budget. The major areas of research are agricultural and environmental sciences, veterinary medicine, education, microbiology and life sciences, arts, business and communications. Since 1979, total funding for university research has increased threefold from \$53.4 million to over \$215.6 million in 1998. These significant levels of funding support are indicative of the University's commitment to a successful and growing research program.



Cross-disciplinary research institutes and programs have conducted an increasing share of the research that has practical, "real world" applications in the private sector or at government agencies. Most of these research centers are concentrated in the fields of biotechnology or environmental technologies, and each program assembles faculty, researchers and resources from multiple academic departments. In addition to any special research programs, the Vice President of Research for the University manages ten such research institutes: Center for Applied Isotope Studies, Center for Biological Resource Recovery, Center for Humanities & Art, Complex Carbohydrate Research Center, Institute for Behavioral Research, Institute for Natural Products Research, Institute of Ecology, Marine Institute at Sapelo Island, The Plant Center, and Savannah River Ecology Laboratory.

Three aspects of the University's research programs are fundamental to economic development efforts in Athens:

- 1) The structure and support of the Georgia Research Alliance;
- 2) Specific research programs and centers with commercial potential; and
- 3) University services supporting private sector research, development and technology transfer.

Each of these areas are elaborated upon in the following three sections.

The Georgia Research Alliance

The Georgia Research Alliance (GRA) has quickly emerged as the instrumental player in statewide efforts to generate high technology jobs and strengthen Georgia's economic base. GRA was formed to capitalize on the state's universities as potential economic engines for the state by spurring spin-off technology companies; attracting relocating technology companies requiring university research; and, increasing the productivity of existing businesses.

Since its formation in 1990, GRA has focused state investments in leading scholars, research facilities, and technology development at the state's six research universities, including the University of Georgia. To accomplish this strategy, GRA has established a statewide collaborative framework for university researchers conducting research in three critical fields: advanced communications technology, biotechnology, and environmental technologies.

Over the past five years, GRA has invested \$64.6 million in advanced communications, \$85.6 million in biotechnology, and \$45.6 million in environmental technology. Coupled with seed capital for promising new technologies, GRA has invested more than \$200 million during this period. GRA provided over \$14 million in research funds to the University of Georgia last year alone. Given the academic units and research facilities present at the University of Georgia, the greatest high technology opportunities for the Athens-Clarke County economy are in the biotechnology and environmental technology fields.

One of the key elements of the GRA structure is the Eminent Scholars program. By funding multiple Eminent Scholars at each university in the targeted fields, each university is assembling a "braintrust" to lead research and development efforts. At present, six of the twenty-eight endowed scholars designated throughout Georgia are faculty at the University of Georgia. The following chart identifies these Eminent Scholars and the related technology field.

Eminent Scholar	Research Program	Technology
Clifton Baile, Ph.D.	Agricultural Biotechnology	Biotechnology
Robert J. Maier, Ph.D.	Microbial Physiology	Biotechnology
James H. Prestegard, Ph.D.	Nuclear Magnetic Resonance Imaging	Biotechnology
Bi-Cheng Wang, Ph.D.	Structural Biology	Biotechnology
M. Bruce Peck, Ph.D.	Water Quality	Environmental Technologies
Michael J. Hannifan, Ph.D.	Technology Enhanced Learning	Advanced Communications

To date, Athens-Clarke County has not capitalized on the presence of the Eminent Scholars and should consider integrating their GRA-led research initiatives into the community's economic development strategies.

The second element of GRA's structure that is important to efforts in Clarke County is the three research consortiums. In the case of biotechnology, the Georgia Biotechnology Center is a collection of core research facilities from around the state, including eight centers at the University of Georgia. A list of these and other key research facilities at the University of Georgia is provided in the next section. The consortium of environmental technologies has several University of Georgia facilities, including the Georgia Solid Waste Utilization Center in Athens. These consortiums are being strengthened as GRA proceeds with the funding of Technology Development Centers to serve as the link between research and business and facilitate commercialization. The recently completed Applied Genetic Technology Resource is the first such facility in Athens.

A third important element of GRA's structure is the access to venture capital provided through the Technology Development Partnership. This partnership promotes joint research with Georgia businesses to develop research and technology with commercial applications. To date, 45% of the projects have been co-sponsored by large corporations, including Merial in Athens, the manufacturer of animal vaccines. The remainder of these projects have been co-sponsored by new companies and spin-offs such as AviGenics, Inc., another biotechnology firm in Athens. In addition to this access to capital, the Technology Development Partnership forges relationships with the business sector.

The national attention that GRA has attracted will strengthen the competitiveness of Athens-Clarke County as a location for targeted technology businesses. The scope of the statewide assets of GRA may also compensate for the small critical mass of technology businesses and resources that are present in Athens-Clarke County at this early stage of development.

Academic & Research Centers with Commercial and Industrial Potential

Biotechnology is certainly the strongest field of research at the University of Georgia that has significant market potential. The University has multiple research programs and facilities in biotechnology, as shown in the following descriptions.

- *Applied Genetic Technology Resource (AGTEC)* consists of several new technology development centers that house university researchers and a limited number businesses, including start-up companies and industry partners. An AGTEC Animal Biotechnology Resource facility was completed last year, and a facility specializing in plant biotechnology and genomics is under construction. These multipurpose facilities are intended to accelerate the transfer of technology between the university and businesses. The center provides vertically integrated support -- from initial technology discoveries through the product development cycle -- for plant and animal biotechnology products. Business can access and benefit from leading research and state-of-the art facilities to increase productivity and overall success rates.
- *Complex Carbohydrate Research Center (CCRC)* was established in 1985, and is a nationally prominent biotechnology center in the United States. The 150-person staff fills a scientific niche by investigating the chemistry and molecular biology of complex carbohydrates in plants, microbes and animals. The research furthers the understanding of disease processes and pathogens. Two federal research centers sponsored by the Department of Energy and the National Institute of Health are housed in the center. In this role, CCRC provides analytical services and training to scientists in government, universities or industrial laboratories around the world. CCRC also has developed several software products, databases, and network-based computer models for scientific analysis. In addition to state and federal funds, the center attracts funding from private foundations and industry.
- *The Center for Applied Isotope Studies (CAIS)* is staffed by chemists, biologists, physicists, and marine scientists. CAIS is a well-regarded analytical laboratory specializing in the study of isotopes and nuclear matter.
- *Center for Biological Resource Recovery* conducts research about the use of microorganisms in biotechnology and solving environmental problems. The center is staffed by researchers in biochemistry, molecular biology, marine science, and microbiology, who collaborate regularly with government agencies and industry.
- *Georgia X-Ray Crystallography Center* is a biochemistry and molecular biology lab dedicated to the study of genetic sequencing and modeling. Dr. Bi-Cheng Wang, an Eminent Scholar in structural biology, manages this center. The *Center for Metalloenzyme Studies* is another major research facility in the field of structural biology.
- *The Plant Center* is a multi-disciplinary research center focused on studying the cellular and molecular aspects of plant development, genetic cultivation of plants, and how organisms interact with plants. Twelve different academic departments participate in research of this center, from botanists to geneticists.
- In the area of biochemistry, two other core research facilities are the *Computational Center for Molecular Structure and Design* and the *Molecular Genetics Instrumentation Facility*. The latter facility researches the synthesis and sequencing

of DNA, proteins, and peptides and provides research services to researchers regarding genetic sequencing.

- The *Animal Science Complex* and the *Fungal Genome Resource* are two research facilities specializing in the rapidly emerging field genomics. Genomics is the study of gene sequencing technology.
- The University has a College of Pharmacy that offers undergraduate and graduate degrees and conducts over \$3 million worth of research annually.

The field of environmental technologies has a significant base of academic programming and research at the University of Georgia. Thirty years ago the Institute of Ecology was established as the first research center of this kind in the country. The major research centers related to environmental technologies are highlighted below.

- Institute of Ecology* maintains three on-campus facilities and five off-campus research centers throughout the state. The institute conducts research into environmental issues, including the use of a Chemical Analysis Lab and a Spatial Analysis Lab. This program also provides ecological training.
- Georgia Solid Waste Utilization Center* is a facility funded by GRA. The center researches waste disposal, recycling, and economically viable uses of waste, including marketable byproducts.
- Center for Forest Business* conducts research regarding sustainable forest production and market-based forest resource issues. The forest products industry, state and federal agencies, and private landowners sponsor the center.

Academic programs and research supporting the Software Development & New Media Cluster are generally comprised in three programs at the University of Georgia. While Georgia Tech has a significant share of the computer-related research among state universities, these programs represent a niche segment of a rapidly growing business cluster.

- The Dowden Center for New Media Studies* was established in 1994 to teach, research, and perform training for the Internet and other new media technologies. The Dowden Center has a laboratory and is housed within the College of Journalism and Mass Communications. The demand for students with knowledge and skills in this area has been demonstrated by the strong placement in Internet-related occupations with leading companies.
- The Cox Center for International Mass Communication Training and Research* was established in 1993. The center furthers the study of journalism and mass communication by funding research grants and exchange programs around the world.
- Learning Performance and Support Laboratory (LPSL)* performs research and development activities regarding interactive learning environments, cognition with emerging technologies, electronic performance support systems, and the educational applications of telecommunications and information technologies. LPSL works with government agencies and is currently collaborating with private sector organizations such as the AT&T Foundation. The majority of research projects either test or create technology products.

In terms of software development, two points are noteworthy. First, most Internet content and graphics require software, so software development and new media applications are complementary. Secondly, all business clusters in the modern economy have a rapidly growing demand for software products to reduce costs and increase productivity. The biotechnology and environmental technology clusters are particularly dependent upon software products to perform sophisticated scientific analyses. Many of the departments and research centers in these fields already develop some proprietary software out of necessity.

The University does not conduct any significant research relevant to the productivity of the Health Services Cluster or the Tourism & Hospitality Cluster. These two clusters can be strengthened by capitalizing on the volume of economic activity generated by existing businesses in Athens-Clarke County.

University Research Services and Business Support

The University of Georgia Research Services department offers numerous services and products that make Athens a more "user-friendly" location for research-intensive businesses. Basic services include a well-stocked research store (general supplies), a scientific store for chemistry and molecular biology supplies, graphics services, custom instrument design and repair for electronic and mechanical equipment. Specific analytical services in the biotechnology field are also offered at four facilities: the Cell Analysis Facility, Monoclonal Antibodies Laboratory, Chemical Analysis Facility, and a molecular genetic sequencing facility. All of these support services are provided on a fee-for-service basis.

The business community also receives University support through a technology licensing program and direct business assistance. The technology licensing program regularly identifies commercial licensing opportunities in all areas of research. The University's Business Outreach Services Division also provides direct business assistance regarding finance, management issues, and business strategy.

Business Development Activity in Athens-Clarke County

Recent business development activity reflects the experience of communities around the country - - existing business expansions generate more jobs and investment than relocations. According to records maintained by the Athens-Clarke County Chamber of Commerce, business expansions added over 2,000 jobs and generated \$218 million in capital investment between 1991 and 1996. By comparison, relocating businesses generated 403 new jobs and \$74 million in capital investment during the same six-year period. These results indicate that expansions in Athens-Clarke County have added jobs at a 5:1 ratio and increased capital investment at a 3:1 ratio during the 1990s. It should also be noted that several businesses in Clarke County have expanded multiple times during the 1990s. For example, Merial Ltd., a manufacturer of animal vaccines, has expanded five times since 1991. Of the nine businesses that have expanded since 1990, seven companies have expanded at least twice.

In addition to the example noted for Merial, businesses expanding in Athens-Clarke County have included manufacturers of metal and plastic containers, bulk pharmaceuticals, precision machined transportation parts, auto super chargers, transport refrigeration systems, and another producer of veterinary medicine. Relocating companies during the 1990s have included a telemarketing operation, screen printer, gasket manufacturer, telecommunications equipment maker, wholesale distributor, non-woven fiber production, concrete manufacturing, and a plastics manufacturer.

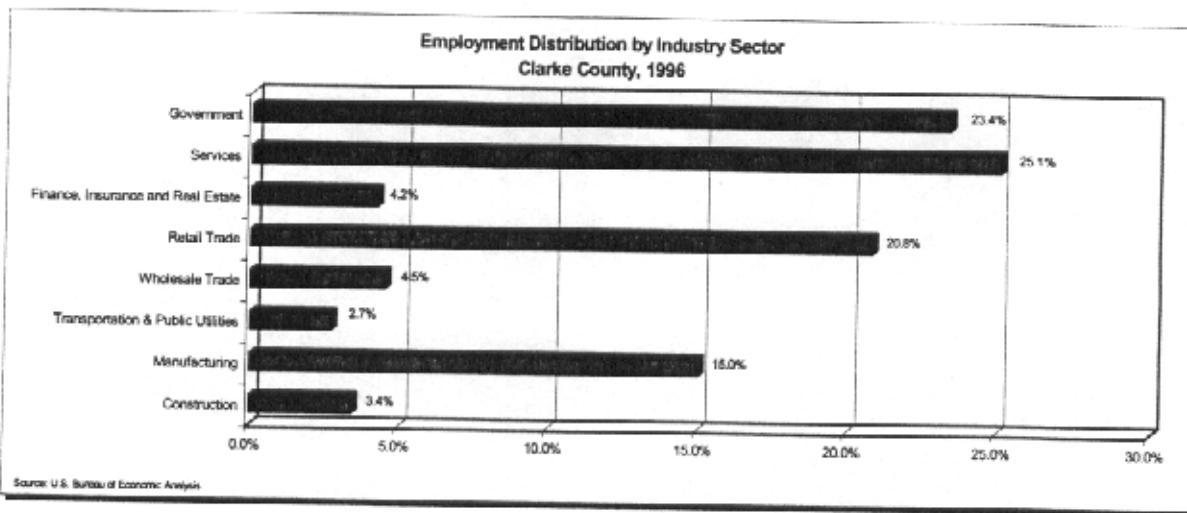
New start-up companies with ties to university research have also been established in the Athens-Clarke County area. These companies are concentrated in the biotechnology and environmental technologies clusters and have achieved varying stages of operation, as depicted in the following table.

Company	Business Cluster	Product	Status
<i>Aureozyme, Inc.</i>	Biotechnology	Commercial degradation of plant material	Employs 4; funds 5 more UGA researchers; attracted greater than \$1M of venture capital since 1997.
<i>AviGenics, Inc.</i>	Biotechnology	Genetically improved poultry traits and provides pharmaceutically useful proteins	Employs 10 and leasing UGA lab space; funds 8 more UGA student and faculty researchers; supports \$250,000 of annual research; received venture capital and \$1.5M federal grant.
<i>Enzymatic Deinking Technologies, LLC</i>	Environmental Technologies	Enzyme based products used by paper industry	20 employees in Norcross, GA; formed in 1994 based upon UGA research; continuing relationship with UGA research institutions.
<i>Leven, Inc.</i>	Biotechnology	Commercial toxicology testing and cancer risk tests	Two employees relocated from Boston; leasing lab space in AGTEC facility in Athens; received GRA funding and expects rapid growth
<i>Mariner BioLabs, LLC</i>	Biotechnology & Environmental Technologies	Sophisticated aquatic products for biomedical, drug, environmental, and aquacultural fields	Plans to operate a lab in new GRA-funded facilities at UGA; continues use of UGA research re: aquatics and genetics
<i>Optigen, Inc.</i>	Biotechnology	Low-cost provider of genetic engineering to large-animal production industries to improve meat	GRA Technology Development Partnership funds supported company launch; has occupied space in AGTEC facility in Athens.
<i>PhytoWorks, Inc.</i>	Biotechnology	Genetic engineering of plants	Technology developed at UGA; received venture capital from a Philadelphia firm; plans aggressive growth adding 48 staff over two year period.

Existing Businesses in Athens-Clarke County

The local economic base has been thoroughly analyzed in the companion *Economic and Demographic Analysis*. It is, however, worthwhile to restate key findings about the economic structure as a foundation for the discussion of Target Business Clusters and business development efforts. The largest employment sectors are services (25.1%), government (23.4%), retail trade (20.8%) and manufacturing (15%). Relatively lower

wages in these main sectors has resulted in lower per capita income for local residents. Expanding and diversifying the economic base would improve local wealth generation.



To show the relative importance of different sectors, a location quotient can indicate which sectors are "traded sectors" that bring in money from outside of the local economy. A score of 1.00 for a location quotient indicates that the share of the local economy a given sector accounts for is equal to the national average. A location quotient above or below 1.00 represents a sector that is stronger or weaker than national levels. The four major traded sectors in Athens-Clarke County are state government, manufacturing, health services and retail trade. State government has a high location quotient of 4.96 for jobs and 6.02 for earnings, demonstrating the centrality of the University as an economic center. Manufacturing has a location quotient of 1.19 for jobs and 1.00 earnings location quotient, indicating a relatively stable manufacturing presence given the loss of manufacturing experienced in comparable communities.

The health services and retail trade have been the two of fastest growing traded sectors. Employment in the health services sector doubled between 1992 and 1995, and is expected to experience high growth rates over the near and long-term. Health services has a 1.52 earnings location quotient due to the two regional hospitals and the higher wages of this sector. Retail trade has a jobs location quotient of 1.23 and an earnings location quotient of 1.19. The stronger than average retail trade market is a function of the high per capita spending of students and the ability of Clarke County to draw buyers from outside of the county. Last year, students alone spent \$221 million on retail purchases. Visitors attending sports events spent \$12.8 million in 1998 alone, and represent one segment of the sizable tourism market in Athens-Clarke County.

Among these traded sectors, state government and manufacturing provide the highest pay, while retail trade has the lowest pay by a significant degree. Retail trade is also the smallest contributor to local earnings because of the number of part-time jobs with low wages.

A review of major employers complements the statistical analysis of the economic base. The largest employer is by far the University of Georgia with nearly 9,000 employees. Among service sector employers, the largest concentrations of employers are in education, health services, telecommunications and finance. There are also several lower wage jobs in telemarketing and retail trade.

Largest Service-Producing Employers in Athens-Clarke County, 1997

Company	Sector	Number of Employees
University of Georgia	State Government	8,903
Athens Regional Medical Center	Health Services	1,882
Clarke County School District	Education	1,600
Athens-Clarke County Unified Government	Local Government	1,375
Saint Mary's Hospital	Health Services	1,110
DialAmerica Marketing, Inc.	Telemarketing	600
McLane/Southeast Grocery Distribution	Transportation	520
Flowers, Inc. Balloons	Manufacturer	260
Golden Pantry Food Stores	Retail Trade	250
BellSouth	Telecommunications	250
Athens First Bank & Trust Company	Finance	175
Athens Area Technical Institute	Education	150
Trust Company Bank of NE Georgia	Finance	145
Vend Food Services	Wholesale	125
Georgia Power Company	Utility	118

A look at the major manufacturing employers shows that Athens-Clarke County does have a concentration of lower skill (and lower paying) jobs in food processing and assembly work. The largest manufacturing companies are food processing plants of large poultry companies, while many of the assembly jobs are in apparel and textile facilities. The higher paying manufacturers produce value-added products such as veterinary medicines and transformers.

Largest Manufacturing Employers in Athens-Clarke County, 1997

Company	Product	Number of Employees
Scaboard Farms, Inc.	Food Processing	1,688
GoldKist, Inc.	Food Processing	1,056
Reliance Electric	Motors	900
General Time	Clocks	700
ABB Power	Transformers	605
Wilkins Industries	Apparel	500
DuPont	Fiber Beaming	480
Merial, Ltd.	Veterinary Medicine	425
Superior Pants	Apparel	420
DelMar	Textiles	400
Carrier Transicold	Transport Refrigerator Units	366
Certain Teed Corporation	Fiberglass Insulation	300
Veratec	Nonwoven Textiles	250
Oliver Rubber	Tread	274
Champion International	Milk Cartons	180

Competitive Assessment

A thorough analysis and discussion of the competitive advantages and disadvantages of Athens-Clarke County has been presented in three research documents: the *Economic and Demographic Analysis*, *Business Climate Review*, and a *Workforce Profile*. These are the three primary research elements of the planning process currently underway to develop the *Athens-Clarke County Economic Development Plan: A Strategy for a Strong Economy*. The following primary strengths and weaknesses have been identified based upon that previous research, interviews with community stakeholders, and the strategic analysis provided in the previous section.

Strengths and Opportunities

The primary strengths and opportunities for Athens Clarke County are as follows.

- Numerous research programs at the University of Georgia, particularly those in biotechnology related fields, have strong commercial potential.
- The structure, marketing and substantial funding support provided by the Georgia Research Alliance can help Athens-Clarke County capitalize on the commercial potential of university research.
- A substantial pool of potential full-time workers is available in the form of 7,000 graduates from the University Georgia annually.
- The college student population offers a large supply of part-time employees for various retail and service businesses.
- Local air service and access to international air service from Hartsfield Atlanta International Airport is a competitive advantage over many comparable communities.
- Frontage on, and accessibility to, the GA 316 business corridor is an asset.
- BellSouth has installed an advanced fiber optic telecommunications network providing broadband capacity to businesses.
- Sewer facilities, the water system, and the transportation network offer an adequate physical infrastructure for most types of business.
- Taxes and utility rates are comparable or lower than similar areas resulting in potentially lower business costs.
- Health services, recreation and cultural opportunities, and a lower cost of living are positive quality of life attributes.

Weaknesses and Challenges

Several significant weaknesses and challenges currently hinder the competitiveness of Athens-Clarke County, and ultimately need to be addressed to maximize the community's business development efforts. The primary weaknesses and challenges include the following issues.

- Workforce availability problems were evidenced in the economic analysis and through interviews with existing business owners.
- The supply of workers is not likely to expand due to low unemployment rates, high labor force participation, and an inability to retain graduating students from the University of Georgia.
- The quality of the workforce is a significant challenge because of the low educational attainment of the local population and decreasing high school graduation rates.

- Local schools have a poor reputation among local residents and businesses.
- The economic mix is weakening as lower paying jobs in the retail and service sectors have accounted for the majority of recent employment growth.
- The relative shortage of developed sites or modern speculative space for commercial and industrial users makes product development a significant challenge.
- In comparison with similar communities, the quality of life is mixed because of lower current income levels, lower income growth rates, a higher crime rate, and a limited supply of executive housing.

Preconditions for Competitive Business Attraction

The viability of significant business attraction and expansion opportunities will depend upon the community's effectiveness in addressing several critical challenges outlined in the competitive assessment. The most immediate challenges to deal with are workforce development and product development.

1. *Workforce development:* Athens-Clarke County must expand the pool of skilled workers. In the near-term, serious efforts to retain more UGA graduates in the workforce are essential. Significant entrepreneurial activity may be one way to capture more college graduates. A long-term commitment to improving the local public schools is fundamental to the long-term competitiveness of the community.
2. *Product development:* Athens-Clarke County lacks an adequate inventory of existing space with modern building systems. Developed sites are also limited. Encouraging adequate product development will be necessary. The new lab spaces at the University, such as the AGTEC Resource, are serving the needs of some start-up firms, but these facilities cannot support a growing business cluster. For example, a university research park, such as those developed at the University of Virginia, Penn State and Clemson University, demonstrates the direct role universities can play in local development efforts. These research parks provide much needed space and sites to suit the needs of targeted businesses, and these developments also reinforce the direct access businesses can have to university resources by locating in a university community.

TARGET BUSINESS CLUSTERS

Cluster Development

Business clusters have been described as geographic concentrations of interconnected businesses and institutions in a given field. Clusters consist of a collection of related companies -- buyers, sellers, competitors, and partners -- and various institutions like universities that affect the competitiveness of the businesses. The most commonly cited examples of business clusters and cluster development in the United States are Silicon Valley and the Highway 128 Corridor in Boston. While these cases exhibit cluster development for world class technology clusters, business clusters can and do exist for all types of economic sectors from durable goods manufacturing to tourism.

Most clusters originated with one or two successful businesses and a synergistic relationship with key institutions such as a government research lab or university. As a dynamic process, clustering occurs if the original firms are successful and generate demand for related products and services. The main characteristics of business clusters include:

- The ability to attract specialized services to this cluster;
- Open cluster "membership;"
- Social relationships, including face-to-face interaction, foster trust and reciprocity;
- Demand for other businesses with similar and related capabilities is generated;
- Cooperation and competition are present; and,
- Shared collective visions for the cluster region.

Cluster development has become a model of economic development theory and practice during the 1990s because of the emergence of this dynamic global economy. In this knowledge-based economy, productivity has replaced low cost inputs, such as cheap labor or land costs, as the key competitive factor for businesses. According to Michael Porter, a leading business strategist at the Harvard Business School, clusters have been found to increase productivity because of the following factors:

- Improved access to workers and suppliers;
- Access to a flow of specialized information about cluster businesses (i.e. effective business strategies, performance measures, other technical information);
- Complementary relationships can benefit cluster members;
- Access to relevant institutions and public investments; and,
- Exposure to competitors enhances motivation and performance measurement.

The nature of cluster development strengthens the competitiveness of area businesses in several regards. First, there are productivity gains as noted earlier. Secondly, the potential for cost savings increases through the efficiencies of cluster relationships and agglomeration economies. Thirdly, clusters increase rates of innovation because cluster members -- both institutions and businesses -- are attuned to changing market demand and competitive conditions. Innovation is further supported by the rapid flow of information within a cluster, and the reduced cost of experimentation if cluster businesses

collaborate on research. Finally, business clusters stimulate new business formation. Barriers to entry are reduced in a business cluster, as opposed to a stand-alone entity, because the workforce, technology, and often market demand are largely present through the cluster. New start-up companies within a cluster typically have identified market niches and also can access capital more easily via financial institutions that are active in the cluster.

The cluster development approach differs notably from traditional economic development practice. While traditional recruiting focuses on the singular needs of individual companies or industries, cluster policies employ a systems approach by targeting linked businesses and industries.

In short, the drivers of business clusters tend to be competition, the benefits of agglomeration economies, workforce skills, technology and knowledge transfer, and the reinforcing social interactions. Communities and economic development organizations benefit from cluster development approaches because they provide an effective recruiting mechanism and help to use limited resources efficiently.

The following target business clusters represent economic opportunities for Athens-Clarke County based upon the area's existing businesses and community assets. For each cluster, there is a description of general business activity and existing local. As applicable, information about business location criteria and initial relocation prospects are also provided.

Biotechnology Cluster

Cluster Description and Trends

The Biotechnology Cluster consists of a variety of science-related industries including pharmaceuticals, animal medicine, genetic engineering, food processing, and related businesses. Athens-Clarke County is competitively positioned to develop this business cluster because of the strong research programs in related fields and the recent success of small start-ups supported by the University and Georgia Research Alliance. Several large existing businesses in veterinary medicine and biochemicals are also located in Clarke County. Both the large existing companies and recent spin-offs have utilized University research in the areas of molecular biology, agricultural and plant research, veterinary medicine, and marine research.

Annual sales in the biotechnology sector are estimated at over \$100 billion in the United States, and are projected to grow at a 10% annual growth rate through 2002. Aside from large pharmaceutical companies with biotechnology product lines, most companies in this sector are small and medium-sized firms with less than 100 employees. The average salary in this sector now exceeds \$50,000.

The industry is directly affected by government regulations and the various approval processes applicable to the production drug, chemical, medical devices and food products. Biotechnology is the one of the most research-intensive business sectors in the United States, and, therefore, has particular business location requirements that are necessary to operate successfully.

Business Location Characteristics

The primary site selection criteria of biotechnology companies are access to university or government research facilities and an adequate supply of skilled workers (scientists and researchers). Biotechnology businesses also benefit from proximity to academic or regional hospitals, medical schools, and production facilities. Access to venture capital and relationships with government and private sector actors are factors considered by biotechnology companies. Smaller start-ups focus on a lower cost structure and ready access to venture capital because of their stage in the business cycle. Larger pharmaceutical companies are more likely to expand existing facilities rather than constructing a new facility.

The leading cluster of biotechnology companies in the country is located in the San Francisco Bay area. This region is considered the home of biotechnology, which emerged out of research associated with Stanford University in Palo Alto, California, and the National Institute for Health. The greater Boston area and suburban Washington, D.C. represent the second tier of biotechnology clusters behind the dominant position of the Bay Area in California. A third tier of biotechnology locations is emerging in San Diego, Los Angeles, Austin, and Raleigh-Durham.

Existing Businesses and Assets in the Athens-Clarke County Area

The university research laboratories focused on plant and animal biotechnology are the leading assets for this cluster. The specific facilities are enumerated in the earlier section on Academic and Research Centers. A growing list of biotechnology start-ups and existing businesses has strengthened the cluster and provide a foundation for business expansion and attraction efforts.

- Avigenics, Inc.: poultry transgenisis and proteins (10 employees)
- Leven, Inc.: commercial toxicology testing (2 employees)
- Mariner BioLabs, LLC.: sophisticated aquatic products for biomedical and environmental uses
- Merial Limited (formerly Rhone Merieux): animal vaccines (425 employees)
- Optigen, Inc.: genetic engineering of large animals
- Phytoworks, Inc.: genetic engineering of plants.
- Noramco, Inc.: manufacturer of bulk pharmaceuticals (100 employees)
- Athens Research & Technology, Inc.: purified human proteins (11 employees).

Initial Target Businesses for Relocation

- Genzyme Transgenics Corporation, Framingham, MA: Applies transgenic technology to develop recombinant proteins and performs toxicology testing for the biotechnology, pharmaceutical and chemical industries. This company has 580 employees, over \$63 million in annual sales and had a five-year growth rate of 110%.
- New Brunswick Scientific Company, Inc., Edison, NJ: Designs and manufactures equipment used in biotechnology to monitor physical and biochemical conditions necessary to detect microorganisms. This company has 410 employees, more than \$46 million in sales and has grown by over 6% annually.
- Quintiles Transnational Corporation, Durham, NC: Provides contract product development for biotechnology and pharmaceutical companies including clinical trials, biostatistical analysis, lab services and related consulting. The company has 10,900 employees and annual sales of \$815 million. The five-year growth rate for this company was 53%.
- Techne Corporation, Minneapolis, MN: Subsidiaries of this holding company manufacture biological products including purified proteins and hematology controls. The company has 355 employees, annual sales exceeding \$67 million and a five-year growth rate of 14%.
- Calgene, Inc., Davis, CA: Researches and develops genetically engineered plants and plant products to cultivate higher quality produce and for ancillary uses.

Environmental Technologies Cluster

Cluster Description and Trends

The Environmental Technologies Cluster consists of a diverse and complex collection of industries. Companies in this sector offer products and services to control, monitor, or reduce forms of waste and pollutants. The segments of this business cluster are solid waste management, water supply and treatment, air pollution control, toxic remediation, pollution monitoring. Because of the local businesses and university resources present, Athens-Clarke should target the solid waste, water quality, and pollution monitoring segments of the environmental technologies field.

The typical size of companies in this industry varies greatly from large waste disposal companies to small environmental research and testing companies. The customer base for this cluster is also varied and includes large corporations, federal and state government agencies, local governments, water and sewer utilities, and small businesses.

In the United States, environmental technologies represent a \$140 billion business cluster. State and federal regulations directly influence the opportunities in this cluster. Much of the environmental business emanated from the passage and enforcement of new federal regulations during the 1970s. During the 1980s and early 1990s, the enforcement of additional environmental regulations passed on the state and federal levels sustained strong industry growth in the 10% to 15% range. In the last five years, growth rates have slowed to nearly 5% due to increased competition. Historically, competition has increased due to the maturing of the environmental markets and low barriers to entry. In response, this cluster has witnessed consolidation in the solid waste segment. Future growth in this cluster will depend on market-led demand rather than regulation induced opportunities.

Three significant trends are fueling growth opportunities in the environmental technologies cluster. First, local water utilities are privatizing to avoid the cost of plant improvements. Second, recycling and reuse technologies are increasing. And third, large corporations and industrial companies are outsourcing environmental operations to contractors as a cost-cutting measure.

Business Location Characteristics

Location criteria in this cluster depend upon the business function of the company and market segment served. The most compatible companies for Athens-Clarke County are those with more research-intensive businesses. Commercial research labs and testing companies, consulting firms, and manufacturers of environmental technology equipment. Most of these companies are small to medium-sized firms seeking a low cost structure, access to research facilities, and an educated workforce.

Existing Businesses and Assets in the Athens-Clarke County Area

The University of Georgia offers two significant research centers that specifically serve industries of this cluster: the Solid Waste Utilization Center and the Forest Products

Business Research Center. The research at the Institute of Ecology in Athens and the Savannah River Ecology Laboratory general environmental sciences research, and the marine research conducted through the state further support the cluster. The largest area business in this cluster is Roper Industries, as noted below.

- Roper Industries: Manufactures high technology pumps, compression equipment, microscopes and detection instruments (2,000 employees).

Initial Target Businesses for Relocation

- Strategic Diagnostics, Inc., Newark, DE: Develops and sells disposable test systems to detect water and soil contamination. This firm has 105 employees, annual sales of \$14 million, and a five-year growth rate of 53%.
- Ecology & Environment, Inc., Lancaster, NY: Provides a broad range of professional services including environmental audits, terrestrial, aquatic and marine surveys and other pollution related research and services. Clients are state and local governments, industrial companies, and international public and private entities. This company has annual sales in excess of \$61 million.
- Law Companies Group, Alpharetta, GA: International provider of engineering and environmental services including lab analysis, environmental assessments, testing and site remediation. This company has over 3,800 employees and may be a prospect for a branch laboratory in Athens.
- Tetra Tech, Inc., Pasadena, CA: Major provider of comprehensive environmental services addressing water contamination and other complex environmental problems. The company has annual sales exceeding \$297 million.
- Thermo Fibertek, Inc., Waltham, MA: Designs and manufactures processing machinery for paper and paper-recycling industries. Products include custom-engineered systems for wastepaper recycling, water management systems for paper production processes and other pollution control equipment for pulp and paper industries. The company has 1,400 employees and over \$240 million in annual sales. The five-year annual growth rate for this company has been 15%.
- Thermo Fibergen, Inc., Bedford, MA: Develops equipment and systems to recover valuable materials from large volumes of pulp residue generated at plants producing virgin and recycled pulp and paper. This company had 41 employees in 1997 and sales of \$5 million.

Value-Added Manufacturing Cluster

Cluster Description and Trends

The Value-Added Manufacturing Cluster is a broad array of manufacturing activities that apply knowledge, skills, or technology to production processes. In the case of Athens-Clarke County, this cluster consists of electrical and mechanical equipment, plastics, chemicals, and auto parts manufacturing. High technology manufacturing also represents a growing form of value-added production in this sector. This industry pays higher wages than lower-skill employment in low-end manufacturing and assembly operations.

Value-added manufacturing companies typically export products on a global basis. This increases the amount of "outside" money circulated in the local economy but also means these companies are more sensitive to global economic conditions. The trends are varied across the numerous industries involved in value-added manufacturing. As research by Cognetics, Inc., a business and economic research firm, has shown, very often overall data for the manufacturing sector tends to hide successful, growing firms within lower growth industries. Among the noted value-added sectors, the electrical and mechanical equipment sectors have been identified as sectors with a relatively high percentage of fast growing companies during the last five years. The shift to just-in-time inventories has affected specific industries differently. In general, chemical and plastics companies with consumer products have had to locate plants or distribution facilities closer to the markets served under just-in-time practices. Most other value-added manufacturers are affected by these changes in supply-chain management but are still focused on the overall cost of doing business when expanding facilities.

Business Location Characteristics

The business location criteria of the value-added manufacturing cluster emphasize skilled workers and low cost structures. The primary factors considered by these companies for site selection purposes are provided in order of importance:

- Workforce availability and skills;
- Market access;
- Operating costs;
- Labor costs;
- Incentives and taxes;
- Accessibility; and,
- Available buildings.

Existing Businesses & Assets in the Athens-Clarke County Area

The primary assets for expansion and relocation purposes are the numerous area companies involved with electrical and mechanical manufacturing.

- Reliance Electric Company: Manufacturer of electric motors, industrial devices and electronic controls (900 employees)
- ABB Power: Manufacturer of electrical transformers (605 employees)

- Carrier Equipment: Manufacturer of truck refrigeration equipment (350 employees)
- Nakanski Manufacturing Corporation: Manufacturer of bearings and metal/plastic retainers (200 employees)
- Eaton Corporation: Manufacturer of auto superchargers (110)
- McCann Aerospace Machining Corporation: Manufacturer of mechanical fittings for the aerospace industry (100 employees)
- Galtronics USA, Inc.: Manufacturer of cellular phone antennas (25 employees)

Initial Target Businesses for Relocation

The initial businesses are concentrated in the electrical and mechanical equipment sectors. Other value-added industries may also be recruited, but there is strong initial potential is for additional suppliers or producers in these fields.

- Kuhlman Corporation, Savannah, GA: Manufactures and markets electrical utility and industrial transformers for electrical distribution systems. Other products include turbochargers, engine fans, and spring products for metal stamping. Kuhlman Corporation has 4,200 employees, \$643 million in annual sales and a five-year growth rate of 28%.
- C-Cor Electronics, Inc., State College, PA: Designs and manufactures electronic equipment for cable systems and data transmission systems. C-Cor Electronics employs 1,200 and has annual sales above \$152 million. The five-year growth rate of this company has been 26%.
- General Bearing Corporation, West Nyack, NY: Manufactures, sources and distributes a variety of bearing components and products used in autos, locomotives, office equipment, machinery and appliances. The company has 142 employees and annual sales exceeding \$42 million. The five-year annual growth rate for this company has been 12%.
- SL Industries, Inc., Mount Laurel, NJ: Manufactures and distributes engineered electrical products including high power precision motors, voltage regulators and electrical subsystems. The company has 2,000 employees.
- Magnetek, Inc., Nashville, TN: Manufactures and markets fractional and integral horsepower electric motors, medium voltage generators, and power suppliers for small component transformers. The company is large with 14,900 employees and \$1.2 billion in annual sales.

Software Development and New Media Cluster

Cluster Description and Trends

Modern businesses and organizations are dependent upon information technology and software to some degree. This has made the software industry one of the fastest growing sectors of the U.S. economy. More recently, the Internet has introduced a new form of media that also represents opportunities for start-up businesses. As the trend towards network computing continues, the Internet has become another computing platform for organizations. This trend has begun to blur the distinctions between software and the Internet and new media. Given these conditions, widespread demand for software applications and rapidly growing demand for Internet products present niche opportunities that Athens-Clarke County may capitalize upon.

As of 1997, the "packaged" software market was estimated at \$125 billion according to International Data Corporation. The projected annual growth rate for this software market is 12%. Applications software is the largest segment of the market with an estimated \$56 billion market in 1997 and projected annual growth rates of 15% through 2001. "Applications" software performs specific industry or business functions. This does not include the smaller but significant volume of software developed through direct programming services for specific clients. The growing number of software companies and rising employment levels show further evidence of the rapid growth in this industry. Both have more than tripled over the last nine years.

Software development for research-based businesses in the biotechnology and environmental technologies is one market niche for Athens-Clarke County. The university's research programs utilize software program extensively for research and analytical purposes. Numerous research programs have developed proprietary software and databases to conduct their research, or have even developed software for use by other researchers or industry. Local companies or University "spin-offs" may be able to bring these software products to market. There are also existing businesses in the biotechnology industry that may also be relocation prospects.

Past experience demonstrates a synergy between biotechnology and software development. As the Biotechnology Cluster expands in Athens-Clarke County, the demand for industry-specific, analytical software applications will also increase. This relationship between biotechnology and the software industries has been witnessed in California, Boston, and Raleigh-Durham.

Educational software is a second niche segment in software development. In addition to the large education department at the University, there is a Learning and Performance Support Laboratory (LPSL) on campus that researches technology enhanced learning. The research program is headed by an Eminent Scholar in Technology Enhanced Learning. Research has focused on interactive learning environments, Internet-based applications, electronic performance support systems and requires the creation and evaluation of software and web-based applications. The research is performed in

collaboration with government, other universities and research institutions, and businesses. An ongoing research project for the AT&T Foundation is underway with other Georgia Universities.

Opportunities to spin-off Internet businesses from University programs are a third niche opportunity. The expansion of the Internet has been widely publicized in popular media. An estimated 100 million people are currently connected to the Internet, and industry forecasts project that may increase to 1 billion people worldwide by 2005. Significant academic and research programs in related communications fields have been established at the University of Georgia. Students involved with Dowden Center for New Media studies and the Cox Center for Mass Communications are quickly placed with technology companies and large corporations throughout the South. These alumni professionals and new graduates of the programs represent an entrepreneurial opportunity in this fast growing field.

Business Location Characteristics

The major business location factors for these businesses are:

- highly educated and trainable workforce;
- advanced telecommunications infrastructure;
- research facilities and business parks;
- programs supporting technology start-ups;
- technology transfer with government labs or universities; and,
- high quality of life to attract and retain workers.

Large clusters have developed in locations with a critical mass of computer-related businesses and skilled workers. Silicon Valley, southern California, and the Pacific Northwest contain the world's primary software development clusters. Boston, Austin and Raleigh-Durham have significant capacity and are secondary clusters in the United States. Strong regions for Internet businesses coincide with the software clusters, but New York City and metro Washington, D.C. are considered primary locations for these businesses. University towns are common locations for new media businesses, and the nature of the Internet has allowed a wide geographic dispersion of business start-ups.

Existing Businesses and Assets in the Athens-Clarke County Area

Athens offers many of the characteristics required of technology businesses in this sector, including a large potential supply of educated workers, advanced telecommunications and technology transfer opportunities with university research centers focused on related technologies. Several small technology companies in this cluster are already present in the greater Athens area.

- Leapfrog Technologies: Software for the banking industry (25 employees)
- On-Line Instruments Systems: Integrated software for research labs (20 employees)
- Nront: Technology for Internet banking.

Initial Target Businesses for Relocation

Although opportunities will be strong for local start-up businesses benefiting from relations with the university, several companies developing industry-specific software are relocation prospects.

- Incyte Pharmaceuticals, Palo Alto, CA: Designs and markets genomic database products, related data management software serving the biotechnology, pharmaceutical and agriculture industries. This company has 675 employees, more than \$88 million in annual sales and had a five-year growth rate of 240%.
- Idexx Laboratories, Inc., Oakbrook, ME: Develops and sells software systems for veterinary medicine practices. Idexx Laboratories also produces a full line of diagnostic equipment for lab testing of veterinary medicines, food products, immunology and disease detection. The company has 2,100 employees and annual sales in excess of \$263 million. The five-year annual growth rate for the company has been 30%.
- Sutron Corporation, Sterling, VA: Develops application software regarding environmental monitoring and controls for government agencies, universities, and utilities. The company has over 60 employees.

Health Care Cluster

Cluster Description and Trends

The Health Services Cluster consists of two distinct segments. The lead segment is the health services sector that serves patients in hospitals, clinics and other facilities. Medical suppliers and manufacturers of medical devices and diagnostic equipment are the second segment of the cluster. This second segment can contain wholesalers, distributors or actual manufacturers.

With two regional hospitals, health care represents an important sector of the local economy. Health services account for a substantial share of local employment and provide high paying jobs contributing more than \$400 million per year. The health services sector is expected to remain one of Clarke County's growth industries. Short-term and long-term trends regionally point to continued growth for the health services sector. Nationally, health care spending is projected to increase 6.5% annually through 2001. Long-term growth in health services is forecast due to demographic trends. According to the Health Care Financing Administration, health care spending will increase and estimated 85% between 1998 and 2007. According to DRI-McGraw Hill, employment in the health care sector has grown 12% during the past five years, and is projected to continue steady growth.

Hospitals and other facilities face several challenging trends: shorter patient stays, increasing demand for outpatient services, a general overcapacity of beds, management issues, and cost cutting pressures. Despite these industry trends, Clarke County can build upon the foundation of the higher-paying health services sector in Clarke County to develop a viable cluster strategy. The health care facilities in Athens-Clarke County serve a regional market and can sustain significant economic growth.

Encouraging expansion of medical suppliers or equipment manufacturers in Athens-Clarke County is a secondary element of this cluster strategy. Suppliers may offer a range of products and services from simple facility supplies to more sophisticated diagnostic equipment. Wholesalers and manufacturers of medical devices are an attractive segment because they are a high paying industry with strong export levels.

Business Development Strategies

The Health Care Cluster is an established engine of the local economy and requires existing business support from the local government and economic development organizations. Athens Regional Medical Center (1,880 employees), St. Mary's Hospital (1,100 employees), and the ancillary health care facilities are the foundations of this cluster. Athens Regional Medical Center offers comprehensive medical, surgical and diagnostic services, and is home to a new open-heart surgery unit. St. Mary's Hospital has comprehensive medical facilities including a long-term care facility and a wellness center. Two substance abuse and psychological treatment facilities are also operated by Charter Health Behavior Systems in Athens. The new University Health Center facility is an 80,000 square foot facility for students. The open-heart facility at Athens Regional

Medical Center and the wellness services available through St. Mary's and Charter Health facilities are two areas of specialization that can attract more specialists and ancillary health care facilities.

Local development officials should assist both hospitals in securing state approval and funding for expansions. This assistance should also include assistance with private fundraising drives and lobbying in concert with the Georgia Chamber of Commerce on issues critical to the operations of these facilities. Assistance with workforce retention and training is one significant area where additional support is needed to maintain the growth of the cluster.

Tourism & Hospitality Cluster

Cluster Description

The Tourism & Hospitality Cluster encompasses the collection of attractions, special events, and support services that attract and serve visitors to Athens-Clarke County. The major services include lodging, recreation, entertainment, food and beverage, retail, and transportation services. One of the primary attractions for the region is the University of Georgia, most notably through sports programs and cultural events. As a major purchaser of goods and services, the University also generates a significant volume of business travelers.

The city of Athens offers visitor cultural events, shopping, meeting space, and entertainment venues, including a substantial live music scene that attracts bands from throughout the South. The new Classic Arts Center is a major facility for performing arts events and conventions. The retail trade sector in Athens-Clarke County accounts for 1 out of 5 local jobs, and results in roughly \$1 billion in annual sales. As an entertainment sector, the music industry has evolved into a significant segment of the local economy since several bands, which were formed in the late 1970s, have achieved market success.

The most sophisticated and lucrative segment of the music industry is the music production and engineering services. There are currently 16 music studios and music engineering companies in the Athens-Clarke County area. Full Moon Studios, the largest studio in Athens, has technologically advanced equipment and a national roster of music clients. The studio regular records albums for the major labels and has also diversified into recording for television commercials and movie soundtracks. The Athens music scene also includes eleven independent recording labels and five local companies that make tapes and compact discs.

As a source of local business, the local venues hosting the music scene benefit from the volume of live music performances. At present, there are over 320 active performers and contemporary rock bands in Athens. Combined with the steady stream of acts appearing in local venues, the eight major club venues book a full schedule of live acts. For example, the 40 Watt Club, one of the original music venues, generally has two or more performers booked six nights per week during the school year. The area also hosts a new summer music festival called "AthFest." The primary purpose of this event is to promote the local artists, venues and the Athens music scene. This new event has attracted national attention and was recognized as the festival of the year by the Georgia Convention & Visitors Bureau.

The combination of recording studios, local recording labels, and live performances requires various professional and business services that result in an unquantified multiplier effect for the local economy. To meet this demand, there are 17 management and promotion companies based in Athens. Four local lawyers and accountants specialize in music representation and services. Other support services with strong ties to

local music include the numerous local graphic artists, photographers, printing stores, instrument sales and repair, and music stores.

The Tourism & Hospitality Cluster is valuable because it imports "outside" money and goods into the local economy. Tourist dollars spent on food, gas, lodging, recreation and entertainment support local businesses and generate further local spending. The large retail sector of Athens-Clarke County and the demonstrated "pull" factor are indications of the strength of this cluster.

Business Development Strategies

Business development efforts supporting the Tourism and Hospitality Cluster do not require recruitment activities similar to other clusters. Athens-Clarke County can strengthen and expand the growth of this cluster through strategic tourism development activities. These three areas of business development support include promotion, tourism planning, and business improvement associations.

First, concerted promotion of existing attractions and special events is a fundamental part of tourism development. These promotions can be enhanced by conducting market research about leisure and business travelers, visitor origins, activities, spending patterns, and service and attraction preferences.

While promotion is typically the primary tourism development activity, a regular tourism planning function can maximize market demand in a coordinated tourism system.

Market research is an integral part of tourism planning because it provides a basis for changes in the local supply of attractions, events, and services. Preparation of a strategic tourism plan can prioritize resources necessary for regular public and private improvements in infrastructure, promotions, the mix of attractions, workforce training and other factors that affect the overall visitor experience. Business travelers are a significant travel segment and should be addressed in tourism development strategies. A person or organization needs to be responsible for implementing a tourism plan and coordinating events and issues for cluster businesses.

The formation of business improvement associations or a regular tourism task force can assist the varied businesses that rely upon tourism sales. These organizational relationships are effective because most operators in the tourism and hospitality cluster are small businesses facing similar business issues. These tourism initiatives should be lead by the Athens Convention & Visitors Bureau, or developed in cooperation with that organization.

FINAL NOTE ON ENTREPRENEURIAL DEVELOPMENT

The importance of entrepreneurial activity to truly vital economies cannot be overstated. Entrepreneurs and small businesses account for the majority of employment growth and make up 80% of all businesses in the United States. While not a traditional target of business development efforts, entrepreneurial development should be a cornerstone of local economic development in Athens-Clarke County.

Entrepreneurial communities have an economic environment that supports new and fast growing businesses. According to research by Cognetics, Inc., a leading business and economic research firm, communities with strong entrepreneurship share some basic characteristics. The primary determinants include tangible business climate factors such as:

- Universities;
- Skilled workforce;
- Access to airports; and
- A nice place to live.

Universities fuel entrepreneurial growth by providing ideas, technology, and people that are educated, skilled and creative. In particular, university research programs and facilities are leading sources of entrepreneurs. The result is a high-rate of new business formation and fast-growing local businesses. Research indicates that fast growing companies tend to employ skilled employees and pay higher wages and salaries.

While a skilled workforce is a fundamental component of a strong economy, it is a crucial factor for entrepreneurial businesses that by definition have fewer physical assets and organizational resources than corporations. The workforce must be computer-literate and attracted by the quality of life. Access to airports, particularly hub airports such as Hartsfield Atlanta, allow entrepreneurs to conduct business on a regional or even international scale. The final determinant is a local quality of life that can attract entrepreneurs and their employees.

Athens-Clarke County has the basic elements in place to strengthen entrepreneurial activity. The only area that has a mixed rating would be the local quality of life. The perceived shortcomings of the local schools, crime rates, and the lack of executive housing are the main problems in this regard. Although these issues must be addressed, the strength of the community's assets can outweigh these negatives, particularly with suitable support services. The University of Georgia Business Outreach Services offers useful management training and technical assistance to small businesses and entrepreneurs in Athens. Coupled with the technology transfer possible through the university research centers and the access to capital afforded by the Georgia Research Alliance, the entrepreneurial environment presently has adequate support services.

MARKETING RECOMMENDATIONS

Successful business development efforts require a multifaceted, coordinated approach to economic development marketing. The benefits will be evidenced in both efficiency and effectiveness. The development and support of the proposed target clusters in Athens-Clarke County is the major element of the proposed marketing strategy. To realize success in these target clusters, the following collection of marketing recommendations are offered.

The development of an effective Internet website must be a priority for Athens-Clarke County. Quality websites are common among competing university communities such as State College, Pennsylvania and Charlottesville, Virginia. Effective websites are also the norm for larger regions like Austin, the Research Triangle, and Silicon Valley. The website should contain the following minimum information in an attractive, user-friendly format:

- Background information about the community, including an initial “pitch” of the selling points;
- Brief economic and demographic data, business climate information, and/or links to sources of information relevant to prospective businesses;
- Assorted examples of economic development success (entrepreneurs, large businesses, relocations and expansions) and/or testimonials from companies;
- Statement of a community vision, the target business clusters, or goals to demonstrate the initiative of local leadership; and
- Links to community organizations, local governments, state government, the University, and other economic development resources.

The identification and securing of links from strategic websites to the Athens-Clarke County website is also an important part of developing a strong Internet presence.

A substantial share of the marketing budget should be diverted to direct marketing contacts, public relations and communications strategies, and Internet site development and maintenance. Spending on traditional marketing activities such as trade shows and print advertising must be targeted carefully to use the available budget effectively. Trade shows are generally not cost effective because of the high travel costs and relatively low number of qualified leads generated. Selective attendance of strategic trade shows should replace the outdated approach of attending an extensive schedule of trade shows for broad exposure. Practical experience has shown trade shows to be an effective way of identifying a pool of prospects rather than a strong marketing opportunity to those companies. Print advertising in general awareness publications like *Site Selection Magazine*, *Business Facilities*, *Plants, Sites & Parks* or *Expansion Management* is ineffective. Advertisements in industry specific publications should be carefully selected if a print advertising campaign is under consideration. Television and radio advertising do not generate adequate leads to warrant any marketing funds.

This focus on more nontraditional marketing activities is intended to provide information to business location decision-makers through the most effective information channels – peers, print news, and business travel.

- Accessing executives and peers.** Economic development organizations should identify opportunities to promote Athens-Clarke County to corporate real estate managers and senior business executives. This exposure may be possible in many venues, including University business forums and executive seminars and MBA programs. Other places where executives congregate should also be targeted, such as convention hotels and conference centers in metro Atlanta or social gatherings such as high profile charity golf tournaments. An ambassador program where local executives promote the community among industry peers is another possible approach.
- Capitalizing on print news coverage.** Quality print news coverage requires regular and successful relationship building with journalists and editors. Effective public relations and news releases are also fundamental to positive news coverage.
- Accessing business travelers.** Since executives are more receptive to information accumulated during business travel, promotional materials should be available at select hotels, including nearby golf resorts at Lake Oconee and Chateau Elan. These resorts attract a significant number of corporate outings and likely attract some executives on personal visits.

Beyond the general prioritization recommended above, there are several specific marketing activities that should be included in the marketing program.

- Participation in the Red Carpet Tour annually;
- Facilitating formal and informal interaction between entrepreneurs and venture capital firms;
- Inviting site selection consultants to tour the community;
- Invite the media to tour the community or attend special events relating to community and economic development. Comprehensive media relations should be part of an overall communications plan carried out by the Chamber of Commerce.
- Building on existing efforts, local officials should incorporate the research programs and technology transfer opportunities at the University into local economic development strategies.
- Conduct periodic market research to gauge the changing perceptions of the community, and to sharpen the community's marketing strategies. As a part of ongoing efforts to increase communication with businesses, economic development organizations should also regularly interview area businesses to remain informed about business needs, current economic conditions, and emerging business issues.
- A variety of guides should be developed internally, or gathered from knowledgeable organizations, to assist entrepreneurs and small businesses. In particular, a guide regarding technology transfer should be prepared in concert with the University of Georgia and the Georgia Research Alliance.

- Most competitors are marketing economic or metropolitan regions providing a larger scale and regional assets. Over the long-term, Athens-Clarke County should consider the costs and benefits of regional marketing. Potentially, Athens-Clarke County will need to incorporate regional marketing cooperation into the goal to improve leadership and regional collaboration.

The effectiveness of these marketing efforts can be monitored by developing and employing useful performance measures regarding the economic benefits, efficiency, and customer satisfaction. Economic benefit can be measured in terms of the number of businesses, number of jobs, and capital investment. Organizational efficiency can be gauged by the number of presentations, number of leads, and number of qualified prospects generated through the marketing efforts. Client service levels are less tangible, but can be monitored through surveys asking client specific questions regarding various marketing activities.

To be truly successful, local economic development organizations must complement marketing with product development. This will require an accurate inventory of existing sites and buildings that can eventually be provided in response to inquiries or via the Internet. Effective product development may also require public-sector participation by the Unified Government or the University to stimulate development of sites or speculative space that has not previously been delivered by private developers.