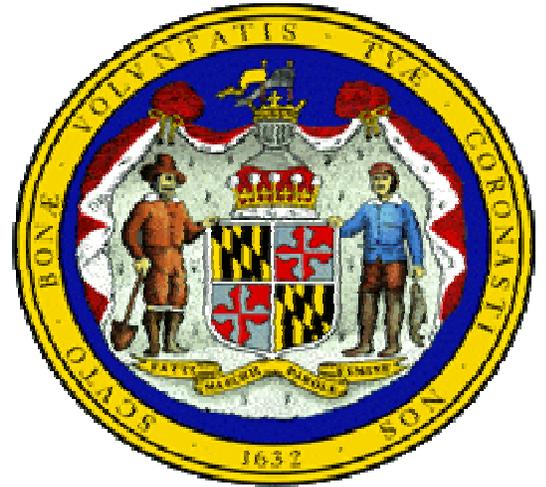


Maryland



State of the Workforce Report 2001



Prepared by:
RESI Research & Consulting
and the Governor's Workforce Investment Board

2001 State of the Workforce Report

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EXECUTIVE SUMMARY

The three primary objectives of the Governor's Workforce Investment Board's ("Board") *2001 State of the Workforce Report* ("Report" or "SOTW Report") are to: (1) guide the Board's policy decisions regarding critical skills and skills shortages; (2) provide a frame of reference for local workforce boards looking for similar guidance; and (3) assist in the provision of skills information necessary for workforce professionals to perform their jobs.

The report provides economic context and analysis for the state and its twelve local workforce areas, lists of "skill frequency"¹ for the top 25 occupations most in-demand based on projections done by the State's Department of Labor Licensing, and Regulation, and tables and analysis of key workforce indicators by county in the categories of population, education, labor market, and socio-economic data.

The report seeks to achieve its objectives by providing for the State and each local area the following: (1) economic background; (2) critical skills of the top 25 fastest growing occupations; (3) key workforce indicators regarding population, education, labor market, and socio-economic data. Through the use of skills information and analysis the report provides an indication of the skills necessary to obtain entry-level employment and further begins to identify the skills necessary to advance beyond entry-level positions. The use of the workforce indicators data series provides a broad understanding of the successes and challenges faced by each local workforce area.

This combination of data will help the Governor's Workforce Investment Board develop its strategic priorities by economic sector, skill sets, and geographic areas. We hope it will provide similar guidance for Local Workforce Investment Boards across the State as well.

MARYLAND FINDINGS

Workforce Development is a Critical Factor in Economic Development

The fact that Maryland's growing prosperity is largely attributable to technology clustering highlights the close relationship between workforce and economic development. To the extent that the State or local areas can attract and retain highly educated and / or highly skilled people, the State or local areas will invariably attract and retain the most promising, highly desirable companies. This report, therefore, should be considered not only a workforce document, but an economic development study as well.

Examples of economic development projects that will require a skilled and driven workforce to be successful include the \$560 million hotel-entertainment complex being built by Gaylord Entertainment (developers of Opryland) in Prince George's County, the

¹ Skills information is taken from O*NET, a comprehensive database of occupation and skills information developed by the U.S. Department of Labor.

working C&O Canal in Western Maryland and the Digital Harbor (to emulate Silicon Valley, Silicon Alley, the Research Triangle and others as a high-tech center) in greater Baltimore. These examples underscore the importance of having a skilled workforce readily available to allow employers the opportunity and ability to grow and prosper. More importantly, the lack of a skilled workforce may cause current Maryland employers to relocate in order to find the labor force they need to sustain and grow their businesses.

High-Wage, High-Skill Sectors are Driving Diverse Growth in Maryland

Despite being driven by technology, financial services and federal procurement, Maryland's economy can be classified as being highly diverse both in terms of industrial composition and geography. Home to a leading deep water seaport, the second fastest growing airport in the nation, two operating Class A railroads, and an extensive highway network, Maryland has been able to leverage its favorable East Coast location and emerge as a leader in distribution and transportation. Much of this activity has taken place in Harford County and other portions of the Baltimore metropolitan area. These industries provide solid middle- and sometimes high- income jobs, and serve to diversify Maryland's economic engines of growth.

Growth in technology and other high-wage industries has led to spin-off growth in other industries including construction, retail trade (including tourism) and personal services. Unlike technology, growth in these industries has been spread more evenly across the State.

Despite Recent Economic Slowdown, Long-Term Labor Shortages Will Worsen

Economic expansion often comes at a price. Anecdotal evidence suggests that a number of occupations are experiencing critical skills shortages. In its *FY 2001 Action Plan*, the Maryland Governor's Workforce Investment Board identified technology, teaching, tourism, health care, and construction as industries requiring particular attention. Future workforce information products developed by the Board will examine these skills shortages in more detail.

Though the impending slowdown in Maryland may diminish the extent of labor shortages in 2001, shortages will only worsen over time as job growth far outstrips labor force growth. Increased international migration to Maryland is unlikely to cover this shortfall. Neither is the growing trend of postponed retirement likely to address the projected shortfall. Domestic migration can often help alleviate shortfalls but thus far Maryland has not seen a significant net inflow of workers from other U.S. states, many of which face labor shortages similar to those found here.

All of this is very good news for workers and their long-term prospects. Between 1999 and 2015, it is estimated that the number of workers aged 16-64 will rise 14 percent nationally in Maryland and the U.S., but the number of job openings is likely to grow far more than this locally. Between 2000 and 2020, Maryland's labor force is projected to

experience a gain of roughly 90,000 persons, and over the same period is expected to see an increase of 138,600 jobs (Maryland Office of Planning).

Entry Into the Workforce is More Dependent Than Ever On Basic Skills

One would expect that in the New Economy (defined as the range of activities focusing on either the development of innovative technologies or using recently innovated technologies to exploit emerging business segments) professions requiring advanced computer training or some type of formal credential would dominate a list of top 25 occupations in demand. That is not the case. ***Though high-wage activities drive economic growth and serve as the basis for a prosperous society, they indirectly generate other jobs with vastly different characteristics.***

According to OLMAI projections, six of Maryland's top seven occupations as ranked by the number of annual job openings require only short-term on-the-job training. These occupations include retail sales person, cashiers, waiters/waitresses, janitors, and two overlapping categories of food preparation workers. With the exception of retail salesperson, none of these occupations pays in excess of \$10/hour (retail salespersons, \$10.18/hour).

Of the top seven occupations, only general managers require more than short-term on-the-job training (work experience and bachelor's degree), and pays a high wage (\$31.23). As a result, it is not surprising that the skill sets most in-demand are the most fundamental, including active listening (1), speaking (2), writing (3) and reading comprehension (T-4). It would appear that for many job seekers, the New Economy will look much like the one left behind.

Nearly every workforce area includes as its leading skills active listening, writing, and reading. While this may seem intuitive to those in workforce development, it may come as important information to Board members and other stakeholders engaging in discussions of bringing the low-income population into the workforce or retraining dislocated workers. Reading and writing skills and the ability to listen can provide entry into the workforce and the opportunity to develop additional skills necessary for upward mobility.

Many of the occupations with the highest number of prospective job openings represent jobs with limited potential for career advancement. One possible exception is retail salesperson, which according to O*NET requires six key skills: service orientation, speaking, social perceptiveness, active listening, mathematics and most significantly, problem identification. *Problem identification is a skill set demanded in many of the intermediate and high wage professions*, and the refinement of this skill in particular can serve as the basis for career advancement. It should be noted that occupations such as cashiers, waiters/waitresses and food preparation workers do not require this skill.

Further down the list of top 25 occupations by demand are occupations that one would expect to be present and which offer medium- to high-wages, including systems analysts

(8), clerical supervisors (9), registered nurses (12), secondary school teachers (13), elementary school teachers (16), computer engineers (20) and accountants (23). As a result of the presence of these and similar occupations, top ranked skill sets in demand include problem identification (T-4), information organization (T-4), mathematics (8), critical thinking (10), and information gathering (11).

Investment in Education and Training Programs is the Key to Building Career Mobility

One of the more significant policy conclusions one reaches is that the need for training to bridge the gap between low-wage and high-wage jobs is essential. There certainly are many middle-wage occupations in Maryland adding jobs, but the skills required for these jobs are generally not ones that can be acquired merely through experience on lower-paying jobs (e.g., problem solving). In order to bridge this gap, it will be necessary for Maryland and its jurisdictions to provide top quality post-secondary programs, including innovative associates degree programs, to provide targeted tax credits or other incentives to those employers providing training toward key skills, and to ensure the availability of training centers in more rural portions of the State. Maryland should also continue to build upon its leadership role in on-line education.

Maryland is already making great strides. The Maryland Applied Information Technology Initiative brings together eight institutions of higher learning (led by the University of Maryland, College Park) to double the number of IT graduates and increase research and infrastructure capacity. The Maryland Association of Community Colleges has developed a joint website www.MarylandTraining.com that provides a customizable database of all adult education training offered at all community colleges throughout the State, including program, curriculum, and pricing information. Also, the Maryland Higher Education Commission has developed a list of “eligible training providers” that are authorized for use with federal Individual Training Accounts under the Workforce Investment Act. Finally, Maryland is home to one of the leading on-line and distance education universities in the country, the University of Maryland University College.

Local Areas

Maryland’s twelve local Workforce Investment Areas² (and their counties) are:

- *Anne Arundel County*
- *Baltimore City*
- *Baltimore County*
- *Frederick County*
- *Lower Shore* (Somerset, Wicomico, Worcester)
- *Mid-Maryland* (Carroll, Howard)
- *Montgomery County*

² Local Areas are listed in the Executive Summary, Local Workforce Investment Areas section, and tables of the Appendix in alphabetical order.

- *Prince George's County*
- *Southern Maryland* (Calvert, Charles, St. Mary's)
- *Susquehanna* (Cecil, Harford)
- *Upper Shore* (Caroline, Dorchester, Kent, Queen Anne's, and Talbot)
- *Western Maryland* (Allegany, Garrett, Washington)

Since the top skill frequencies (based on the top occupations in demand) in many local areas include active listening, speaking, and writing, other skills are noted here for a more detailed perspective. Additionally, the Workforce Indicator³ data series is most useful when considering the inter-relationships of various data, which are examined in greater detail within each local area section of the main report. A snapshot of local area findings:

Anne Arundel County's economy is experiencing strong economic performance due to a variety of factors, including the arrival of Southwest Airlines at BWI Airport, the subsequent hotel mini-boom resulting from airport expansion, and the arrival of new economy powerhouses such as Ciena. **Key skill sets in demand are problem identification, reading comprehension, and judgment and decision-making.** Indicator data show Anne Arundel is the fifth most populous county, and ranks in the top five in terms of employment and per capita income levels, but that it trails the state significantly in classrooms with Internet access.

Baltimore City is poised to add jobs in a number of critical areas over the next three years, including financial services, construction, legal services, architectural services, consulting, Internet applications, and tourism. This is due to several exciting projects, including the Digital Harbor, Westside revitalization, and a number of critically important new office and hotel projects. **Key skill sets in demand are social perceptiveness, service orientation, and problem identification.** Indicator data show Baltimore City enjoys a healthy per capita income growth rate, but has lost a greater percentage of its population than any other area.

Baltimore County's economic composition is diverse, with major industry clusters that include back office financial services operations, electronics manufacturing, industrial machinery manufacturing, software development, and health services (particularly to seniors). The County's occupation that ranks first in terms of annual job openings is General Managers and Top Executives, an occupation that requires considerable work experience and formal education. **Key skill sets in demand are social perceptiveness, information gathering, and critical thinking.** Indicator data show Baltimore County enjoys very high population, school enrollment, and employment totals, but lags behind the rest of the State in terms of classrooms with Internet access.

Frederick County has emerged as one of the leading new growth areas in the State. What makes this expansion so significant is that much of the new growth has taken place among high-wage employers. **Key skill sets in demand are service orientation, mathematics, social perceptiveness, and information organization.** Indicator data show Frederick County in the top ten in 14 of 19 Indicator categories, including second in

³ Workforce Indicator definitions and methodology are explained in the Appendix.

Per Capita Income Growth between 1996 and 1997. However, Frederick County trails the State in nearly all higher-education statistical categories.

Lower Shore (Somerset, Wicomico, Worcester) possesses a surprisingly diverse array of economic drivers, including poultry, microwave filter manufacturing, and tourism. Salisbury leads the world in producing and designing microwave filters for the cellular communications industry. These filters separate cell phone signals from other high tech frequencies so that wireless communications are clear. **Key skill sets in demand are service orientation, social perceptiveness, and mathematics.** Indicator data show that Worcester and Wicomico counties rank second and third respectively in Retail Trader Per Capita, evidence of a strong retail and tourism driven economic and workforce focus, however all three counties trail the State significantly in their weekly wages.

Mid-Maryland (Carroll and Howard counties) represents a contrasting mix of dense new economy activities and sparse bedroom communities. Howard County's location at the heart of the Baltimore-Washington corridor has made it a prized area for residential development and technology-driven employment. Carroll County has experienced considerable growth in distribution and residentially oriented businesses. **Key skill sets in demand are service orientation, problem identification, mathematics, and judgment and decision-making.** Indicator data show that Howard County ranks first or second in nine of the 19 categories including two firsts in college plans of graduating high school seniors and percent of population living below the poverty level (only 4.4 % compared to the State average of 9.5%). However, Howard County trails the State in terms of classrooms with Internet access.

Montgomery County is the leading economic driver for the State, with more new economy employers and employees than anywhere in the State. The County has also added substantial numbers in mid-income segments, including banking, distribution, social services, and private educational services. The industries that have shed jobs – such as health services (due to consolidation) – have done so in very modest terms. **Key skill sets in demand are problem identification, information organization, and information gathering, in addition to active listening.** Indicator data show that Montgomery County ranks in the top five in eleven of the nineteen Indicator categories, and first in five, including percentage of population age 25 and over with a Master's Degree. However, Montgomery County trails the State slightly in percent change of per capita income.

Prince George's County has increased its economic base, particularly in the areas of retail trade, government, and education. Led by large "knowledge" employers such as the University of Maryland-College Park and the NASA Goddard Space Flight Center, the County will continue to experience job growth in a wide array of industries, cementing its position as one of Maryland's most diverse economies. **Key skill sets in demand are reading comprehension, information organization and service orientation.** Indicator data shows that Prince George's ranks first in public school enrollment and second in population and percent decline of temporary cash assistance

cases. However, only 57% of Prince George's teachers have integrated technology into their curriculum, compared to 67% across the State.

Southern Maryland (Calvert, Charles, and St. Mary's counties) is undergoing strong growth due in large measure to the recent consolidation of naval aviation research and development activities at Patuxent River Naval Air Station. The consolidation resulted in 5,700 highly specialized and well-compensated military and civilian jobs and an overall increase of 15,000 jobs. **Key skill sets in demand are social perceptiveness, information organization, problem identification, and mathematics.** Indicator data show that St. Mary's is one of the leading economic drivers in the State. St. Mary's leads the State in percent change in both employment (1996-1999) and per capita income growth (1996-1997), and boasts one of the lowest unemployment rates in the State, but trails the State in post-high school graduation college plans.

Susquehanna (Cecil and Harford counties) is driven substantially by distribution and warehousing. However, the impact of technology-driven industries has become more significant since the establishment of the Harford County Higher Education and Applied Technology (HEAT) Center, which houses a number of high-tech firms. In addition, the Aberdeen Proving Ground is helping to propel the technology sector forward. **Key skill sets in demand are problem identification, coordination, and critical thinking.** Indicator data shows Harford County to be a strong workforce area, including the fact that the County ranks behind only Montgomery and Howard counties in terms of percentage of public school graduating seniors with post-high school college plans. However, only 6.6% of Susquehanna's 25 years and older population have a Graduate Degree as their maximum educational attainment.

Upper Shore (Caroline, Dorchester, Kent, Queen Anne's, and Talbot counties) is experiencing strong growth in two segments – recreation and retirement. This is due to the fact that most people migrating to the region tend to be older and more affluent than those leaving. Though no one jurisdiction across the Upper Shore is ready to serve as a major national or East Coast destination, many are becoming a place where travelers feel compelled to spend time. **Key skill sets in demand include service orientation, social perceptiveness, and problem identification.** Indicator data show that Talbot County is a workforce “sleeper.” It ranks first in both Percent of Teachers who have Integrated Technology into Curriculum and Retail Sales Per Capita. However, despite having more counties than any other area, Upper Shore represents only two or three percent of the population, school enrollment, and employment of the State, providing it a small base from which to attract and retain future growth opportunities.

Western Maryland (Allegany, Garrett, Washington counties) is undergoing a transformation from an economy reliant on high-wage, low-skill manufacturing jobs to one focused on tourism and other service industries. The region's tourism officials envision a working canal linking Pittsburgh to Georgetown, a strategy to double the number of tourism visitors. **Key skill sets in demand include social perceptiveness, service orientation, and reading comprehension.** The Indicator data show that Garrett County is one of seven counties with 100% classroom Internet access, and also ranks

second in Percent of Teachers who have Integrated Technology into Curriculum (81%). However, Allegany County has experienced negative population growth second only to Baltimore City.

II. INTRODUCTION

2001 State of the Workforce Report Background and Methodology

The 2001 State of the Workforce Report is the second such report in a series, the first having been released in November 1999. Through the 1999 Report the Board sought to provide the State Board and the twelve local Workforce Investment Boards with workforce information for use in developing plans to improve upon the delivery of workforce services. While it included information about the top five industries and occupations on the rise and decline, many customers of the Report suggested that it did not provide enough local information to help in the planning and implementation of unified workforce services.

In order to achieve its objectives for the 2001 Report the Board contracted with Anirban Basu, Director of Applied Economics of RESI of Towson University. Professor Basu was asked to provide a report that would seek to expand upon the previous edition by including more detailed local workforce information. Board staff and Professor Basu brought together representatives from the State and each of the twelve local workforce areas. This process provided for the identification of workforce information necessary for local workforce professionals to better perform their jobs.

One of the key needs identified by these professionals was skills data at a local level. To meet that need a model was used that compares occupational projections developed by the Maryland Office of Labor Market Analysis and Information (OLMAI) with skills information in O*NET, a U.S. Department of Labor interactive database for occupational and skills information. The model utilized work done by OLMAI to list the critical skills for each of the State's top 50 occupations by demand, available on the Internet at www.dllr.state.md.us/lmi/index.htm. Lists of "skill frequency" were developed for skills that have an importance level of 50% or greater in more than one-third of the top 25 occupations in a given area.

In addition to the skill frequency data and analysis, the report also provides a series of local area data categories that are combined into a "Workforce Indicator" ("Indicator") table that provides a snapshot of workforce areas in 19 critical areas including population, education, labor market, and socio-economic data. The data paint a "broad-stroke portrait" of local areas and should not be viewed as the "be all, end all" of local information. Rather, data are provided so that State and local stakeholders can formulate their own conclusions based on relationships between data series.

While the "Indicator" is an admittedly imperfect data set, it represents an early attempt to increase the availability of local workforce data. To increase the utility of the report, the Indicator and its corresponding data tables in the Appendix are available for download and customization on the Board's web site at www.gwib.state.md.us.

The “Workforce Indicator” Table used a variety of data sources including information from State government web sites and / or statistical publications, and the *2000 Maryland Statistical Abstract* produced by RESI in conjunction with the Department of Business and Economic Development. Each data type used in the Indicator is explained in the Appendix. A special note of thanks to the Maryland Business Roundtable for allowing use of its recently released study on technology in education (available at www.mbrt.org)

We believe the result of these two data sets (skill frequency and workforce indicators) represent information that, in combination, begin to inform policy makers and workforce professionals seeking to maximize the potential of Maryland’s workforce system.

Format

This document is divided into six functional areas. The First includes the Executive Summary, which notes all of the key conclusions reached, including those reached at the Workforce Investment Area level; the Second is this Introduction.

Section Three of this document focuses on Maryland and includes the State’s recent economic performance, workforce trends, top industries in terms of performance and size, key economic sectors, and a view toward the future. This portion of the document also presents RESI’s analysis of occupations, prospective job openings and most importantly the skill sets most in demand going forward. Additional information is presented on existing labor shortages in key workforce sectors such as technology and tourism.

The Fourth section of this report provides information and analysis for each of the State’s twelve local Workforce Investment Areas. Included in each local area section are an economic overview, data and analysis regarding skills in demand, Workforce Indicator data, and a list of the top employers.

The Fifth section of this report discusses Next Steps in very broad detail. The Sixth and final section of this report is the Appendix that includes a great deal more information specific to individual workforce areas and counties including:

- Top occupations by demand for the State and each local area
- O*NET Skills and Skills Descriptions
- Methodology for Workforce Indicators Table
- Workforce Indicator Tables at the detailed level

O*NET skills information for any occupation that appears on a State or local area top 25 list is too lengthy to reproduce in text format for the Appendix. Please visit our web site at www.gwib.state.md.us for viewing and downloading this information.

III. STATE OF MARYLAND

Recent Economic History of Maryland

Though Maryland has enjoyed superb economic health since mid-1996, the State was slow to participate in the initial stages of the U.S. economic recovery from the 1990-91 recession. Maryland's "jobs" recession lasted twice as long as that of the U.S., and was roughly three times as deep.

Ironically, Maryland's economic meltdown during the early portion of the 1990s can be traced directly to the economic engine that drove the State's robust performance during the 1980s: the federal government. Indeed, prior to the downturn, many of Maryland's leading economists suggested that Maryland was recession proof due to its close relationship to the federal government and federal spending. Though the U.S. private sector would continue to have its ups and downs, Maryland would be relatively untouched since the federal government never shrinks. So went the logic.

However, it was precisely this growing dependence on federal activities that proved to be Maryland's undoing during the early stages of the previous decade. With the collapse of the Berlin Wall in 1989, the federal government slashed defense procurement in an effort to begin restoring federal fiscal health. The impact on Maryland was severe, particularly in the Baltimore metropolitan area whose growth had been driven during the 1980s by strong defense-oriented firms such as Westinghouse, Martin Marietta and AAI. The reduction in Pentagon procurement stripped the Baltimore-Washington corridor of one of its primary economic engines.

That was not all. The federal government began slashing civilian federal employment, negatively impacting Montgomery and Prince George's counties in particular. Due to the slashing Maryland's housing and office markets began to hemorrhage, leading to another round of negative impacts.

That impact found its way into Maryland's already beleaguered financial services sector. By this point the savings and loans crisis, which began in earnest in the mid-80's and was now in full swing, and the exposure of the banking community to commercial loans and commercial overbuilding greatly weakened several of Maryland's major home-based players, including Maryland National and the Bank of Baltimore. Maryland's recession of the 1990s became a deep downward spiral, as the sectors that had led the "Maryland Miracle" of the 1980s (federal procurement, federal employment, commercial real estate, homebuilding, financial services) led the State headlong into a near economic collapse during the early 1990s.

In 1993, Maryland began to add jobs, and by 1994, job growth was quite strong by historic standards, though these jobs tended to be in services and retail trade (including tourism). Fundamental industries such as defense manufacturing, banking, non-defense manufacturing and transportation remained mired in their slumps, though the State was

beginning to see increased activity in distribution. Still, fairly impressive job growth failed to translate into rapid income growth because of a lack of added jobs in high-paying industries.

By 1995, the nation's economy had begun to slow, and Maryland approached yet another recession since the growth that had been taking place could be attributed primarily to interest rate sensitive sectors and the additional spending taking place due to a boom in home refinancing. When interest rates began to rise again, the sectors slowed, and no fundamental segment of the economy had yet emerged to drive Maryland forward. The first quarter of 1996 represented yet another low point in Maryland. Heavy snowfalls literally and figuratively weighed down an already weak and flagging local economy, and in that quarter Maryland actually lost jobs.

Everything began to change during the second quarter of 1996, and that quarter represents the onset of the "New Economy" in Maryland. In the four and one-half years since that quarter, Maryland has been transformed from one of the nation's most sluggish economies to one of its most dynamic.

As economists following Maryland's economy at that time, RESI puzzled over Maryland's newly found vigor. Certainly, the segments of the economy that had powered the State during the 1980s did not drive it. Yes, these industries were no longer struggling as they had been, but they had yet to display the dynamism that would help propel Maryland forward in the manner manifested.

Today, we realize that then unknown companies such as Ciena and Aether Systems along with better-known entities such as MedImmune and Human Genome Sciences were at the root of Maryland's newly found strength. These companies are well known entities today, but were not really on the radar screen during the middle portion of the decade.

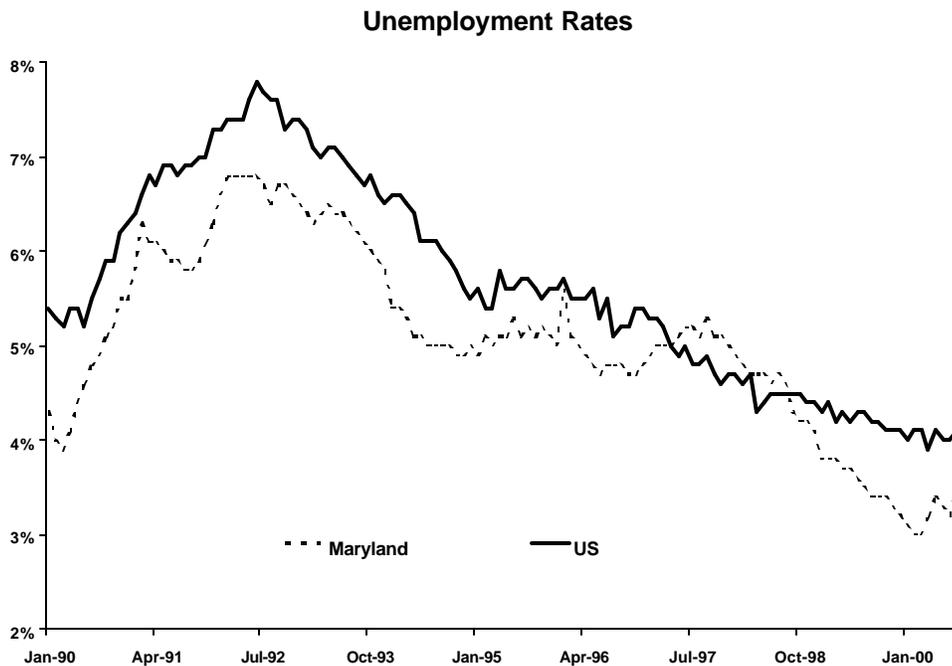
The impact of these gazelles⁴ cannot be overestimated. In 1995, Maryland ranked 44th in the nation in terms of the rate of job growth, ranking even behind traditional low-flyers such as Mississippi and West Virginia. Today, the State ranks in the top fifteen and could rank in the top ten in 2001. During the four quarters ending in the second quarter of 2000, Maryland ranked 14th in job growth, ahead of traditional high-flyers such as Virginia, Massachusetts and North Carolina.

Though focus has largely been in recent years upon emerging high tech players such as Aether Systems, Advertising.com and Corvis, most of the growth in Maryland has occurred in non-high tech industries. *Though technology companies have been the driver, the impact of their growth has been strength in impacted industries such as commercial construction, financial services, retail trade and personal services.* The growth of these industries has in turn led to a steep decline in Maryland's unemployment

⁴ Gazelles are broadly defined as small, fast growing firms. The Progressive Policy Institute defines gazelles as small companies with sales growth of 20+ percent annually for a period of at least four years.

rate, a trend that should continue even through the early portions of 2001 which promises slower growth than in recent years.

Maryland's unemployment rate stands at a healthy 4.1 percent (February 2001, Office of Labor Market Analysis and Information), roughly two-thirds the rate that existed in 1992 (6.5+%). The data also reflect that Maryland's recovery, though tech driven, has been broad-based. In January 1995, Maryland's welfare caseload stood at 226,664. By October 2000, this figure had fallen to 75,911, roughly a third of what the caseload was less than six years ago. Though welfare-related incentives have changed substantially in Maryland and other states since 1995, there is no question that many welfare recipients have been able to find jobs in an expanding local economy.



Source: MD Department of Labor, Licensing & Regulation, U.S. Bureau of Labor Statistics

As a result of its wealth of federal and academic research institutions, Maryland ranks fourth in terms of its percentage of doctoral scientists and engineers, second in terms of the percentage of population aged 25 or more with an advanced degree, and fourth in terms of the percentage of population 25+ with a Bachelor's Degree or higher ("Maryland Superlatives", Department of Business and Economic Development).

Naturally, there are tremendous disparities within Maryland in terms of educational attainment. For instance, in 1998, Montgomery County could boast that nearly twenty percent (18.1%) of its population over twenty-five possessed a bachelor's degree or better, but in Baltimore City, the corresponding proportion was only a quarter of Montgomery's rate (5.4%).

Recent Economic & Workforce Developments

Development and Occupancy Data Indicate Good News for Maryland

Construction of commercial office markets and their occupancy rates can serve as important indicators of economy activity. The Washington metropolitan area office market, including Suburban Maryland, remains one of the top performers in the country, largely due to recent absorption among technology companies, something that has begun to slow in very recent months. During the first half of 2000, the Washington metropolitan area absorbed an astonishing 8.2 million square feet of office space, though the lion's share of the space was absorbed outside of Maryland (5.3 million in Northern Virginia, nearly 2.1 million in Washington, D.C.).

Office space absorption in Suburban Maryland during the first half of the year came in at 818,000 square feet, impressive with respect to recent history. For full year 1999, Suburban Maryland experienced absorption of 1.6 million square feet of office space, and was on pace to exceed that during the first half of 2000. In fact, Suburban Maryland experienced 560,000 square feet of net absorption in the second quarter of 2000, more than twice the amount absorbed during the first quarter. In 1998, the region absorbed 1 million square feet, and in 1997, 950,000 square feet. A diversified industry base and a relatively moderate amount of new space should prevent vacancies from escalating too sharply in Suburban Maryland.

The story of commercial real estate in the greater Baltimore area is substantially similar. The Baltimore area experienced 739,000 square feet of net absorption in the second quarter of 2000, indicative of a potent underlying local economy. As a result of increased absorption in technology and financial services, developers have in aggregate placed 3.9 million square feet of office space under construction in the region, impressive by most standards. Rents are on the rise, and Baltimore's diversified economic base should allow it to better withstand the pressures of a slowing economy than most metropolitan areas.

Despite continued commentary about a soft landing nationally, economic indicators in Maryland continued to hold up well through October 2000. Residential settled sales rose 47 percent in October 2000 compared to the same one year ago (Maryland Association of Realtors).

Though the expected 2001 slowdown in Maryland will negatively impact home sales, the market should hold relatively steady since the anticipated drop-off in demand will be at least partially offset by the introduction of lower interest rates. Homebuilding will remain relatively flat in 2001 will likely resume a more vigorous upward trend in late 2001 or perhaps in 2002 once the Federal Reserve's interest-rate cuts take firmer hold of the economy.

Federal Procurement Continues to Play a Central Role in Maryland's Economy

Although federal procurement has not grown in conjunction with the underlying economy, procurement continues to be an important aspect of Maryland's economic composition. Federal procurement dollars flowing into Maryland rose only 1.2 percent in FY1999 as compared to FY1998 (negative once inflation is taken into account), and in Montgomery County, where roughly a third of all federal dollars coming to Maryland end up, procurement actually dipped 3.8 percent.

Still, because of the industries it supports, federal procurement remains an important aspect of economic life in Maryland. According to the Federal Procurement Data System, the two leading industry recipients of procured federal funds are engineering services (within Engineering, Architectural and Research Services / "EARS") and computer integrated systems design (within Business Services). EARS and Business Services accounted for nearly half (49%) of Maryland's total federal contract award dollars in fiscal year 1999. Other industries receiving large annual procurements include medical and hospital equipment distribution, communications equipment manufacturing and computer manufacturing.

International Migration is Helping to Prevent More Severe Labor Shortages

According to current projections, Maryland is anticipated to gain 593,000 people through international migration between 1995 and 2025, placing it ninth among the 50 states and the District of Columbia. Foreign workers to Maryland have been particularly important in stimulating and supporting expanding IT industries. The nation's high-tech industry recently fulfilled one of its top legislative priorities in October 2000 when Congress voted to create more employment visas for foreign workers, something that Marylanders would be wise to cheer.

Besides hiking the number of H-1B visas from 115,000 to 195,000 for FY 2001 and 2002 (roughly 200,000 more workers will arrive here than would have been allowed in previously), the new legislation would also allow workers to start new jobs without having to wait for the Immigration and Naturalization Service to formally approve their applications. In the past, the INS would take weeks or months to rubber stamp the changes before workers could shift employers, something that resulted in companies missing out on promising candidates.

According to a recent report by the General Accounting Office, the average H-1B worker is an Indian male between the ages of 25 and 29 earning a salary of \$45,000. For many of these workers, the goal is remaining in the U.S. permanently, but the INS imposes a strict quota of 15,000 green cards per country per year, putting Indian and Chinese workers in a bind. Together, Indians and Chinese comprise more than half of the H-1B permit holders.

If the past decade is any indication, international migration will be concentrated disproportionately in a few jurisdictions. Montgomery County, in particular, has established itself as the premier gateway into Maryland for international migrants. Between April 1990 and July 1999, Montgomery County received 63,267 international migrants, nearly half of Maryland's 131,871 total. In fact, Montgomery County became home to nearly twice as many international migrants as Baltimore City, Baltimore County, Howard County, Anne Arundel County, Harford County and Carroll County combined. After Montgomery County, the next substantial gateway for international migrants is Prince George's County, which saw 29,705 international migrants locate to it between April 1990 and July 1999. Together, the two counties absorb roughly 70 percent of all international migrants to Maryland.

The most recent data suggest that Maryland is attracting between 17,000 and 18,000 international migrants each year. This pace of international migrant attraction is roughly 50 percent higher than was recorded during the mid-1990s. This provides a strong indication that "English as a Second Language" training programs will increase in frequency and importance.

Welfare Caseload Serves as a Predictor of Maryland's Economy

As we approach 2001, there are clear indications that the nation's economy is slowing. Credit is tighter, layoffs are on the rise, and consumer confidence has begun to wilt in the face of persistently high oil prices, a collapsing NASDAQ and soft Dow Jones, and daily news reports suggesting that the best years of the recovery are now behind us. However, Maryland has yet to feel the effects of the national slowdown, which has been essentially focused upon the Midwest and overbuilt markets in the South and Northwest. Though the slowdown in Maryland in 2001 is likely to be mild, there are now several warning signs that are worth heeding.

Perhaps the most important signal is that Maryland's welfare caseload is no longer falling. The caseload had been declining precipitously since 1995, but stopped declining in May 2000, and has been essentially flat since. This tells us two things. One, the caseload closure rate is slowing, suggesting that those on welfare are beginning to find it more difficult to find jobs. Two, applications for welfare benefits are starting to rise, which suggests that many workers are beginning to find the economy less accommodating. The opening of the Arundel Mills shopping and entertainment complex in November 2000 may serve to hide this trend in late 2000 data, but the trend will reemerge in 2001.

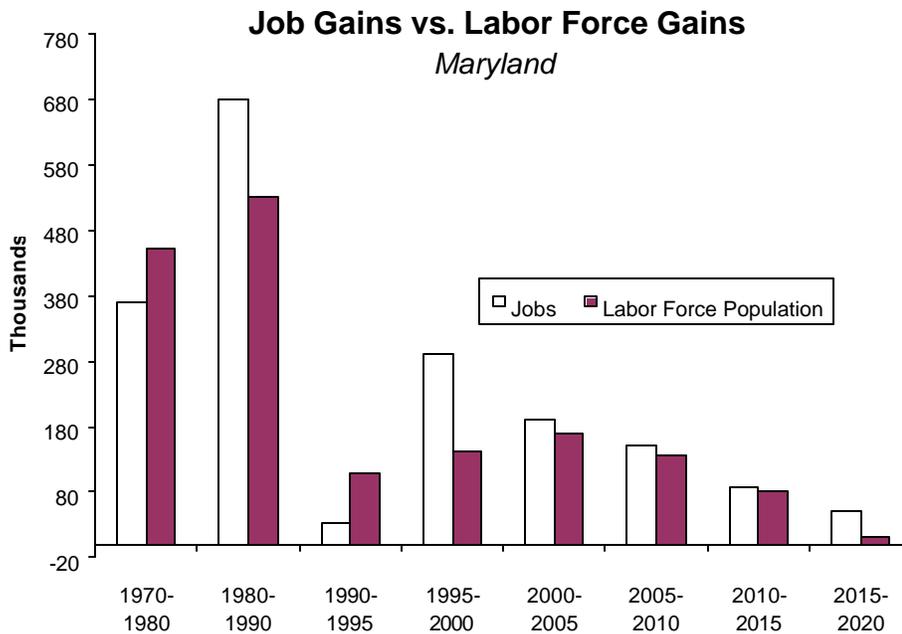
While it is true that political and social policy as well as economic environments can impact welfare caseloads, RESI believes that the welfare caseload is a leading economic indicator of Maryland's economy. In 1989, similar events occurred. Though the underlying economy continued to grow rapidly, the welfare caseload was mysteriously beginning to rise. In hindsight, it is clear that the rising welfare caseload was a symptom of Maryland's emerging malaise. Those at risk of falling onto the welfare caseload are

the first workers generally to lose their jobs en masse, and that is precisely what began to happen in 1989.

The fact that the welfare caseload has stopped falling in 2000 is a sign that the economy is beginning to slow, and though the slowdown is likely to be mild, Marylanders can expect fewer job openings and less rapid wage growth over the next 12 months.

Filling Critical Skills Shortages is Key to the Health and Vitality of Maryland's Economy

The pace of labor force expansion has slowed dramatically over the past decade. Maryland's labor force grew by 531,000 persons between 1980-1990. That compares to the 252,000-person gain over the past decade (1990-2000). According to projections released by the Maryland Department of Planning, this trend will persist going forward. Between 2000 and 2020, Maryland's labor force is projected to experience a gain of roughly 90,000 persons. Over the same period, Maryland is expected to see an increase of 138,600 jobs.



Source: Maryland Department of Planning

Anecdotal evidence suggests shortages already exist in certain key occupational segments, including the five described below.

Nursing

Nurses report that they now work much harder and longer than they did several years ago. Partly as a result and despite growing patient demand, the number of licensed

nurses working in Maryland has decline 17.2 percent since 1993, from 55,000 to 45,525 by the end of last year according to State statistics. This figure declined by fully 2,335 in 1999.

Exacerbating the problem is the fact that enrollments of nursing school students in entry-level bachelor's degree programs nationwide declined 4.6 percent between fall 1998 and fall 1999 according to American Association of Colleges of Nursing statistics. In Maryland, only three nursing graduates enter the field for every eight nurses who retire according to the Maryland Department of Health and Mental Hygiene. This is particularly troubling in light of the fact that the average registered hospital nurse is 48, suggesting that the cycle of rapid retirement is far from over. Moreover, programs in Maryland graduated just 1,531 nurses in 1999, seven percent fewer than in the previous year.

As a result of these trends, Maryland hospitals are facing the most severe nursing shortage in a decade and a vacancy rate that appears to be far in excess of that faced by the balance of the nation according to a survey recently released by the Maryland Hospital Association (MHA). The shortage has resulted in growing numbers of Maryland hospitals closing units, canceling surgeries in non-life-threatening cases and diverting ambulance to other institutions. The survey also revealed increases in nurse turnover and in the average number of days required to fill a vacancy. Anecdotally, the shortage is also impacting nursing homes, home care agencies and others who now find themselves pitted against hospitals and one another in the competition for nurses.

The MHA survey of 47 acute-care hospitals in Maryland revealed an average nursing vacancy rate of 14.7 percent during the first three months of the year. In 1997, the MHA reported a 3.3 percent vacancy rate for the year. Nationwide, the average vacancy rate for hospital nurses is believed to be substantially below 10 percent, but there is little published national data on the shortage.

The number of full-time registered nurses needed to fill vacancies in 2000 was 1,629, an increase of 29 percent from the previous year. MHA recently reported that overall nursing costs due to the shortage have risen 12 percent over the past year. Maryland hospitals now project a demand for nurses six percent greater than two years ago. The shortage has drawn the attention of the Maryland General Assembly, which in 2000 created the Maryland Commission on the Crisis in Nursing.

The initial recommendations of the Commission that have major policy implications include: (1) modifying the criteria for nursing scholarships; (2) increasing the dollar amount for nursing scholarships; (3) including a living stipend in scholarships; (4) providing scholarships on a semester rather than annual basis; and (5) allowing cross-county tuition assistance for students who cannot attend a community college in their own jurisdiction due to lack of space.

Among the Commission's next steps is addressing issues in five categories including: (1) scheduling and life-style issues; (2) professional working environment; (3) regulatory issues; (4) clinical practice delivery models; and (5) stress in the workplace.

Teaching

According to the Maryland Teaching Staffing Report prepared by the Maryland State School Board, all 24 of Maryland's school systems will face critical teacher shortages for next school year. It is now projected that local school systems will need to hire almost 10,500 school teachers next summer.

The projection is more than 1,500 teachers greater than the 8,700 teachers hired by local systems for the current school year, and more than double the 4,600 teachers hired five years ago. The report also revealed that the number of teacher graduates from the State's colleges and universities declined by roughly 100 with the Class of 2000, down to 2,550. About half of these graduates will leave either the State or the profession or both. The subjects declared as critical shortage areas by the State board include art, agriculture, computer science English for non-native speakers, Spanish, math, earth science, space science, physical science, physics and special education.

Maryland is not alone. The U.S. Department of Education projects that 2.2 million teachers will be needed over the next decade to meet rising enrollment and to replace teachers leaving the profession. In California, for instance, projections suggest that the State will need to hire 300,000 new teachers in the next 10 years as 285,000 reach retirement age

Technology

With a biotech cluster along the I-270 corridor, and a fiber optics manufacturing cluster emerging in the southern portion of the Baltimore metropolitan area, there are few states with as much promise with respect to private sector technology growth as Maryland. It is true, however, that with rare exception (e.g., St. Mary's County, Salisbury in Wicomico County), virtually all of the State's technology is clustered in the Baltimore-Washington corridor, and that Montgomery, Frederick, Howard and Anne Arundel counties have begun to emerge as the areas in which the most clustering is taking place, followed by Prince George's County, Baltimore County and increasingly the City of Baltimore.

Despite the effects of the continuing defense build-down and its reverberation through the local economy, technology employment growth in Maryland can only be characterized as vigorous. In recent years, defense and aerospace employment in the State has declined by nearly 6,000 jobs (1992-1999), but this decline has been more than offset by growth in other areas, especially since 1994. As of 1999, RESI estimates there were roughly 156,600 jobs in high technology industries in Maryland, representing a 20 percent increase over 1994 totals (130,500).

Two technology segments in particular stand out as being drivers of Maryland's tech expansion. These are information technology services and high technology research, which added 20,000 and 8,000 jobs respectively in Maryland between 1994 and 1999.

Information with respect to high-tech labor shortages remains remarkably scant in Maryland and nationally. In 1998, RESI estimated that the high-tech worker shortage (comprised largely of software developers/programmers and systems integrators) was 12,000 at mid-year. By mid-year 1999, this estimate had risen to 18,000 and is now approaching 25,000.

With respect to biotech, estimates of labor shortages are even more difficult to obtain since it does not fall into an standard industrial classification (SIC) as defined by the federal government. Though manufacturing is classified in the SIC system, estimates of shortages are still difficult. Anecdotally, firms suggest shortages among skilled machinists, and one company has informed us that it has several \$60,000 positions available that have gone begging for months.

Construction

In the Washington metropolitan area, there are as many as 8,000 local construction related jobs available according to RESI estimates and the number has been growing, albeit more slowly in the most recent months. Much of the shortage is concentrated not in Maryland but in Northern Virginia where the bulk of the region's construction has been taking place until very recently.

In Maryland, particularly in the Baltimore metropolitan area, the construction shortage appears to be less pronounced, though here too with the acceleration of the local office construction market, the shortages are growing. The shortages appear to be most pronounced among the so-called special trade contractors, people who work as electricians, plumbers, heating and air conditioning professionals, etc. These people are in high demand because their services are highly specialized and utilized by both commercial contractors and private households.

Tourism

Tourism continues to play a larger role in the economy of each of Maryland's constituent regions. In Ocean City (Worcester County), a rainy summer failed to dampen tourism activity. Ocean City officials estimate that there were 4 million visitors to Ocean City during the tourist season, and the number of visitors in June, July and August 2000 were greater than the same month one year ago. As has become an annual ritual, Ocean City merchants continue to complain about the ability to find enough staff or the "right" staff.

Several significant tourism developments are going on across the State, including large hotel projects in Baltimore City (Marriott), and Prince George's (by Gaylord Entertainment, developers of Opryland in Nashville), and current tourism levels growing

stronger in Western Maryland (including Rocky Gap) and the Upper Shore and Lower Shore (including Ocean City).

Since much of the employment in tourism is actually classified in retail and services this is where most of the labor shortages are and will be. Various parts of the State have different reasons for prevailing or seasonal shortages that are discussed within the text specific to those areas.

However, two things emerge from varied development projects and labor market trends. One, Maryland is well positioned in tourism on a statewide level, with many exciting projects spread widely across the State. Second, the shortage of a quantity and quality tourism workforce is already a problem of such significance that the General Assembly requested that the Department of Business and Economic Development establish a Tourism Workforce Task Force (which included Board representation). These new projects will only serve to magnify and intensify these shortages.

Top Occupations and Skills Indicate Career Ladders Still Unavailable to Many

An analysis of most rapidly growing occupations and annual job openings by occupation reveals that there remain key challenges for workforce professionals in Maryland. One might think that the most difficult aspect of job placement would be to move people from outside the labor force into employment. This certainly is difficult, though less so than was the case prior to welfare reform since the incentive to work is now greater and there has been an effort to create training programs targeted at this population.

An even greater challenge exists in attempting to move people up the socio-economic ladder once they have begun to work. It was once the case in Maryland and other industrialized states that manufacturing served as the vehicle by which people moved into the middle class, often by performing backbreaking labor for many hours a day. Today, at a time when manufacturing is shrinking, there are few such vehicles. A commonly accepted viewpoint is that in previous generations manufacturing provided a fair amount of “low skill, high wage” positions that could sustain a family through a lifetime. Now, however, those “low skill, high wage” jobs have gone away and are never coming back, replaced by “high skill, medium to high wage” jobs that are more difficult obtain.

A look at the top 25 occupations in demand reveals the source of the difficulty. Among those occupations with the highest number of annual job openings, relatively few can be classified as middle-income occupations (relative to expectations).⁵ According to the Department of Labor, the top occupations in terms of job openings in Maryland between 1996 and 2006 will be salespersons (fairly low wage), cashiers (low wage), general managers and top executives (high-wage requiring bachelor’s degree and work

⁵ For simplicity, RESI has classified high-wage occupations as paying in excess of \$25/hour, middle-wage as paying between \$15/hour and \$24.99/hour, lower middle-wage as paying between \$10/hour and \$14.99/hour, and low-wage as below \$10/hour.

experience), waiters/waitresses (low-wage), food preparation workers (low-wage), janitors (low-wage) and systems analysts (high-wage).

There is a marked gap in the middle wage range, and for those currently or prospectively working as cashiers or in restaurants, there does not appear to be an obvious path of advancement. Thus, for the workforce development professional in Maryland, the key is to somehow bridge the gap between the jobs at the bottom of the spectrum and those at the top.

This is not to suggest that there are no openings in middle-income occupations, just somewhat fewer than one would expect from a middle-class oriented society. Moreover, many of these occupations require formal training that would not be typically available in lower-paying occupations (e.g., nursing, teaching). Among the top 25 job opening occupations in Maryland are clerical supervisors (work experience in a related occupation), marketing/sales supervisors (work experience in a related occupation), teachers, registered nurses and truck drivers.

State of Maryland Skill Frequency by %	
	<u>% of Top 25 Occupations Requiring Skill</u>
Active Listening	76
Speaking	68
Writing	56
Reading Comprehension	48
Social Perceptiveness	48
Problem Identification	48
Information Organization	48
Mathematics	44
Service Orientation	44
Critical Thinking	40
Information Gathering	40
Judgment and Decision Making	40
Coordination	36
Implementation Planning	36
Time Management	36

Due to the nature of the training required (i.e., on-the-job work experience), clerical supervisors and marketing supervisors stand out as growing occupations that can serve as potential upward social vehicles. Therefore, any analysis of workforce trends in Maryland should focus heavily on the skills required for these occupations on the top 25 list relative to those in lower-paying occupations.

The skills gap between cashiers, retail salespersons, food preparation workers and supervisors is substantial. For instance, O*NET reports that there are six especially important skills a retail salesperson must have, including the very important problem identification skill. O*NET reports that cashiers and waiters/waitresses require five

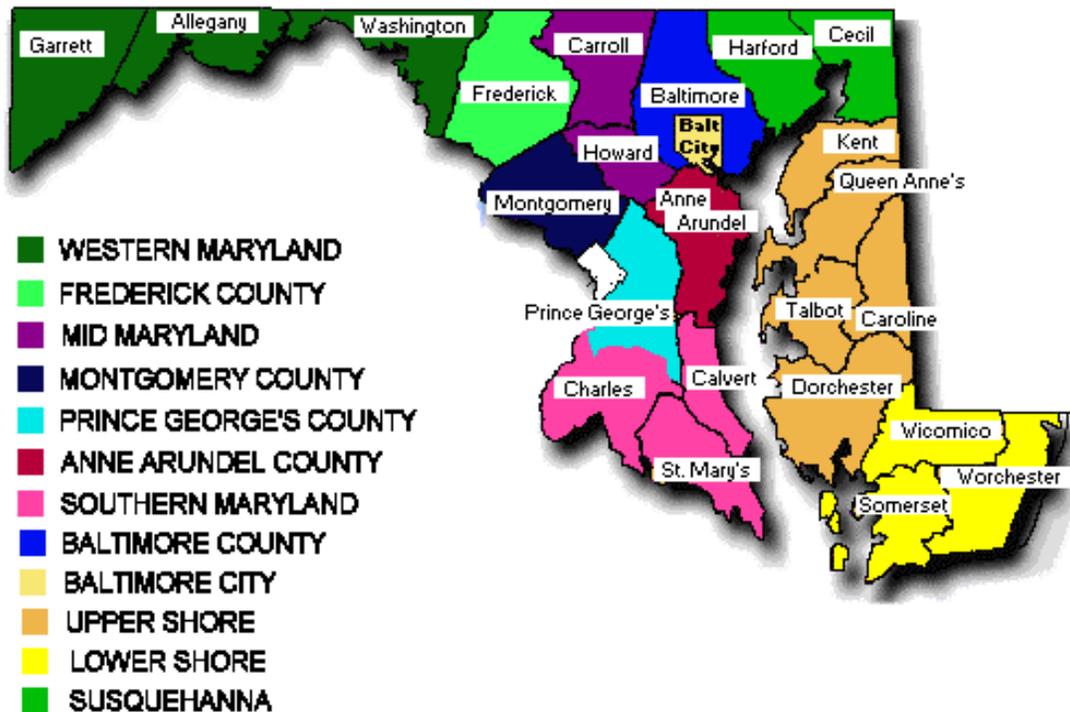
especially important skills, problem identification not being one of them. However, a first-line administrative support supervisor requires nineteen essential skills including time management, critical thinking, coordination, problem identification, implementation planning, information organization and information gathering. Again, the gap between the lowest jobs on the economic spectrum and those above is substantial, and creates significant challenges for workforce development professionals attempting to help people move up the ladder.

To the extent that there will be any hardship, it will be among those with the fewest and least developed skills. This comes as little surprise. In particular, jobholders in retail trade, cashiers and food preparation workers may find the next year challenging. In a time of labor shortage, employers are less apt to layoff workers who are highly skilled and difficult to replace. Individuals who do not possess sophisticated skill sets are more likely to be let go, since these workers can be more easily replaced once the economy resumes a more robust pace of growth.

This job-career path gap is Maryland's most serious workforce challenge going forward, and is merely aggravated by other challenges such as a lack of mass transit in Howard County and other rapidly growing portions of the State, the rising cost of post-secondary education, and the lack of available training centers in more rural portions of Maryland.

IV. LOCAL WORKFORCE INVESTMENT AREAS

For each local area, this report includes: (1) an *in-depth analysis* of each local workforce investment area with particular emphasis on the *economic backdrop*; (2) the *skills most in-demand* based on the fastest growing occupations; (3) Workforce Indicator (“Indicator”) *data including population, education, labor market information, and socio-economic data* including population, school enrollment and graduation rates, post-high school graduation plans, bachelor’s and graduate degree attainment, technology access in schools, and the unemployment rate; and (4) *top employers* based on size of employment. Additionally, the report’s Appendix includes tables of top occupations by demand, O*NET skill information for top occupations; and sub-tables that were converged into the Indicator.

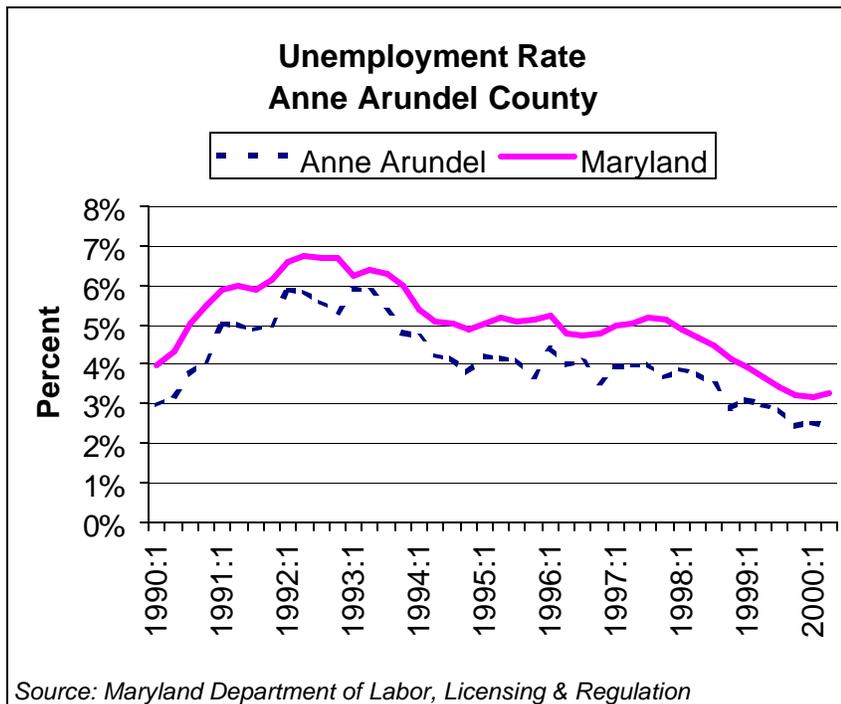


It is important to note that the Workforce Indicator portion of each workforce area is done at the county level (although population, school enrollment, and employment data are aggregated to the workforce area level). This is because some data elements made it impossible to “roll-up” to the workforce area. Furthermore, regarding skills frequencies, only those skills that appear in more than 33% (one-third) of the occupations appear in a county’s Skills Frequency table.

Anne Arundel County

Economic Backdrop

Anne Arundel County's unemployment rate is well below three percent today. Per capita personal income growth, which was slower in Anne Arundel County than in Maryland during the early 1990s, has been growing at a faster rate than statewide. The County has overcome the layoffs related to consolidation of the local defense manufacturing sector during the early years of the previous decade, and the number of manufacturing jobs is now rising according to the most recent employment data available to RESI.



The County's improving economic performance is not due to one but rather several factors. Perhaps the most important factor is the arrival of Southwest Airlines (the County's eighth largest employer), which has allowed BWI to emerge as the second fastest growing major airport in the nation after Dulles (serving the greater D.C. metropolitan area). As the East Coast discount airline leader, BWI has become one of the jewels of Maryland's economic development success, and is poised to benefit from an additional \$1.8 billion in investment over the next several years. The airport is beginning to reap the benefits of investments made in previous years, including the new international terminal, which continues to attract new global carriers.

The growth of BWI has spawned a hotel building mini-boom, and therefore has served to help a wide variety of jobs to the County's economic base. Given the continued investment at BWI, growth will continue with Anne Arundel County disproportionately benefiting from spin-off job growth.

The arrival of the New Economy has also played a major part in Anne Arundel County's emergence. Companies such as Ciena are formidable players in technology segments, and Anne Arundel County today finds itself as part of an emerging fiber optics cluster in the Baltimore-Washington corridor. Though technology growth has likely slowed in recent months and faces more challenges in the months ahead, RESI strongly believes the long-term outlook for technology growth remains extremely bright.

Growth in high-tech and other high-wage industries has resulted in substantial levels of commercial development in the County, which in turn generates jobs for janitors, restaurant workers, cashiers and bartenders. Indeed, each of these occupations is projected to grow rapidly in the years ahead in Anne Arundel County, and the growth is being driven largely by the expansion of growth in higher-level economic activities.

The recent opening of Arundel Mills Mall (November 2000) continues this pattern, though it is true that Arundel Mills Mall is designed and located to serve a much broader population than merely that of Anne Arundel County. Still, retail growth has been very much a part of the County's story, though the opening of Arundel Mills will put pressure on smaller- and mid-size retail centers, something that is already evident in Glen Burnie. Other events such as the closing of Montgomery Ward's will further contribute to an anticipated shakeout in the County's retail base going forward.

Anne Arundel County	
2000 Major Employers⁶	
Firm	Employees
1 National Security Agency	25,000
2 Ft. George G. Meade	11,042
3 State of Maryland	8,788
4 Northrop Grumman	6,681
5 US Airways	2,353
6 U.S. Naval Academy	2,200
7 Anne Arundel Health System, Inc.	2,000
8 North Arundel Health System	1,700
9 Ciena Corporation	1,500
10 Wal-Mart District Office	1,345
11 Giant Food, Inc.	1,286
12 Arinc	1,200
13 Southwest Airlines	1,200
14 Verizon Communications Maryland	1,138
15 Anne Arundel Community College	1,000

Source: Anne Arundel Economic Development Corporation

⁶ All lists of major employers within this report exclude local government agencies (i.e. county public school systems) because these local departments tend to be substantial employers in every jurisdiction and do not serve to adequately differentiate one region from another.

Critical Skills of High Demand Occupations⁷

The list of the top 25 projected occupations in Anne Arundel County include cashiers (2), food preparation workers (4 and 8), waiters/waitresses (6), lunchroom counter attendants (7), janitors (9), bartenders (11), receptionists (15), groundskeepers (20), maids (21), cooks (22) and guards (25). Growth in occupations such as these places a premium on skills such as social perceptiveness and service orientation, and these skills will be disproportionately in demand in Anne Arundel County relative to the balance of the State.

Anne Arundel County Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	73
Speaking	69
Social Perceptiveness	58
Service Orientation	54
Writing	54
Problem Identification	42
Information Gathering	38
Reading Comprehension	38
Coordination	35
Critical Thinking	35
Judgment and Decision Making	35
Mathematics	35
Time Management	35

Several occupations require more advanced skills such as problem identification, product inspection, information gathering, information organization, critical thinking, time management and judgment and decision-making. Providing lower-wage workers with a means to acquire these skills will make them much more likely to obtain an occupation that offers greater career path options, such as retail salesperson (1), clerical supervisors (10), marketing/sales supervisors (13), and food service and lodging managers (22).

⁷ Lists of top 25 occupations for Maryland and each local workforce area are available in the Appendix.

Workforce Indicators for Anne Arundel County

- ✓ Anne Arundel County represents 9.3% of Maryland's population (1998), 8.8% of public school enrollment (1998), and 7.8% of the State's average annual employment (1999).
- ✓ Of Anne Arundel County's population age 25 and over, 30.3% have a high school degree as their maximum attainment, 15.8% have a bachelor's degree as maximum attainment, and 8.8% have a graduate degree as maximum attainment.
- ✓ Anne Arundel County's employment grew 9.0% between 1996 and 1999 compared to the 7.9% growth experienced statewide over the same period.
- ✓ Only 5.3 % of Anne Arundel County's population lives in poverty, compared to the statewide average of 9.5%.
- ✓ As of 1999, 71% of Anne Arundel public school teachers had integrated technology into their curriculum, compared to 67% statewide.
- ✓ As of 1999, only 53% of Anne Arundel classrooms had Internet access, compared to the corresponding figure of 72% statewide.

Anne Arundel County has emerged both as a center of technology and as a highly desirable area in which to live. The county boasts both a high average weekly wage (\$636) and lofty per capita income (\$28,663).

The County's prospects remain bright due to several related factors, including evidence of heightened technology clustering, continued expansion at BWI Airport, and an existing concentration of human capital. The County ranks high in terms of the proportion of bachelors and graduate degree holders. However, a current lack of adequate Internet access in classrooms could limit the County's ability to maximize its workforce potential.

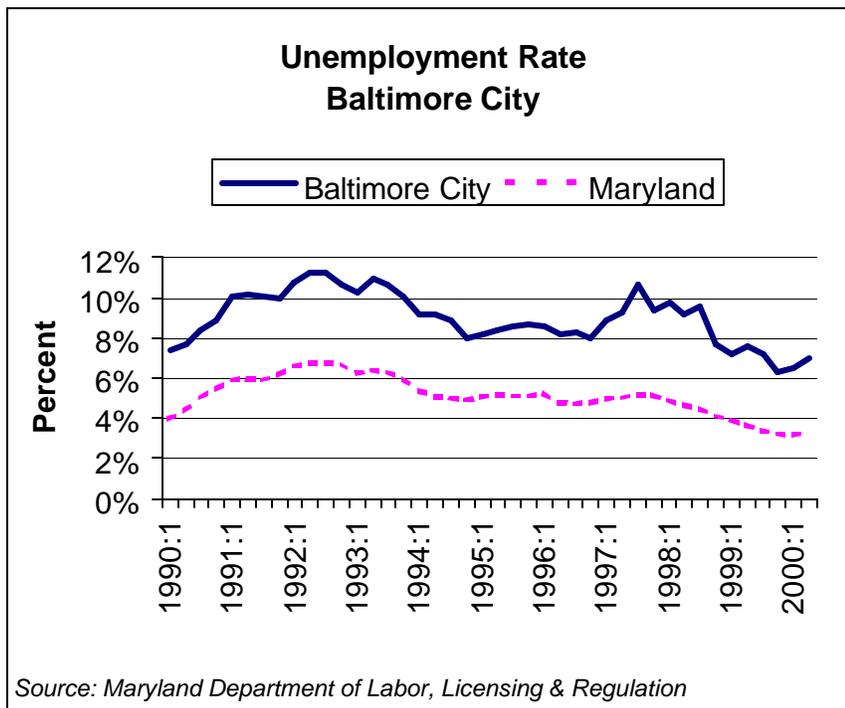
Baltimore City

Economic Backdrop

The past economic woes of Baltimore City have been well documented but the City is now emerging as one of the nation's great turnaround stories. During the 1990s, the City lost roughly 80,000 jobs from its peak to its lowest point, many of them in the key banking, insurance, manufacturing and transportation sectors. Those days of decline appear to be over. Between the first quarter of 1999 and 2000, the city added 2.0 percent to its job totals or roughly 7,500 jobs, signs that strong efforts are finally paying off.

These figures represent the tip of the iceberg. Baltimore is poised to add jobs in a number of critical employment sectors over the next three years, particularly after this current period of economic slowdown in the nation passes (perhaps by late 2001). Growing business segments will include financial services, construction, legal services,

architectural services, consulting, Internet applications (despite recent media stories) and tourism.



Momentum in commercial development has led to revitalization in a variety of sites in and around downtown, including the American Can Company (now the Emerging Technology Center) building and the Procter & Gamble site in Locust Point. Of the roughly one million square feet of construction underway in Baltimore City, roughly 82 percent involves renovation. Plans for Westside Revitalization are also now well underway (Phase I, \$175 million), and State money was recently appropriated for the cornerstone of the project, the restoration of the Hippodrome Theater (\$56 million). East of downtown emerges a new urban center, Inner Harbor East anchored by the recently constructed (\$134 million) Marriott Waterfront Hotel.

A number of critically important new office and hotel projects are in planning stages (i.e. Lockwood Place, One Light Street, Westin, Grand Hyatt, etc.). These projects will generate several hundred tourism jobs, and given the tightness of the metropolitan area labor market and the fact that Baltimore City continues to be home to the region's highest unemployment rate (roughly 7 percent at mid-2000, or twice the State average), the bulk of these new jobs are likely to be filled by Baltimore City residents.

Certain communities in Baltimore City have begun to thrive in recent years. Growing optimism and an emerging demographic of young urbanites and empty nesters have begun to make their impact on the city's residential real estate markets. Between December 1999 and December 2000 City home sales have been up over 65 percent, due to emerging markets in Bolton Hill, Butcher's Hill, Ridgely's Delight, Locust Point, Patterson Park, Hampden, Hamilton and other neighborhoods that have heretofore

participated less vigorously in the city’s emerging renaissance than have Roland Park, Guilford, Mount Washington, Federal Hill, Fells Point and Canton.

Baltimore City		
Major Employers		
Firm		Employees
1	Johns Hopkins University	6,605
2	Johns Hopkins Hospital	5,900
3	University of Maryland Medical Center	5,600
4	University of Maryland, Baltimore	4,800
5	Johns Hopkins Bayview Medical Center	3,000
6	General Motors Truck Group	2,800
7	Sinai Hospital of Baltimore	2,690
8	St. Agnes HealthCare	2,469
9	Allfirst Financial, incorporated	2,100
10	Union Memorial Hospital, Inc.	2,025
11	Bank of America	2,000
12	Johns Hopkins University School of Medicine	2,000
13	Loyola College in Maryland	2,000
14	Baltimore Sun Company Incorporated	1,800
15	Bon Secours Health System	1,583

Source: Baltimore Metropolitan Council

Baltimore’s large segment of disadvantaged workers represents a potential solution to projected labor force imbalances within key city industries, including tourism, information technology, and back office operations such as call or payment processing centers. To the extent that workforce professionals can help transition disadvantaged workers into the labor force, the city’s prospective labor force imbalances will be alleviated. The renewal of quality of life within the city represents another critical element to labor force supply that can help Baltimore City sustain and enhance its development efforts.

Critical Skills of High Demand Occupations

Of the top 25 occupations in Baltimore City ranked by future job openings, fully 15 require short-term-on-the-job-training rather than work experience or formal education. This is not surprising given the fact that much of the city’s future economic growth will originate from the retail and entertainment segments. As a result, skills more routinely in demand in Baltimore relative to the rest of the State are primarily oriented around the ability to communicate, including active listening, speaking, writing, social perceptiveness, and service orientation. For workforce development professionals in Baltimore City (as well as the State), there must be an emphasis on communicative skills. As a major economic center, Baltimore City will add jobs in numerous middle-wage and high-wage occupations.

Baltimore City Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	84
Speaking	76
Writing	60
Social Perceptiveness	56
Service Orientation	52
Reading Comprehension	48
Information Organization	44
Problem Identification	44
Information Gathering	40
Judgment and Decision Making	36
Mathematics	36
Systems Perception	36

The city's large health services and medical research segments contribute to the presence of numerous related occupations on the top 25 list, including registered nurses (12) and nursing aides (16). Several other occupations are oriented around Baltimore's position as a major center of regional and administrative office occupations, including general managers and top executives (#3; \$31.11/hour), clerical supervisors (#11; \$18.50), marketing/sales supervisors (#14; \$17.70), and accountants/auditors (#24; \$20.83). A number of these occupations, including clerical supervisors, serve as promising vehicles of upward mobility, though again the key is to find ways to instill low-wage workers with the more advanced skills required for such positions. Work experience at an unrelated low-wage job typically will not suffice.

Workforce Indicators for Baltimore City

- ✓ Baltimore City constitutes 12.6% of Maryland's population (1998), 12.7% of its public school enrollment (1998), and 16.3% of its annual average employment total (1999).
- ✓ Of Baltimore City's population age 25 and over, 27.5% have a high school degree as their maximum attainment, 8.5% have a bachelor's degree as maximum attainment, and 7.0% have a graduate degree as maximum attainment.
- ✓ The 1999 average weekly wage in Baltimore City (\$711/week) exceeds the corresponding figure for the State (\$663/week). Only four other jurisdictions exceed the State wage.
- ✓ Baltimore City's growth in per capita income between 1996 and 1997 (7.1%) exceeded the State growth by 2.1 percentage points.
- ✓ Between 1990 and 1998, Baltimore City lost 12.3% of its population, while statewide growth over the same period was an increase of 7.4%.
- ✓ As of 1999, only one-third (33%) of Baltimore City public school classrooms had Internet access.
- ✓ According to 1997 Census figures, only 9.5% of Maryland residents live in poverty; the corresponding figure for Baltimore City is 23.7%.

Baltimore City is a study in contrasts. The City boasts one of the State's highest weekly wages, yet also suffers from high poverty rates, high unemployment rates, and a disproportionate number of people aged 25 plus lacking a high school degree.

Baltimore City's biggest workforce challenge might well be the loss of its population. Baltimore City's decline (12.3%) is the biggest in the State, and is nearly triple that of the next largest decline (-4.8% in Allegany) and well below Maryland (7.4%). Thus, the number of workers the City is able to offer their employers has fallen in conjunction with the out-migration. Furthermore, the "digital divide" is significant in the City as evidenced by its technology scores.

Workforce professionals must concentrate on addressing this outward migration, and can do so in several ways including recommending and developing policy that helps stop this flow, or by sustaining and marketing quality employment opportunities in a metropolitan area that ranks second only to Montgomery County in both Total Employment and Weekly Wage.

The longer-term solution already being explored by local workforce professionals is the permanent transition of low-income residents living below poverty into sustainable employment at a good wage. There remains a large segment of the population that falls outside of the labor force, and the provision of soft and other basic skills will be required to transition this group into the core economy. Also, another large group of City residents holds jobs that are not consistent with promising career paths. Helping transition these people from jobs to careers is therefore of crucial importance.

Supporters of the City's "Digital Harbor" initiatives will also look to workforce as a key ingredient of success. Therefore, City workforce leaders in government, business, and education must come together around a proactive plan to address the Internet access (33% vs. 72% for Maryland) and technology-integrated curriculum (52% vs. 67% statewide) scores.

Baltimore County

Economic Backdrop

Baltimore County's overall moderate rate of growth masks the arrival of the New Economy to the County. High-tech job growth was considerably more pronounced during this last year, with job growth in high-tech industries averaging in excess of 6 percent over the past year. In recent quarters, Baltimore County has experienced substantial job growth in a number of key technology segments, including pharmaceutical manufacturing, communications, computer and data processing, and management and engineering services.

Much of this growth has taken place in specified County growth areas such as Owings Mills, White Marsh, Timonium and Hunt Valley. Hunt Valley has benefited recently from the relocation to the area of the regional offices of MBNA. In Owings Mills, growth is being driven by technology more so than in other growing portions of the County, including companies such as Aether Systems.

The County's economic composition is diverse. Major employers include McCormick & Company (food/spices), Becton Dickinson (medical equipment), St. Paul Companies (insurance) Bethlehem Steel Corporation (manufacturing) and MBNA America Bank (consumer finance). This diversity should serve the County's economy well as the U.S. economy slows. Major industry clusters include back office financial services operations, electronics manufacturing, industrial machinery manufacturing, software development and health services.

Baltimore County		
2000 Major Employers		
	Firm	Employees
1	Social Security Administration	15,000
2	Bethlehem Steel Corporation	5,085
3	University of Maryland Baltimore County	3,000
4	Health Care Financing Administration	2,700
5	GBMC Healthcare, Incorporated	2,285
6	CareFirst BlueCross BlueShield	2,145
7	Sweetheart Cup Company, Incorporated	2,016
8	McCormick & Company	1,948
9	Becton Dickinson	1,550
10	Procter & Gamble	1,400
11	Spring Grove Hospital Center	1,300
12	MBNA Mid-Atlantic	1,200
13	Lucent Technologies	1,190
14	St. Paul Companies, Incorporated	1,100
15	United Parcel Service	1,097

Source: Baltimore Metropolitan Council

Critical Skills of High-Demand Occupations

Baltimore County is unique among Maryland Workforce Investment Areas in that the occupation that ranks first in terms of annual future job openings is general managers and top executives, an occupation that pays the lofty average hourly wage of \$32.37, and requires considerable work experience and a formal educational degree. In addition, registered nurse, a middle-level occupation, is third on the list, requires an associate degree, and pays an hourly wage of \$21.87.

Other middle- or high-wage occupations making the list are secondary school teachers, accountants and systems analysts. As a result, certain high level skills are in disproportionately high demand in Baltimore County, including problem identification,

time management and coordination. Other high level skills are equivalently demanded in Baltimore County vis-à-vis the State, including critical thinking, judgment and decision making, implementation planning, active learning and idea evaluation. In short, Baltimore County looks much like Maryland in miniature.

Baltimore County Skill Frequency	<u>% Of Top Occupations Requiring Skill</u>
Active Listening	76
Social Perceptiveness	76
Speaking	76
Writing	64
Problem Identification	52
Reading Comprehension	52
Information Gathering	48
Service Orientation	48
Information Organization	44
Coordination	40
Critical Thinking	40
Judgment and Decision Making	40
Time Management	40
Implementation Planning	36
Mathematics	36
Monitoring	36

Key lower-middle and middle-wage occupations also find their way onto the top 25 list in abundant numbers, including retail salespersons (\$10.19/hour; utilize critical skills such as problem identification and basic mathematics), clerical supervisors (\$18.38/hour; require work experience and often no formal degree), and marketing/sales supervisors (\$18.60/hour; require work experience). Skills that distinguish these occupations from lower-wage occupations include monitoring, critical thinking, implementation planning, judgment and decision-making, solution appraisal and idea evaluation.

Workforce Indicators for Baltimore County

- ✓ Baltimore County represents 14.1% of Maryland's population (1998), 12.6% of its public school enrollment (1998), and 15.1% of its average annual employment base (1999).
- ✓ Of Baltimore County's population age 25 and over, 29% have a high school degree as their maximum attainment, 15% have a bachelor's degree as maximum attainment, and 10% have a graduate degree as maximum attainment.
- ✓ Baltimore County's 1997 per capita income level surpasses that of Maryland by \$1,226. However, the County lags the State in terms of growth in per capita income between 1996 and 1997 by 0.7% percentage points.
- ✓ Baltimore County's 1997 retail sales per capita (\$11,448) exceeds the corresponding figure for Maryland (\$9,116).
- ✓ The increase in population for Baltimore County between 1990 and 1998 (4.3%) lags behind the growth experienced statewide (7.4%).
- ✓ The percentage of Baltimore County public schools with Internet Access (1999) is 12% less than that of the State.

Baltimore County remains one of the more affluent counties in the State, and is also characterized by the substantial proportion of the population with a bachelor's and graduate degrees, and high levels of per capita income and retail sales per capita.

However, challenges remain for the County, including low levels of Internet access in classrooms and integration of technology into curricula. Given the importance of the "Digital Harbor" to the greater Baltimore area, initiatives like the Greater Baltimore Technology Training Connection (GBTTC) must be sustained going forward.

The Baltimore County Office of Employment and Training, on behalf of its regional partners, successfully spearheaded the GBTTC effort to obtain funding to address the need for trained Information Technology workers. The Local Workforce Investment Areas of Baltimore County, Baltimore City, Mid-Maryland (Howard and Carroll counties), Anne Arundel, and Susquehanna (Cecil and Harford counties) have partnered together to offer businesses the opportunity to connect with IT training and other workforce development resources.

Funded through a grant of approximately \$2.5 million dollars provided by the U.S. Department of Labor, GBTTC was created to develop regional solutions that will help employers to: 1) upgrade the technical skills of their current workforce; 2) fill vacant positions essential to maintaining competitiveness; and 3) fill new positions critical to expansion. Furthermore, GBTTC commissioned an IT workforce shortage survey, the results of which will be available in mid-Spring 2001. More information about the GBTTC is available at www.train4it.org

Frederick County

Economic Backdrop

Frederick County has emerged as one of the leading new growth areas in Maryland. What makes Frederick County's expansion significant is that much of the new growth has taken place among high-wage employers. The County's emerging business influence was illustrated recently by the relocation of Bechtel Power Corporation's worldwide headquarters from Montgomery County to Frederick. Located in the Westview Corporate Campus, the Bechtel facility encompasses 325,000 square feet in four buildings and accommodates approximately 1,900 employees.

Frederick County	
2000 Major Employers	
Firm	Employees
1 Fort Detrick/SAIC/NIH	6,100
2 Bechtel Power	1,900
3 First Nationwide Mortgage	1,135
4 Mid-Atlantic Medical Services Inc. (MAMSI)	1,000
5 First USA	945
6 State Farm Insurance Co.	874
7 Norwest Mortgage	600
8 F & M Bancorp	500
9 FCNB Bank	480
10 BioWhittaker	417
11 Solarex Corporation	416
12 NVR Building Products	414
13 Moore Business Communication Services	410

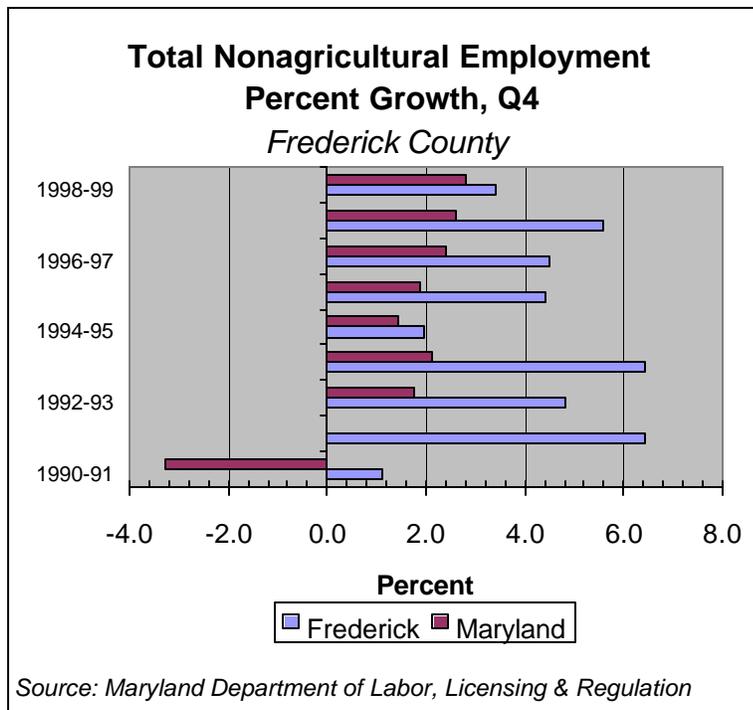
Source: Frederick County Office of Economic Development

Bechtel chose Frederick over Montgomery County because of the proximity to its existing employee base, ability to attract employees from other geographic regions including the Baltimore metropolitan area and Washington County and for real estate cost savings. Since these considerations would apply to companies in a variety of industries and circumstances, it is clear that Frederick County will continue to benefit from large-scale relocations going forward (the recently announced Life Technologies relocation to the County serving as the latest example).

Since the majority of Frederick County's existing labor pool commutes outside the County to work, the prospects for increased employment within the County are enormous as employers seek to tap into a group that currently is forced to deal with I-270 traffic congestion twice a day. Further, there is land to accommodate foreseeable corporate expansion, including the Ballenger Creek Center, Monocacy Boulevard, Westview South and areas adjacent to the Frederick County Municipal Airport.

The anti-growth movement within the County is gaining momentum, however, and this could limit activity to a certain extent. The particularly low unemployment rate also presents challenges but has been slightly offset by the County's rapid population growth. Since 1990, the County has added to its population at more than three times the State rate.

Natural economic development advantages and an aggressive office of economic development have placed Frederick County among the three fastest growing counties in Maryland. As an example of growth, high-tech employment in the County grew 10.8 percent between 1997 and 1998 according to the *Maryland High Technology Update*⁸, one of the highest rates of growth in the State. The four counties that added technology jobs more rapidly than Frederick for the year are home to technology sectors that are orders of magnitude smaller than the one already housed in Frederick. Over the past year for which data are available, technology jobs have grown a still healthy 4.1 percent⁹.



Potential growth is not limited to larger firms and it is the dynamism among small- and medium-sized firms that makes Frederick County so promising. The County is now home to a host of small tech companies including Tech Assist, Shibui Systems, Antenna Site Communications, Clifton Systems, TELECOMWORX, Bio-Molecular Technologies Science Applications International Corporation and Quorum Sciences.

Although it is technology that is driving much of Frederick County's commercial expansion, most of the jobs that will be created in the County going forward will not be in technology. The average high-tech job spawns between two and three other jobs in the

⁸ Maryland Office of Labor Market Analysis and Information's "Maryland High Technology 1998 Update"

⁹ Maryland Office of Labor Market Analysis and Information, RESI.

economy; jobs that tend to be of a service or retail variety. As a result, the top job-adding occupations look familiar to those that emerge from the statewide analysis, and include retail salespersons (1), waiters/waitresses (2), cashiers (3) and food preparation workers (4).

It should be noted that commercial growth in Frederick County is not expanding rapidly solely due to growth in technology (and financial services), but also due to growth in population. Hence, it is likely that the retail and service occupations should occupy the top four places among rapidly expanding occupational categories in Frederick County (noted in paragraph above). Other population/demographically-related occupations that are growing rapidly in terms of job openings include secondary school teachers (5), elementary school teachers (7), special education teachers (9), registered nurses (10), painters (15), carpenters (16) and bank tellers (22).

The impact of technology and financial services growth is evident in the list of top-growth occupations in Frederick County. These occupations include general managers and top executives (6), systems analysts (19) and loan officers (21). As in other portions of the State and Maryland's Washington suburbs, there appear to be fewer middle-income occupations of the top-growing list than one would expect.

Critical Skills of High Demand Occupations

Frederick County looks very much like Maryland in terms of the overlap of skills projected to be in demand, such as skills like critical thinking, judgment and decision-making and implementation planning. This may be a case in which the State is matching the expected performance of one of its most promising counties. Advanced skills more highly prized in Frederick County than in the balance of the State include service orientation, social perceptiveness, mathematics, problem identification, coordination, information organization and time management.

Frederick County Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Reading Comprehension	64
Service Orientation	56
Social Perceptiveness	56
Writing	56
Information Organization	52
Mathematics	52
Problem Identification	52
Information Gathering	44
Coordination	40
Critical Thinking	40
Judgment and Decision Making	40
Time Management	40
Implementation Planning	36
Monitoring	36

Workforce Indicators for Frederick County

- ✓ Frederick County comprises 3.6% of the State's population (1998), 4.2% of the public school enrollment (1998) and 3.1% of the employment level (1999).
- ✓ Of Frederick County's population age 25 and over, 34% have a high school degree as their maximum attainment, 13.6% have a bachelor's degree as maximum attainment, and 8.3% have a graduate degree as maximum attainment.
- ✓ Frederick County's exceeds Maryland in key growth areas such as percent change of population between 1990 and 1998 (24.3% to 7.4%), percent change of employment between 1996 and 1999 (13.9% to 7.9%), and percent change of per capita income (3.0%) between 1996 and 1997.
- ✓ Frederick County's retail sales per capita (1997) exceed Maryland's by \$932.
- ✓ Only 5.8% of Frederick County's population lives in poverty.
- ✓ Frederick County trails the State in the percentage of high school seniors with post-graduation college plans (3.1 percentage points less than the State).

Frederick County has become increasingly important to Maryland's economy in recent years, experiencing rapid growth in population, employment, and income. Much of this expansion and progress appears to be generated by families moving to the County from other portions of the Washington / Baltimore metropolitan area. Families may be moving in order to benefit from more favorable housing costs, as the median price for a home in Frederick County as of February 2001 was \$143,000; \$191,550 in Montgomery County; and \$182,500 in Howard County.

Some aspects of the County contradict the area's growing prosperity. The County's scores in post-high school college plans (78% vs. 81% statewide) and Internet access in schools (exceeded by 16 other Maryland jurisdictions) suggests the need for continued investment in public education. Given the rising number of technology companies in the County, there appears to be great opportunity to develop business partnerships between technology companies and public education.

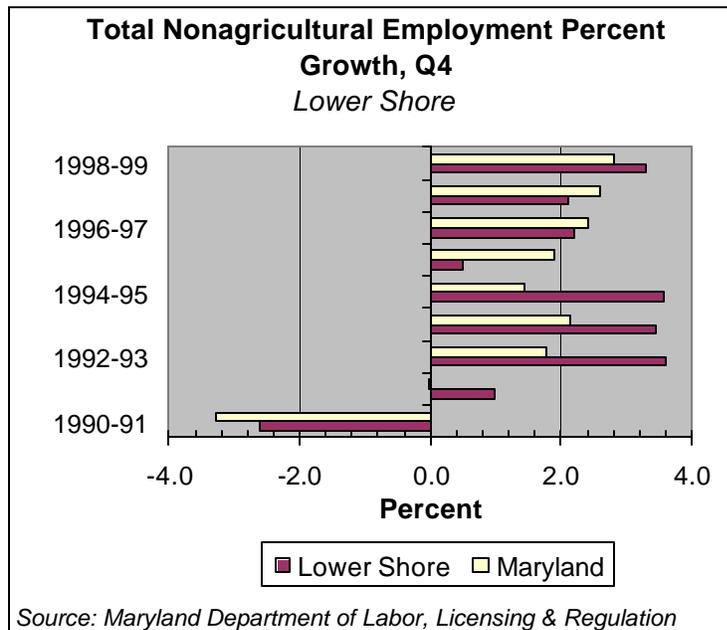
Lower Shore

Economic Backdrop

Comprised of Wicomico, Worcester and Somerset counties, the Lower Eastern Shore Workforce Investment Area has seen its population growth rate slow in recent years compared to the rates of growth experienced in the mid-1990's. Growth between July, 1990 and 1999, however, stands at a healthy 10.6 percent, exceeding the State rate of growth of 7.8 percent.

The region possesses a surprisingly diverse array of economic drivers, including food processing (particularly poultry), microwave filter manufacturers (Salisbury metropolitan

area in Wicomico) and tourism (Ocean City in Worcester). The Lower Shore is home to a number of seasonal industries, and as a result the area's unemployment rate tends to fluctuate tremendously during the course of a given year. Moreover, the unemployment rate in each of the three counties is higher than that in Maryland, though during summer months, Worcester County's unemployment rate typically falls below that of the State. Somerset County's economy has few if any rapidly growing economic drivers, and largely as a result has the lowest per capita income in Maryland.



Major regional private sector employers include Perdue Farms (the largest employer in both Worcester and Wicomico counties and tenth in Somerset), Tyson Foods, Lankford/SYSCO Foods, Dresser Industries (high-tech/Salisbury), K&L Microwave (high-tech/Salisbury) and Filtronic Comtek (high-tech/Salisbury).

There are at least two distinguishing features with respect to economic development in the region. First, Ocean City businesses continue to work to make the resort a yearlong destination, and the State has invested in conference center facilities toward this end. If successful, seasonal fluctuations in unemployment could be diminished, helping to dramatically improve the quality of life among the region's workers.

Second, lost among the fish and chickens is the fact that Salisbury, Maryland is home to one of Maryland's leading electronics clusters. With six firms collectively employing more than 1,000 workers, Salisbury leads the world in producing and designing microwave filters for the cellular communications industry. The filters separate cell phone signals from other high frequencies (e.g. radio stations) so that wireless communications are clear. Among the city's recent success stories is Filtronic Comtek Inc., which recently constructed a \$7 million U.S. headquarters. The firm recently settled in new incubator space and has doubled in size every year. The firm estimates that this year will bring more than \$100 million in sales.

The growth among electronics firms has spawned growth in the region's manufacturing sector with firms like K& L Microwave locating in Salisbury to better supply the region's firms with various electronic components (e.g. filters, microchips, plastics and custom manufactured parts). As a result of the presence of these companies, Salisbury companies now employ more workers with doctoral degrees than the balance of the Eastern Shore combined. There is, therefore, a demand for highly skilled workers on the Lower Shore.

Potential shortages among highly skilled workers going forward present the most significant threat to expanding growth among these high-wage sectors. Approximately 65 percent of the region's population has a high school education or less. Economic development in the region will largely be a function of the capacity of the workforce/educational community to address the needs of the region's cluster of microwave filter manufacturers. Workforce development professionals and the region's centers of higher education cannot overemphasize the need to create additional training opportunities to support businesses such as these.

Lower Shore		
2000 Major Employers		
	Firm	Employees
1	Perdue Farms	2,000
2	Peninsula Regional Medical Center	2,000
3	Salisbury State University	1,100
4	CallCenter Services	1,000
5	University of Maryland - Eastern Shore	950
6	Lankford / SYSCO Foods	860
7	Dresser Industries	700
8	Perdue Farms	650
9	Tyson Foods	600
10	K & L Microwave	510
11	Piedmont / US Airways Exp.	375
12	McCready Hospital	300
13	Pepsi Cola Bottling	275
14	Peninsula Bank	250
14	Harvard Custom Manufacturing	250
14	Filtronic Comtek	250
14	Conectiv	250

Source: Somerset County Office of Economic Development, Wicomico County Office of Economic Development, and Worcester County Office of Economic Development

In Ocean City, labor shortages are seasonal and have existed in recent summers because of a shortage of teen workers. Bureau of Labor Statistics data suggest that 20 years ago, 42 percent of teenagers took summer jobs. Today, that figure is about 34 percent, suggestive of the impact of both growing prosperity and greater job opportunities in other industry segments.

Critical Skills of High Demand Occupations

The role of tourism's growth in the region's continued economic development is made clear in occupational forecasts. The top four occupations in terms of annual job openings in the region are cashiers, retail salespersons, waiters and waitresses, and counter attendants. Food preparation workers occupy positions 8 and 12, and maids/housekeepers are slotted at number 9, amusement and recreation attendees at number 22, and hotel desk clerks at number 24.

General managers and top executives occupy the number 5 position, but because many of these managers work in smaller businesses supporting the tourism industry, the average hourly wage for such positions is considerably less on the Lower Shore (\$24.37/hour) than in the balance of the State. Other middle-level occupations anticipated to add substantial numbers of new jobs include registered nurses (#6; \$20.48/hour), secondary school teachers (#7; \$18.61/hour), marketing sales supervisors (#11; \$15.19/hour), restaurant and hotel managers (#16; \$16.08/hour), and vocational teachers (#25; \$17.36/hour).

Lower Shore Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	76
Service Orientation	72
Speaking	68
Social Perceptiveness	60
Writing	52
Mathematics	44
Coordination	40
Information Gathering	40
Problem Identification	40
Information Organization	36
Reading Comprehension	36

The anticipated growth of tourism is also manifested in the skills-in-demand data. Of the top occupations, 72 percent require a high degree of service orientation, while 60 percent require social perceptiveness as an important core skill. This compares to 44 percent and 48 percent at the statewide level, respectively. There will also be a premium on the coordination skill in the region, no surprise given the array of travel-oriented employers in Worcester County

A relative lack of new jobs in technology industries (despite the presence of the microwave filter cluster) means that certain high-level skills will be disproportionately in less demand on the Lower Shore than in other parts of the State. Among these skills are problem identification and information organization.

Workforce Indicators for Lower Shore

- ✓ The Lower Shore accounts for 2.9% of Maryland's population (1998), 2.9% of its public school enrollment (1998), and 3.0% of its employment level (1999).
- ✓ Of the Lower Shore's population age 25 and over, 34.9% have a high school degree as their maximum attainment, 10.7% have a bachelor's degree as maximum attainment, and 5.2% have a graduate degree as maximum attainment.
- ✓ Somerset County is one of five counties with 100% classroom Internet access. Both Wicomico County and Worcester County (92% each) also exceed the State average of 72%.
- ✓ Somerset, Wicomico, and Worcester counties all have small, intimate student to staff ratios (10.9, 11.3, and 10.5 respectively). The corresponding figure for Maryland is 12.9.
- ✓ 1997 retail sales per capita in Wicomico County (\$12,567) and Worcester County (\$12,958) both exceed Maryland (\$9,116) by significant margins.
- ✓ While Wicomico County has provided Internet access to 92% of its classrooms, only 49% (18% less than the State) of teachers have integrated technology into their curriculum.
- ✓ All three counties earn significantly less weekly wages than the State.

The region's small, Internet-ready classrooms bode well for the future of workforce development and the retention and further development of a pivotal electronic components sector. However, many teachers have yet to integrate technology into their curricula, suggesting that the region may not be capitalizing on one of its most important opportunities.

The region remains characterized by low wages, due primarily to the heavy reliance on retail and tourism activities. Creating a skilled and diversely trained workforce will be key to the continuing efforts of the area to diversify its economic base.

Mid-Maryland

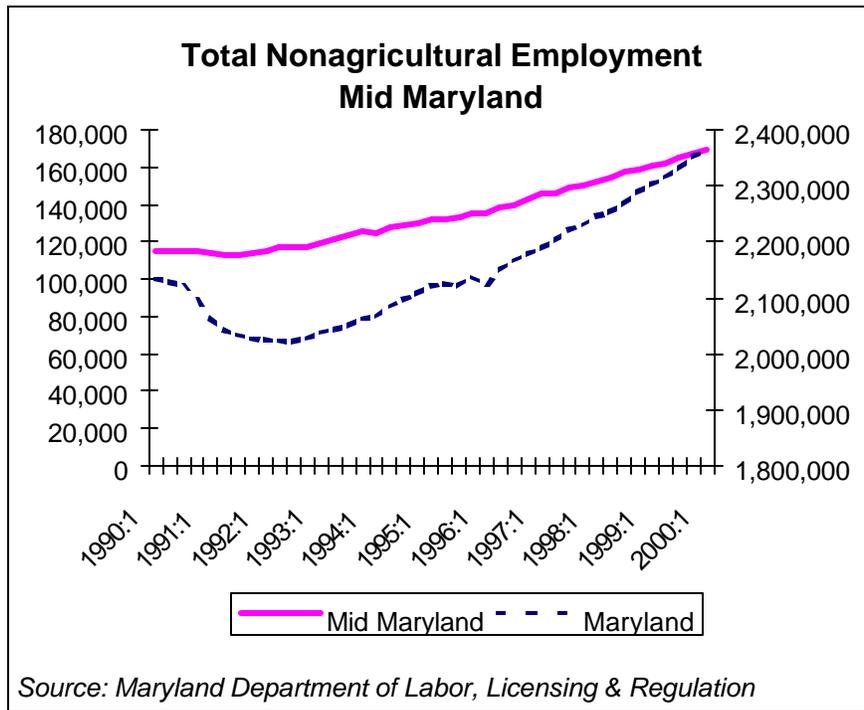
Economic Backdrop

Comprising Howard and Carroll counties, Mid-Maryland represents a contrasting mix of dense New Economy activities and sparse bedroom communities. Virtually all of the Workforce Investment Area's New Economy activity has taken place in Howard County, deemed by most observers to be the most successful County in the State in terms of economic development and transformation during the 1990s (Montgomery County, Frederick County, St. Mary's County and Harford County would follow thereafter, but not necessarily in that order).

The County's location at the heart of the Baltimore-Washington corridor also make it a prized area for residential development, and the County's population has grown from 119,000 in 1980 to over 250,000 today.

The broad-based technology and residentially driven growth is perhaps best reflected in the County's office market. The County's office vacancy rate rested at a healthy 4.6 percent as of June 2000, with Columbia South, home to nearly 40 percent of all space in the County, enjoying a vacancy rate just over five percent.

With major technology-oriented employers such as Johns Hopkins University Applied Physics Laboratory, Ciena, RWD Technologies, Allied Signal and SAIC, developers remain confident that technology will continue to cluster in the County, and several large scale mixed use developments designed to accommodate resulting commercial and residential growth are now either under construction or at advanced planning stages.



In Howard County, the shortage of retail workers is year-round and traces its roots to different sources. While there are no firm estimates of the magnitude of retail worker shortages, the fact that a shortage exists is clear. The County's problems in this domain appear to be related to the lack of affordable housing in the County, forcing workers in lower-paying industries to live outside the County. Of course, these workers are the least mobile from a transportation perspective, and hence high unemployment rates in parts of the region co-exist with unfilled jobs in another.

The regional retail shortage will worsen now that the Arundel Mills shopping and entertainment complex has opened. Mills Corporation staff worked frantically to hire 3,000 permanent employees. While the individual stores and restaurants will do their own hiring, the Mills Corporation is developing a bank of qualified job candidates to draw from. The company is working with County and State employment and social service agencies to identify job candidates.

Arundel Mills has built a 5,000-square-foot on-site skills center that will provide workers with further “value-added” training in retail skills and even in “English as a Second Language.” Anne Arundel Community College is partnering with Mills in operating the training center. Future workforce information products will seek to determine if this business-led training effort is indicative of a much larger workforce trend.

Mid-Maryland boasts a highly educated population, with the second highest percentage of bachelor’s degree holders as well as graduate degree holders among the State’s Workforce Investment Areas. Although a high level of educational attainment bodes well for the region, the disproportionate level of highly skilled workers in Howard County combined with a deficient supply of affordable housing has resulted in a lack of low-skilled, service sector workers in the County and presents the most significant labor force imbalance facing Mid-Maryland. Retailers continue to complain of enormous difficulty finding suitable labor.

Mid-Maryland		
2000 Major Employers		
	Firm	Employees
1	Applied Physics Laboratory	2,700
2	Carroll County General Hospital	1,250
3	Amerix Corporation	1,250
4	Giant Food, Incorporated	1,200
5	Random House	1,200
6	Howard County General Hospital	1,200
7	Springfield Hospital Center	1,000
8	Smelkinson SYSCO Food Services, Inc.	945
9	Magellan Health Services, Incorporated	850
10	The Rouse Company	850
11	The Columbia Association	800
12	CareFirst	720
13	Maryland Health Enterprises	708
14	The Arbitron Company	600
15	Ciena Corporation	550

Source: Baltimore Metropolitan Council

The lack of public transportation within the County compounds the imbalance further, because low-wage workers often find it impractical to hold jobs in Howard County. This imbalance due to lack of transportation is particularly challenging for Baltimore City residents because auto insurance costs are prohibitive. Thus, distance between jobs and workers represents a significant workforce development challenge in the area.

Carroll County’s story has attracted less attention, but the County has experienced considerable growth in distribution (e.g., Random House) and in residentially oriented industries. Major private sector employers include Northrop Grumman, Black & Decker, Marada Industries, BB&T and Jos. A. Bank. The County’s unemployment rate stood at a

low 2.3 percent at mid-year 2000, in part due to prosperous job markets in other parts of the Baltimore metropolitan area, and in part due to the 3.2 percent job growth the County experienced between the first quarters of 1999 and 2000.

Critical Skills of High Demand Occupations

The impact of technology growth in the area shows up definitively in occupational projections. Among the top growth occupations ranked by annual job openings in Mid-Maryland are general managers and top executives (#2; \$31.55/hour), computer engineers (#14; \$29.38/hour), computer support specialists (#21; \$21.89/hour) and systems analysts (#25; \$27.10/hour). Other occupations making the list, due largely to anticipated population growth in the counties, are secondary school teachers, elementary school teachers and registered nurses.

Growth in these occupations results in the fact that many of the highest level skills will be disproportionately in demand vis-à-vis the balance of Maryland, including information organization, judgment and decision making, critical thinking, coordination, time management, monitoring, implementation planning, solution appraisal, idea evaluation and active learning. In short, Mid-Maryland's economy, particularly Howard County, will have many job openings for those who can manage and strategize, and as a result workers with these more general skills will find plentiful opportunity in this part of the State.

Mid-Maryland Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	80
Speaking	76
Writing	60
Social Perceptiveness	56
Reading Comprehension	52
Service Orientation	48
Problem Identification	44
Information Organization	44
Information Gathering	44
Mathematics	40
Judgment and Decision Making	40
Critical Thinking	40
Coordination	40
Time Management	36
Monitoring	36
Implementation Planning	36

Residential growth helps spin-off numerous job openings in lower-wage and lower-middle-wage segments, including among retail salespersons (#1; \$10.41/hour), waiters/waitresses (#3; \$6.33/hour), cashiers (#4; \$8.88/hour), food preparation workers (#5 and #7; less than \$8/hour), laborers/groundskeepers (#10; \$9.33/hour), cooks (#15;

\$9.48/hour) and janitors (#22; \$8.72/hour). As a result, service orientation is also a disproportionately in demand skill in Mid-Maryland.

Anticipated mid-level occupational growth in Mid-Maryland is somewhat sparse, with the exception of teaching and nursing, and thus the workforce development professional will find this part of the State particularly challenging. Occupational growth in this region tends to be more concentrated at the top and bottom of the economic scale than is true in virtually all other parts of the State. As a result, community colleges and other centers of training will be of critical importance in the region, perhaps even more so than in other Workforce Investment Areas in order to bridge the gap between low and high skill levels.

Workforce Indicators for Mid-Maryland

- ✓ Mid-Maryland comprises 7.5% of the State's population (1998), 8.2% of its public school enrollment (1998), and 7.1% of its employment base (1999).
- ✓ Of Mid-Maryland's population age 25 and over, 25% have a high school degree as their maximum attainment, 21.8% have a bachelor's degree as maximum attainment, and 14.4% have a graduate degree as maximum attainment.
- ✓ Howard County scores in the top five in many of the indicator categories (see narrative immediately below for listing).
- ✓ Carroll County exceeded the State's percent change of population between 1990 and 1998 by 13.9 percent.
- ✓ Nearly three-quarters (74%) of Carroll County teachers have integrated technology into their curriculum, compared to 67% for Maryland.
- ✓ Howard County trails the State in classroom with Internet access (67% to 72%).
- ✓ Carroll County has seen a decline of 18.3% in total temporary cash assistance cases, compared to the 27.9% statewide decline.

Howard County scores in the top five in the following Indicator categories including: Percent Change of Population (26.2%), Student to Staff Ratio (11.2), Percent of Students with Post-High School College Plans (89.4), Weekly Wage (\$693), Percent Change in Employment (20.6%), Unemployment Rate (1.8%), Per Capita Income (\$33,127), and Percent of Population Living Below Poverty (4.4% compared to 9.5% statewide).

Mid-Maryland possesses one of the State's most educated labor forces. Fully 36 percent of the region's population age 25 and above have obtained a bachelor's degree or higher. This compares to 26 percent in Maryland. In addition to Howard County's impressive rankings listed above, Carroll County scores well on a number of fronts. Included among these scores is the integration of technology into curricula (74%) and Internet access (97%). Taken in isolation, these data certainly suggest that Carroll County is building towards a workforce of the future and setting the stage for heightened technology growth in the County moving forward.

Montgomery County

Economic Backdrop

Montgomery County is home to more New Economy employers and employees than anywhere in the State. The County's leading employer is NIH, which according to the Montgomery County Office of Economic Development has 15,500 employees. Other major employers include the National Oceanic & Atmospheric Administration (4,700), Food & Drug Administration (4,650), Lockheed Martin (4,200), Marriott International (3,500), IBM (3,000), the National Institutes of Standards & Technology (2,800), Hughes Network Systems (2,600) and Comsat (1,600).

Given this array of talent and technical concentration, it is no surprise that in recent periods Montgomery County has experienced much of its job growth in high-paying sectors. Between the first quarters of 1999 and 2001, the three fastest-growing industries in terms of job additions were business services (weekly wage \$843), electronic equipment manufacturing (\$1,152) and engineering and management services (\$1,020). Collectively, these economic segments added over 6,500 jobs in Montgomery County during this four-quarter period.

Montgomery County	
2000 Major Employers	
Firm	Employees
1 NIH	15,500
2 NOAA	4,700
3 FDA	4,650
4 Lockheed Martin Corp.	4,200
5 Marriott International	3,500
6 IBM	3,000
7 NIST	2,800
8 Hughes Network Systems	2,600
9 COMSAT Corporation	1,600
10 Aspen Systems Corp.	1,500
11 Telecommunications Techniques corp.	1,500
12 At & T / Lucent Telecommunications	1,400
13 NASD	1,330
14 Orbital Sciences Corp.	1,100
15 BAE systems North America	1,000

Source: Montgomery County Office of Economic Development

The County has also added substantial numbers of jobs in middle-income segments, including banking, distribution, social services and private educational services. In short, the economy has been healthy as a whole, and the past few years have been a time of exceptional opportunity in the County. However, as stated above in the Maryland

section, the economy is slowing, and so too will Montgomery County. The question is how much.

The County’s heavy federal presence should allow it to weather the impending (expected to be mild) storm fairly well, with procurement and federal employment levels not likely to fall over the next year. Though certain dot-coms have gone belly up, and though there have been layoffs in the tech segment (e.g., among systems analysts), these layoffs have taken place during a period of labor shortage, and dislocated workers are being quickly reabsorbed into the ranks of the employed.

Critical Skills of High Demand Occupations

Given the more advanced nature of Montgomery County’s economy, it is not surprising that the average occupation requires more skills and more depth within the skill set than is true in the balance of Maryland. Eighteen skills appear in more than a third of the occupations. Relative to Maryland, Montgomery County employers value skills such as problem identification, information organization, mathematics, critical thinking, implementation planning, and idea generation more highly than do employers in the balance of the State.

Montgomery County Skills Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	84
Speaking	80
Writing	64
Problem Identification	60
Reading Comprehension	60
Information Organization	56
Social Perceptiveness	52
Critical Thinking	48
Information Gathering	48
Judgment and Decision Making	48
Mathematics	48
Service Orientation	48
Idea Evaluation	44
Implementation Planning	44
Monitoring	44
Active Learning	40
Idea Generation	40
Solution Appraisal	40

Still, there are similarities with the State’s list. Active listening is the most frequently demanded skill set in both Montgomery County and Maryland. Speaking and writing is the second and third most frequently demanded skill sets, respectively, in both Montgomery County and Maryland. No matter how modern the economy, it would appear that a foundation in fundamentals is always a key ingredient to success.

One interesting skill appears in Montgomery County's list, that of active learning. Workforce professionals and others have long acknowledged the importance of "lifelong learning," and active learning is considered a "process" skill that involves working with new material or information to grasp its implications. This would seemingly indicate not only the importance of "lifelong learning" to Maryland's workforce and employers, but also that Montgomery County's economy requires the ability to work with new material or information at greater levels than most other workforce areas, an indication of a strong new economy.

An analysis of occupations projected to add significant numbers of jobs in Montgomery County over the next several years suggests that there exists the same jobs-career path gap that exists at the State level. The top occupations by job openings are concentrated in both lower- and higher-paying occupations, with relatively few middle-income occupations ranking high in this regard. Clerical supervisors ranks fifth in terms of prospective job openings and stands out as an exception. Clerical supervisors earn an average hourly wage of \$18.18 in Montgomery County, and therefore can be classified neatly as a middle-income occupation.

Workforce Indicators for Montgomery County

- ✓ Montgomery County accounts for 16.4% of the State's population (1998), 15.2% of its school enrollment (1998), and 18.2% of its employment level (1998). The County outranks all other jurisdictions in both population and employment totals.
- ✓ Of Montgomery County's population age 25 and over, 16.8% have a high school degree as their maximum attainment, 26.7% have a bachelor's degree as maximum attainment, and 23.2% have a graduate degree as maximum attainment.
- ✓ Montgomery County is the highest-ranking county in weekly wage (\$794 vs. \$663 for State), unemployment rate (1.8% compared to 3.5% for Maryland) and per capita income (\$12,865 greater than State).
- ✓ 77% of Montgomery County teachers have integrated technology into their curriculum, compared to 67% for Maryland.
- ✓ Montgomery County's 1996-1997 per capita income growth is a full percentage point lower than the corresponding figure for Maryland (4.0 for County compared to 5.0 for State).

Montgomery County ranks first or second in many categories including population (840,879), percent of population 25 and over with a bachelor's degree and higher (49.9%), percent of teachers who have integrated technology into curricula (77%), average weekly wages (\$794), unemployment rate (only 1.8%), per capita income (\$39,936), and proportion of population living below poverty (only 5.6%).

As the immigration gateway into Maryland, Montgomery County's workforce becomes increasingly diverse and suited to an economy characterized by greater levels of specialization. The influx of immigrants to the County does create special issues with

respect to education and workforce training, however, particularly the need for “English as a Second Language” training programs.

Prince George’s County

Economic Backdrop

Prince George’s County is home to numerous large institutional technology-oriented employers, including the University of Maryland, College Park (10,307 employees), NASA Goddard Space Flight Center (3,575 employees) and the Beltsville Agriculture Research Center (1,624 employees). The University of Maryland, College Park should be considered a particularly important institutional foundation for future private sector high tech job growth. The University ranks fourth nationally in information technology, seventh in entrepreneurship, and sixth in faculty research internationally.

The County is also home to an employment base that includes concentrations of management consulting, distribution, communications and a host of other private sector segments. The significant presence of both the public and private sectors makes Prince George’s County one of the most diverse economies in Maryland.

Prince George's County	
2000 Major Employers	
Firm	Employees
1 University of Maryland, College Park	10,307
2 Giant Food, Inc.	6,031
3 U.S Postal Service	4,000
4 Census Bureau	3,800
5 NASA Goddard Space Flight Center	3,575
6 Maryland National Park & Planning Comm.	3,000 - 5,000
7 Dimensions Health Care System	2,875
8 Safeway	2,827
9 Bell Atlantic Corporation	1,967
10 Shoppers Food Warehouse	1,750
11 United Parcel Service	1,700
12 Beltsville Agriculture Research Center	1,624
13 Computer Sciences Corporation	1,576
14 Washington Suburban Sanitary Commission	1,500
15 Prince George's Community College	1,500

Source: Prince George’s County Economic Development Corporation

The County’s per capita income as of 1998 was greater than that of Carroll and Harford counties, and its unemployment rate is roughly equivalent to that of the balance of the State (approximately 3.5 percent at mid-2000).

Tourism will be among the County's leading growth sectors going forward including the largest single commercial investment in the State. Gaylord Entertainment, the company that built Opryland in Nashville, Tennessee, will be part of a team developing a \$560 million hotel-entertainment complex on the Potomac River just south of the Woodrow Wilson Memorial Bridge. The hotel will be the anchor of National Harbor, a 534-acre planned resort. With 2,000 guest rooms and 400,000 square feet of meeting and exhibit space, the project would be the largest single commercial investment in the State.

The Prince George's hotel project will include a glass atrium that stretches over five acres and is expected to generate 2,000 jobs and \$27.5 million in taxes for the State and County. The project is planned to have at least three resort hotels, an entertainment park, a marina, upscale retailing, office space and water taxis to shuttle visitors from one side of Eagle Cove to the other and across the Potomac to Alexandria's Old Towne and Reagan National Airport.

The top 10 occupations ranked by projected job openings is dominated largely by low-wage or lower-middle wage occupations, including retail salesperson (#1; \$9.78/hour), teachers aides (#2; \$9.15), cashiers (#3; \$9.76/hour), waiters (#7; \$6.15/hour) and guards (#8; \$11.28/hour). There are notable exceptions, however, including general managers and top executives (#4; \$33.81) and systems analysts (#6; \$27.94/hour).¹⁰

On a list of top 25 occupations adding jobs in Prince George's County, a number of middle-income occupations appear, including marketing/sales supervisors, clerical supervisors, police, electricians, registered nurses and truck drivers. From this, one concludes that the County will have available job openings across the wage/income spectrum, and that is certainly good news for workers in Prince George's County. Occupational projections for Prince George's County are also consistent with the notion that the County will continue to evolve toward the New Economy, and that there will be substantial numbers of new positions for systems analysts, computer engineers and computer programmers in the years ahead.

Critical Skills of High Demand Occupations

The rising presence of certain key high-wage industries in Prince George's County is reflected to a limited extent in the skills that will be most in demand. Just as in Maryland, basic skills such as active listening, speaking, writing and reading comprehension are among the skills used most often by professionals, but problem identification (a rarer skill among the workforce) ranks third in terms of the proportion of top-growing occupations that require it in Prince George's County (56% of all occupations) compared to sixth statewide (48%). The problem identification skill is required for the computer systems analyst, registered nurses, computer engineering, general management and computer programming occupations among others, and serves as a distinguishing feature of many middle- and high-income occupations in the County.

¹⁰ Wages for Prince George's County systems analysts and teachers aides unavailable and substituted with Maryland wage figures of \$27.94 and \$9.15, respectively.

Of critical importance is that Problem Identification is difficult to develop in most low-wage occupations, and is not deemed to be essential to cashiers, waiters, janitors and food preparation workers. However, the skill is necessary for retail salespersons and teacher's aides, suggesting strongly that these are two occupations can serve as vehicles for upward mobility. This is particularly true for teacher's aides, an occupation that incorporates thirteen essential skills, including learning strategies, implementation planning, idea generations and solution appraisal.

Prince George's County Skill Frequency	
	<u>% of Top Occupations Requiring Skill</u>
Active Listening	72
Speaking	68
Problem Identification	56
Writing	56
Reading Comprehension	52
Information Organization	40
Service Orientation	40
Mathematics	36
Judgment and Decision Making	36

In addition to retail salesperson and teachers aides, three other occupations that may serve as vehicles of upward mobility in Prince George's County include general office clerks, marketing/sales supervisors and clerical supervisors. These may be especially attractive to workforce development professionals because they often do not require a bachelor's degree, but rather emphasize work experience and in the case of general office clerks, on-the-job training.

Each of these occupations is projected to grow rapidly in Prince George's County in the years ahead. Skills essential to success in these occupations include the basic skills of reading comprehension, writing, speaking and active listening, as well as higher level skills like information organization, information gathering, idea generation, critical thinking, judgment and decision making and idea evaluation among others. Providing lower-wage occupational workers with these skills is the greatest challenge for workforce professionals in Prince George's County, particularly since the lowest-wage foundational occupations do not generally permit acquisition of such skills. Therefore, formal training of some sort will typically be required.

Workforce Indicators for Prince George's County

- ✓ Prince George's County represents 15.1% of the State's population (1998), 15.5% of its public school enrollment (1998), and 12.7% of its employment base (1999). The County ranks second among workforce areas in total population, first in school enrollment, and fourth in employment.
- ✓ Of Prince George's County's population age 25 and over, 29.2% have a high school degree as their maximum attainment, 16.2% have a bachelor's degree as maximum attainment, and 9.3% have a graduate degree as maximum attainment.
- ✓ Prince George's County is one of the few counties with an average weekly wage that exceeds that of the State (by \$3/week).
- ✓ Prince George's County exceeds the State in classrooms with Internet access (78% to 72%) but trails the State in percent of teachers who have integrated technology into their curriculum (57% to 67%).
- ✓ Prince George's County boasts a slightly lower poverty rate compared to Maryland (9.3% to 9.5%), and has also experienced a much larger decline (45%) in total temporary cash assistance cases than the State (27.9%).

Prince George's County high percentage of population age 25 and over with a bachelor's degree or above indicates that the County is well positioned to meet future workforce needs. The educational attainment data suggest that the County's workforce is highly diverse. That's good news since the future county employment base is likely to be similarly diverse.

However, in an area characterized by world-class higher education and federal research institutions, it is ironic that only 57% of school teachers have integrated technology into their curricula, less than the State average. This is certainly a potential and important area of improvement for the County, especially for economic development officials seeking to market the County as an alternative to others in Maryland (Montgomery, Frederick, Howard) as well as Virginia (Fairfax) and Washington, D.C.

Southern Maryland

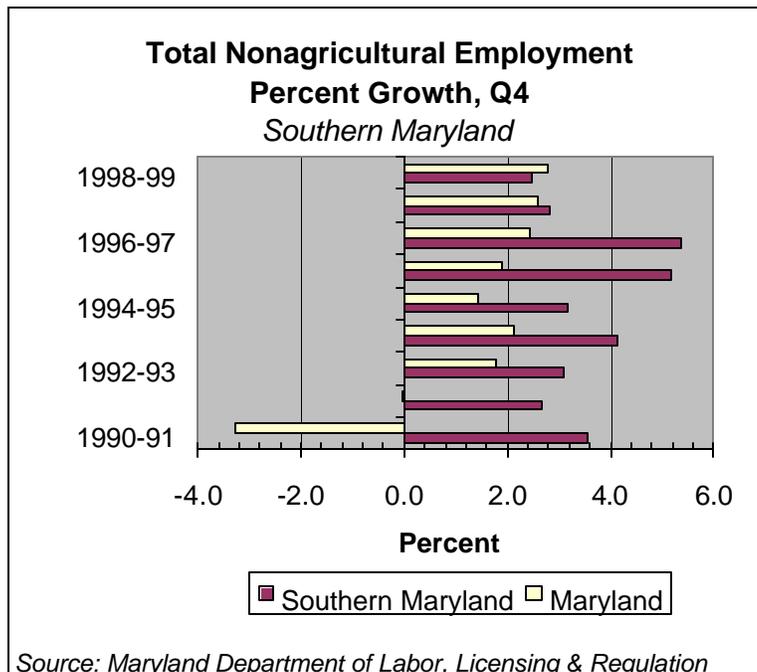
Economic Backdrop

Few regions in the State are transforming as rapidly as Southern Maryland, which includes Calvert, Charles, and St. Mary's counties. Since World War II, Southern Maryland's economy, which has historically been oriented around tobacco production and processing, has become heavily concentrated in low-paying industries that have grown with population (e.g., retail, lawn care, personal services). In recent years, however, the region has undergone a significant transformation that has propelled Southern Maryland toward the forefront of the New Economy.

From 1970 to 1990, the total number of professional and technical workers in Southern Maryland grew from 4,900 or 14 percent of the workforce to 37,132 or 32 percent of the workforce. Over the same span the percentage of professional workers grew from 19 percent to 37 percent in the balance of the State.

At the time of the 1990 Census, Southern Maryland also lagged behind the State in educational attainment. At that time, a total of 33 percent of the State's workforce had a four-year college degree, master's degree, doctorate degree or professional degree. In Southern Maryland, the corresponding proportion was 20 percent. These facts suggest that until recently the region was simply not one conducive to 21st century economic performance, and were it not for very recent events, Southern Maryland would not be on par with the balance of the State, let alone a growth leader.

Everything changed for the region when the Defense Base Closure and Realignment Commission ordered the consolidation of naval aviation research and development activities from Pennsylvania, Virginia and New Jersey to the Patuxent River Naval Air Station ("Pax River") in Southern Maryland. The relocation effort involved 5,700 highly specialized and well-compensated military and civilian jobs moving into Southern Maryland and an overall increase in Southern Maryland of approximately 15,000 jobs.



In a 1998 study, RESI identified five industries that were likely to cluster around Patuxent River, now the center of naval aviation research in the United States. These industries are computer and data processing services, computer engineering/systems integration/software development, information technology, research and testing and defense procurement. Each of these industries is attractive because of the high wages offered and the impact of these wages on the likelihood of charitable contributions. For

instance, the average computer and data processing job statewide paid \$52,650 in 1998. The other four industries identified each paid average wages between \$44,000 and \$56,000 that year.

The rationale for believing that these industries will expand substantially in St. Mary's County and possibly in Charles and Calvert counties is clear. Computer processing and engineering is directly related to the naval research and data collection activities taking place at Pax River. Information technology will expand in the region because Pax River is home to a number of facilities involved in the development and utilization of new technologies. These include the Microwave Test Facility, which is used to design, develop, test and evaluate antennas and related avionics systems for fleet aircraft. Items produced by this facility include new antennas for aircraft programs and antenna installations for global positioning systems.

Southern Maryland		
2000 Major Employers		
	Firm	Employees
1	Civil Service, Patuxent River Naval Air Station	5,038
2	Indian Head Naval Surface Warfare Center	3,678
3	U.S. Military, Patuxent River Naval Air Station	2,448
4	Dyn Corp	1,367
5	Baltimore Gas & Electric Company	1,319
6	Tracor	900
7	Calvert Memorial Hospital	829
8	Charles County Community College	700
9	St. Mary's Nursing Home	700
10	St. Mary's Hospital	630
11	Civista Medical Center	600
12	Eagan McAllister Assoc, Inc	500
13	Veridian	500
14	Wal-Mart (Charles County)	365
15	ARC of Southern Maryland	360

Source: Charles County Chamber of Commerce, Calvert County Department of Economic Development, and St. Mary's County Department of Economic & Community Development

The Electronic Systems Flight Test Facility provides the capability to conduct development support and test and evaluate aircraft antennas, antenna installations, secure and non-secure analog and digital communication and data link systems, satellite communications systems and radar systems. This facility and other testing facilities such as the Force Aircraft Test Squadron, the South Engineering Center, a new Propulsion Systems Evaluation Facility, an Air Combat Environment Test and Evaluation Facility and Aircraft Test and Evaluation Facility collectively suggest that the high-wage research and testing industry will be another source of substantial job growth. Anecdotal comments from high-ranking naval officials suggest that any company that wants to

seriously pursue naval procurement opportunities must have a presence in Southern Maryland.

The point of all this detail is to suggest that in just a few short years Southern Maryland has been transformed from a sleepy region to one that is driven by cutting edge technology. Research was shifted to Southern Maryland precisely because of the cutting edge nature of naval activities and the desire to secure newly developed technologies from foreign hands. As a result of these events, a number of technology occupations will expand rapidly in the region, including electronic engineers (#7; \$29.51/hour at State level), computer engineers (#15; \$29.19/hour at State level), systems analysts (#16; \$26.94/hour), and engineers, mathematicians and natural scientists (#23; \$35.40/hour). The increasing number of corporations locating in the region also explains the significant number of general managers and top executive positions that will be created in the region (#4; \$25.94/hour).

Large portions of Southern Maryland can also be characterized as bedroom communities, and much of the future job growth in the region will likely be oriented toward retail services and other services to households. Construction jobs will be plentiful, and as a result a number of building-related occupations find their way onto the top 25 list, including electricians and related helpers (24) and carpenters and related helpers (25). Cashiers, salespersons, food preparation workers, waiters, landscapers/laborers and bartenders are all also on the top 25 list, with projected expansion in these occupations driven primarily by anticipated population growth.

Middle-wage jobs will also be plentiful in the region, with significant numbers of occupational openings also available for registered nurses (8), marketing/sales supervisors (9), teachers (13 &14) and clerical supervisors (17). In short, there will be abundant opportunities in the region going forward, and RESI has selected Charles County as one of Maryland's counties to watch during the upcoming decade. That County shall see rapid gains in job growth during the first decade on the new century, including in a number of high-wage, technology-related occupations.

One note of caution regarding Southern Maryland is that the region could, in the foreseeable future, find itself in a position similar to Howard County. Unless growth in housing structures and development includes room for lower- or moderate-income households, the region will experience a shortage of low to medium skill service workers. The region's already low unemployment rate supports this view. Both Calvert and Charles Counties recorded a scant 2.2 percent unemployment rate in the second quarter of 2000. St. Mary's County has an unemployment rate of just 2.6 percent. This would also hamper growth of the local tourism industry, an industry that Southern Marylanders have targeted for expansion.

Critical Skills of High Demand Occupations

Due to Southern Maryland's emerging technological base the labor force will need to be relatively more skilled than elsewhere in the State. Basic skills such as active listening,

speaking, writing and reading comprehension will be required in higher proportions than in the balance of the State. So too will higher level skills such as judgment and decision making, information gathering, critical thinking, coordination, time management, monitoring, implementation planning, solution appraisal, idea evaluation and active learning. The growth of jobs related to household services also places a premium in the region on skills such as social perceptiveness and service orientation.

Southern Maryland Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	77
Speaking	73
Writing	58
Social Perceptiveness	58
Service Orientation	50
Reading Comprehension	50
Problem Identification	42
Information Organization	42
Coordination	42
Mathematics	38
Judgment and Decision Making	38
Information Gathering	38
Critical Thinking	38
Time Management	38
Monitoring	35
Implementation Planning	35

Workforce Indicators for Southern Maryland

- ✓ Southern Maryland comprises 5.4% of Maryland's population (1998), 6.2% of its school enrollment (1998), and 3.6% of its employment base (1999).
- ✓ Of Southern Maryland's population age 25 and over, 36.3% have a high school degree as their maximum attainment, 11.2% have a bachelor's degree as maximum attainment, and 5.6% have a graduate degree as maximum attainment.
- ✓ St. Mary's County leads the State in employment growth between 1996 and 1999 (25.8% compared to 7.9% for Maryland), and per capita income growth (5.8% greater than Maryland).
- ✓ Calvert (32.5% more), Charles (8.9% more), and St. Mary's (8.0% more) all exceed the State's percent growth in population (7.4%).
- ✓ Calvert is one of five counties with a 100% classroom Internet rate; the corresponding figure for Charles County is 99%.
- ✓ All three counties trail the State in percentage of post-high school graduation plans (Calvert lags the state by 6.7% percentage points, Charles and St. Mary's lag by 2.7 and 2.8 percentage points respectively).
- ✓ The area's rates of bachelor's degrees (11.2% to 15.6%) and graduate degrees (5.6% to 10.9%) lag behind the State significantly.

St. Mary's County has become one of Maryland's most important economic and technology drivers. Reflecting the rapid growth in high-wage segments in recent years, St. Mary's County has led the State in both employment growth and per capita income growth.

The growth of St. Mary's County and the Washington D.C. area in general is creating new opportunities in other portions of Southern Maryland. Charles County is set to embark on a period of rapid economic growth as County economic development professionals push infrastructure investments to allow for enhanced levels of private investment. Calvert County scores well in employment growth and population growth, and has seen a rapid decline in the number of temporary cash assistance cases (35%).

Susquehanna

Economic Backdrop

The Susquehanna Workforce Area continues to experience solid growth, as evidenced by the 1996-1999 employment rate growth of Cecil (12.3%) and Harford (11.8%) compared to Maryland (7.9%).

Harford County continues to be a major location for build-to-suit construction (industrial market). Seven major lease commitments totaling 1.5 million square feet were signed in Harford County during the first half of 2000, including projects for Clorox, Crown Cork & Seal, Master Halco, Northeastern Supply, and Check Gallery.

The region stands to benefit from emerging trends in the bulk, flex and warehouse market, and this includes Cecil County, though job growth remains several years away. The availability of suitable sites for new development is fast becoming an issue within the Baltimore Metropolitan region. Large users are constrained by land prices in the Interstate 95 corridor in excess of \$4.00 per square foot. Moreover, developers, who control the prime land zoned for industrial use, tend to develop their own portfolios in lieu of selling the land to other firms. These issues, along with escalating pressure to upgrade industrial land to flex and office space, has limited options for corporations.

Until infrastructure issues (i.e. public water and sewerage) are met, Cecil County will remain an underdeveloped industrial market. Workforce development professionals in the region should monitor the extent to which Cecil County is investing in this type of infrastructure, since the nature and magnitude of that investment will correlate closely to future industrial job growth.

Though the area has become known for its attractiveness as a distribution center, the impact of technology driven industries has become progressively more significant to the Susquehanna region, especially in Harford County. The industry is taking off with the establishment of the Harford County Higher Education and Applied Technology (HEAT) Center, which houses tech firms such as SAIC, Web AdVantage, Inc. and Battelle

(pioneer of compact disc technology). Institutional strengths such as the HEAT Center and the Aberdeen Proving Ground should propel the regional technology sector forward in the future.

Of particular concern to Susquehanna workforce professionals should be the apparent migration of the Susquehanna's highly educated population segments to other regions, leading to prospective skills imbalances within information technology sectors. Educational attainment levels within the region closely follow State trends, with the exception of Bachelor's (3.4% less than State) and Masters Degree (4.3% less than State) holders.

Susquehanna		
2000 Major Employers		
Firm		Employees
1	Aberdeen Proving Ground	10,878
2	Upper Chesapeake Health System	1,762
3	Rite Aid Mid-Atlantic Distribution Center	1,357
4	W.L. Gore and Associates	1,288
5	Saks Fifth Avenue	863
6	Union Hospital	650
7	The Gap Atlantic Distribution center	515
8	Frito-Lay, Inc	487
9	Michel Distribution Services	440
10	Supervalu, Inc	399
11	Terumo Medical	395
12	Old Line Plastics, Inc	350
13	Thiokol Corporation	315
14	Constar/Crown Cork & Seal	300
15	Johnson Controls	288

Source: Cecil County Office of Economic Development, Harford County Office of Economic Development

Attracting and retaining the highly educated and skilled population in the region would ensure growth within the local technology industry. This is particularly important since it is not clear that workers from other portions of the State generally look to Harford or Cecil counties for employment. The 2000 Census will reveal the extent to which persons living outside the region commute to Susquehanna for work. Anecdotally, larger job centers in Baltimore City, Baltimore County, New Castle County, Delaware and elsewhere appear to overshadow Susquehanna's growing technology job centers.

As a result, keeping the local labor force at home is particularly important for Susquehanna if it is to avoid substantial labor force imbalances going forward. Harford County's low unemployment rate supports the notion that supply shortages remain a distinct possibility. The County recorded an unemployment rate of 2.8 percent in the second quarter of 2000. This compares to the 3.3 percent State average. Cecil County's

unemployment is somewhat higher than the State average, but because the County has a relatively small population, this unemployment rate does not translate into a large pool of available workers.

Critical Skills of High Demand Occupations

The top 10 occupations ranked by projected job openings are dominated largely by low-wage or lower-middle wage occupations, including retail salespersons (#2; \$9.23/hour), cashiers (#3; \$8.79/hour), combination food/preparation workers (#5; \$7.01/hour) and waiters/waitresses (#6; \$6.03/hour). Indeed, only two of the top 25 projected occupations require some form of post-secondary degree, elementary school teachers and general managers and top executives.

Susquehanna Skill Frequency	
	<u>% of Top Occupations Requiring Skill</u>
Active Listening	69
Speaking	62
Social Perceptiveness	54
Service Orientation	50
Writing	50
Problem Identification	46
Coordination	38
Reading Comprehension	38
Critical Thinking	35
Information Gathering	35
Time Management	35

Projected growth in middle to high wage positions for the region are concentrated among “Old Economy” rather than “New Economy” positions including general managers and top executives (#4; \$26.46) and elementary school teachers (#1; \$19.50/hour). To the extent that high-technology jobs are projected to grow within the region, such growth will not be rapid relative to the region’s top 25 growing occupations. In fact, Susquehanna is one of the few local Workforce Investment Areas in which technology-related occupations are absent among the top 25 occupations. The continued development of the HEAT Center should serve to change that in future years.

Workforce Indicators for Susquehanna

- ✓ Susquehanna accounts for 5.8% of Maryland's population, 6.5% of its school enrollment, and 3.7% of its employment.
- ✓ Of Susquehanna's population age 25 and over, 32.7% have a high school degree as their maximum attainment, 12.2% have a bachelor's degree as maximum attainment, and 6.6% have a graduate degree as maximum attainment.
- ✓ Harford County outperforms the State in a number of Indicators, including population growth between 1990 and 1998 (10.5% greater than State) percentage of post-high school graduation college plans (82.6% compared to 80.8% for Maryland) and percent of population living in poverty (3.1% less than State).
- ✓ Only 45% of Harford County's public school classrooms have Internet access, compared to 72% across the State.
- ✓ Cecil County outperforms the State in the key areas of employment growth between 1996 and 1999 (12.3% vs. 7.9%) and per capita income growth between 1996 and 1997 (5.7% compared to 5.0%).
- ✓ Only 18.9% of Susquehanna's population age 25 and over has a bachelor's degree or higher, compared to 26.5% for Maryland.)

Harford appears in the top ten for more than half of the workforce indicator categories, and can therefore be considered one of the State's major workforce success stories. The County's percentage of high school seniors with post-graduation college plans is higher than any Maryland jurisdiction save Howard and Montgomery counties. However, the county's low score with respect to Internet access is an aspect of workforce development that can be addressed by high technology consortia that could include the HEAT Center and the Aberdeen Proving Ground.

Cecil County's economic future is somewhat less predictable, though the County's location includes several unique advantages, including I-95 and its geographic proximity to several major metropolitan areas including Wilmington, Delaware and Philadelphia, Pennsylvania. These factors may help explain the county's relatively robust employment and per capita income growth figures in recent years.

Upper Shore

Economic Backdrop

The Upper Shore is comprised of Caroline, Dorchester, Kent, Queen Anne's, and Talbot counties. Much of the development currently taking place on the Upper Shore is focused around two growth segments: recreation and retirement. That comes as little surprise. Demographic studies of the Eastern Shore (including both the Upper and Lower Shore) reveal that with each and every passing year, the region is becoming older and more affluent. That is largely due to the fact that those migrating to the region tend to be older and more affluent than those leaving the region. The incoming group continues to fuel

price appreciation in local residential markets and has also become an important component of the region's retail sector growth, particularly restaurants.

RESI has also conducted research targeting the region's tourism industry at various points in time and it is clear that the Upper Shore is just on the front edge of the tourism growth that will be experienced over the next 15 years. Synergies have begun to develop between various locales along the Eastern Shore. Though no one area in isolation is ready to serve as a major national or East Coast destination, St. Michael's, Easton, Cambridge, Oxford, Tilghman Island and other Eastern Shore communities can be a place where travelers feel they must spend some time. The Upper Shore can also be a complement to those travelers headed for Ocean City.

Signs of an expanding tourism industry are to be found in most parts of the region. In Denton (Caroline County), plans to revive downtown have been initiated. The downtown lost some of its visitor traffic when a bypass around the town was built in 1986. The Denton Development Corporation has a two-year plan to redevelop the downtown area. Among the possible projects are a \$2 million restoration of the Carter Building, a museum, restaurant and bed and breakfast.

Dorchester County is another jurisdiction on the move. The County has quite literally suffered from forty years of stagnation, but recently attracted a wave of interest in developing County land, particularly land adjacent to the waterfront. Hyatt is in the midst of a \$150 million project that will represent the area's first major luxury hotel and resort complex. Holiday Inn has also recently announced that it too is interested in a substantial Dorchester County presence, and it is likely that Dorchester County will experience rapid tourism growth going forward. Although growth is occurring, tourism and retail sectors are known for their notoriously low wage jobs and efforts to diversify the region's economy going forward should be considered as paramount to the Upper Shore's future success.

Talbot County's growing inventory of technology firms bodes well for the region in as well. The Eastern Shore's consumer cost of living is about 20 percent less than metropolitan areas on the East Coast and falls roughly 18 percent below the average for U.S. metropolitan areas. As quality of life issues including traffic congestion and urban sprawl worsen in the heavily populated metropolitan regions of Maryland, more technology firms will follow in the steps of firms like 3DI. Located in Talbot County, 3DI applies GIS and other technologies to map data for public and private sector clients. Talbot County's growing inventory of technology firms also bodes well for the region.

Easton, currently home to companies like B/R Instrument Corporation, a manufacturer of laboratory equipment, and Celeste Industries Corporation, a packaging and manufacturing company, may soon expand with the introduction of the Easton Technology Center (ETC). The ETC, a 166-acre business and technology center, will be situated near the airport in Easton and the proposed NASA Regional Application Center, one of 24 planned for the entire nation. Expectations for growth in clean industries such as information technology and electronics are high for the region, particularly if the

NASA project moves forward. Easton is also home to one of Black & Decker’s (the Upper Shore’s largest private sector employer) most productive facilities.

Queen Anne’s County is the “gateway to the Eastern Shore of Maryland.” Its convenient location (within one hour) to Washington, D.C., Baltimore, and Wilmington, Delaware provide many business opportunities. Manufacturing, primarily food processing and printing, accounts for ten percent of total employment (“Brief Economic Facts”, Department of Business and Economic Development.)

Upper Shore		
2000 Major Employers		
	Firm	Employees
1	Black and Decker	1,200
2	Easton Memorial Hospital	1,000
3	Allen Family Foods (Talbot)	700
4	Interactive Marketing Services	600
5	Allen Family Foods (Dorchester)	534
6	Solo Cup, Inc.	482
7	Centreville Trailer, Inc.	475
8	Kent & Queen Anne's Hospital	402
9	Coldwater Seafood Corp.	400
10	Washington College	400
11	Dorchester General Hospital	350
12	Cadmuss Journal Services	340
13	Dixon Valve & Coupling	325
14	Cambridge, Inc.	315
15	Angelica Nurseries	300

Source: Caroline County Office of Economic Development and Tourism, Dorchester County Office of Economic Development, Kent County Office of Economic Development, Queen Anne’s County Department of Business and Tourism, and Talbot County Office of Economic Development

Kent County is located across the Chesapeake Bay directly east of Baltimore, and is home to many naturalists and sportsmen. It is home to Washington College, established in 1782, and the tenth oldest college in the United States. Farming continues to be one of Kent County’s principle drivers, as it is a major producer of corn, soybeans, vegetables, and milk (“Brief Economic Facts”, Department of Business and Economic Development.)

County employment and unemployment data seem to suggest that labor supply shortages are not looming in the region. However, slow growth among younger demographic cohorts will create prospective labor force imbalances on the Upper Shore as large proportions of the region’s educated young leave home to seek higher-paying vocational opportunities elsewhere. The Maryland Office of Planning estimates that several Eastern

Shore jurisdictions will suffer declines in the number of residents in the 20-44 year-old bracket over the next two decades. Talbot County, for instance, is projected to register a 9.7 percent decline of 20-44 year-olds between 1995 and 2015.

Compounding the decline of the younger workforce is the increasing influx of retirees to the area. Workforce professionals must direct efforts towards helping retirees return to the workforce, in either the short-term or part-time employment many retirees seek, and even a second full-time career to help offset the loss of younger workers. This labor force imbalance must be addressed if the region is to continue to prosper in the long term.

Critical Skills of High Demand Occupations

Many of the projected “high-growth” occupations in the Upper Shore will be concentrated in low-skill, low-wage positions. In fact, of the top 25 growth occupations ranked by annual job openings in the Upper Shore, only 4 occupations require some kind of post-secondary degree, while more than half of the top 25 growth occupations require only short-term on-the-job training. These positions include waiters/waitresses (#1; \$5.95/hour), cashiers (#2; \$7.88/hour), retail sales persons (#4; \$10.18/hour) and food preparation workers (#5; \$7.43/hour).

Upper Shore Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	62
Speaking	55
Service Orientation	52
Social Perceptiveness	48
Writing	48
Problem Identification	45
Coordination	34
Critical Thinking	34
Product Inspection	34
Reading Comprehension	34

Growth in these service occupations reflects the significance of the tourism industry upon the region’s economy. Consequently, the skills most in-demand for the region going forward are “social skills” associated with service positions, such as listening, speaking, service orientation, social perceptiveness, and writing.

Workforce Indicators for Upper Shore

- ✓ The Upper Shore comprises 2.9% of the State's population (1998), 3.0% of its school enrollment (1998), and 2.3% of its employment base (1999).
- ✓ Of the Upper Shore's population age 25 and over, 36% have a high school degree as their maximum attainment, 10.3% have a bachelor's degree as maximum attainment, and 5.8% have a graduate degree as maximum attainment.
- ✓ Talbot County leads the State in percent of teachers who have integrated technology into curriculum (100%, next highest County is Garrett with 81%, and State rate is 67%). Talbot County also leads the State in retail sales per capita (\$4,861 greater than Maryland.) However, Talbot's per capita income growth for 1996-1997 is 1.0% less than Maryland's.
- ✓ Kent County is one of five counties with 100% classroom Internet access, and also registered the largest decline in temporary cash assistance cases (44.1% decline compared to 27.9% for the State). However, as one of the State's smaller counties, Kent County represents a very low population (0.4 of Maryland total) and employment (0.3% of State) base.
- ✓ Caroline County's employment growth rate (4.6% more) and unemployment rate (0.3% less) both surpass Maryland figures. Caroline lags behind the State, however, in post-high school-graduation college plans (11.2% less).
- ✓ 88% of Dorchester County's classrooms have Internet access, but the unemployment rate is 3.8 percentage points higher than that of Maryland's.
- ✓ Queen Anne's percent change of employment (1996-1999) is 7.7% higher than Maryland's, while the County's per capita income growth is 1.2% less than Maryland's.

The Upper Shore contains several counties with top-ranking Indicator scores including Kent, one of five counties able to boast 100% classroom Internet access. Kent also leads the State in the decline of temporary cash assistance cases (-44%). Talbot leads in Percent of Teachers who have Integrated Technology into Curriculum (100%), and Retail Sales Per Capita (\$13,977).

Talbot is a particularly interesting County in the area. In addition to its two first place rankings in the areas cited above, it comes in third for Percent with a Bachelor's Degree and Per Capita Income. With a relatively small population and enrollment base, the County has a solid number of bachelor degrees. Furthermore, with strength in technology-integrated curriculum, and retail and tourism, Talbot is positioned as a workforce County to watch.

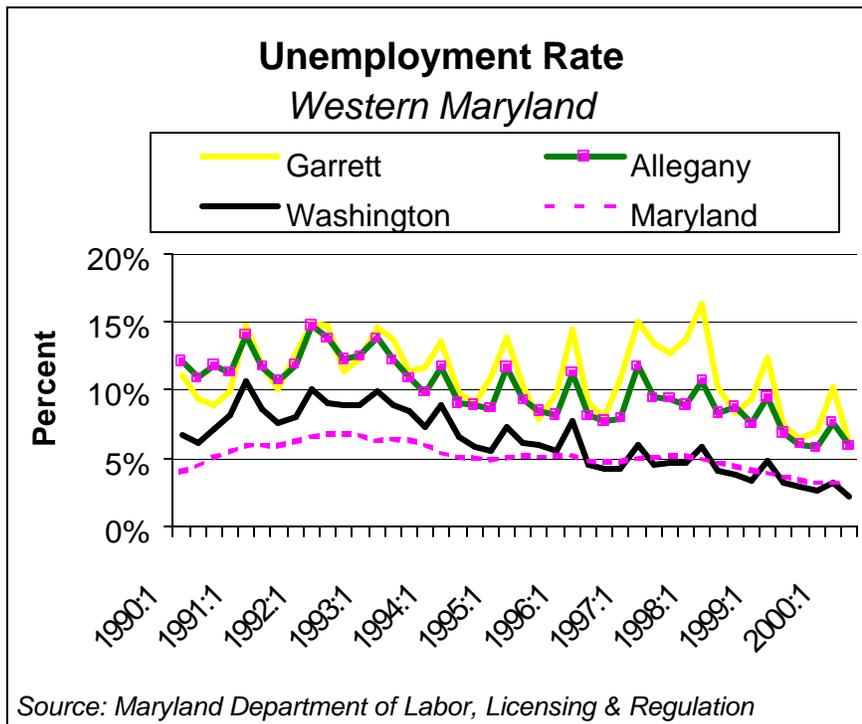
Western Maryland

Economic Backdrop

There are now clear signs that Western Maryland's economy is on the move. Comprised of Allegany, Garrett, and Washington counties, the region is transitioning from an

economy dependent on old-line manufacturing and distribution, towards a diversified economy that includes business services, tourism, retail and back-office operations.

Until recently Western Maryland had yet to begin fully participating in the economic recovery experienced throughout the balance of the State. While Maryland's unemployment rate has steadily declined from a 1993 peak of 6.7 percent, unemployment rates in Garrett and Allegany Counties remained above 16 and 10 percent, respectively, as recently as the first quarter of 1998. Though unemployment in both counties has declined over the past two years, current unemployment rates of 6.1 and 5.9 percent remain quite high compared to the balance of the State.



Much of the region's economic hardship over the past decade has stemmed from the loss of high-wage, low skill manufacturing jobs. Among the larger setbacks for the Western Maryland economy in recent years are the 1997 closing of Bausch & Lomb's Garrett County plant and the 1987 relocation of Goodyear's Kelly Tire Factory, which together contributed to the elimination of roughly 1,600 jobs. In October 1998, Goodyear Tire & Rubber Company announced that it would relocate its Cumberland-based Kelly-Springfield Tire Company corporate offices to Akron, Ohio in 1999. The closure is estimated to have carved \$34 million hole in the region's economy, including \$15-\$20 million in payroll and \$14 million in purchases. It should be noted, however, that today Allegany County has more jobs than it did during the 1987 closing of the Kelly Tire Factory, though many of these new jobs are in low-wage sectors such as telemarketing and retail.

This trend of high-wage jobs being replaced with low-wage positions helps to explain continuing population loss within the region. The fact that these low wages are not high enough to attract young workers suggests that younger population segments will continue to migrate out of the region. This trend has serious long-term implications and represents perhaps the single most difficult workforce development challenge facing the area.

Another workforce development challenge facing the region stems from the closures listed above, which have resulted in a large population of dislocated workers. With the lowest percentage of bachelor's and graduate degree holders of the State's Workforce Investment Areas, the region's level of educational attainment makes it difficult for these workers to find quality jobs.

The lack of available training centers in Western Maryland compounds this problem and hinders regional workforce solutions. *Workforce professionals should encourage future, current, and transitioning workers in areas with a dearth of training centers towards Maryland on-line training institutions such as University of Maryland University College, considered by many to be among the top 5 on-line/distance learning institutions in the country.*

Economic development officials in the region have sought to address the loss of high-wage jobs by enhancing Western Maryland's attractiveness to technology-oriented companies. One example of these efforts is the planned Garrett Information Enterprise Center at Garrett Community College. The \$1.5 million project will provide low-cost assistance and support for small tech firms locating in Garrett County.

The Allegany Business Center at Frostburg State University represents a similar effort. The business park will focus on biotechnology and other high-tech business segments, and will be anchored by the new Appalachian Laboratory. These efforts augment those at Fort Ritchie, a Washington County army base. Officials seek to transform the base into a high-tech business center that will replace a large fraction of the 2,000 jobs lost by the base's recent closure.

Although the region today is home to a relatively small proportion of the State's technology base, Western Maryland has potential for technology growth, both because of the aforementioned initiatives and because of the region's proximity to Frederick County. In addition to technology sectors, economic development officials have targeted a natural regional growth sector: tourism.

More specifically, the region is looking to heritage tourism as a source of growth and income. Western Maryland counties have already filed an application with the Maryland Historical Trust to receive funding to preserve and promote the area's Civil-War-related sites. Destinations such as Antietam would benefit from enhanced marketing efforts, and have the potential to attract visitors currently bypassing the region in favor of other historical sites such as Gettysburg (Pennsylvania) and Harper's Ferry (West Virginia).

Western Maryland is well positioned to sustain and enhance its non-heritage tourism as well. The region's tourism industry officials are teaming up to develop a strategy to double the number of visitor's from the current 1.2 million total, expand the tourist season and induce people to extend their stays. They envision a working C&O Canal with authentic canal boats running through Cumberland; and extended trail connecting Pittsburgh and Georgetown via Allegany County; Christmas lights linking Allegany and Garrett counties; and seasonal festivals.

Garrett County, home to Deep Creek Lake and Wisp Ski & Golf Resort, is also home to Maryland's highest point, Backbone Mountain that reaches 3,360 feet. Allegany County is better known for its historical sites, including George Washington's headquarters during the French and Indian War, and Emmanuel Episcopal Church, built in 1849. The County is also home to Rocky Gap Lodge & Golf Resort. Consultants estimate that tourism generates \$103 million in annual economic impact in Allegany County and \$175 million in Garrett County, and the goal is to raise these figures substantially in the years ahead.

Western Maryland		
2000 Major Employers		
	Firm	Employees
1	State of Maryland	2,397
2	Citicorp Credit Services	2,390
3	Western Maryland Health System	2,300
4	First Data Merchant Services	1,800
5	Westvaco Corporation	1,500
6	Mack Trucks, Incorporated	1,365
7	Federal Government	1,198
8	Garden State Tanning	1,050
9	CSX Transportation	1,000
10	Frostburg State University	825
11	Staples Distribution Center	822
12	Western Correctional Institution	600
13	C.M. Offray & Son/Maryland Ribbon Co.	573
14	Fleetwood Travel Trailers of Maryland	511
15	Alliant Techsystems	500

Source: Allegany County Office of Economic Development; Garrett County Office of Economic Development; Washington County Economic Development Commission

The region recorded a huge triumph with Florida-based ClosetMaid's recent announcement of plans to build an 800-employee manufacturing plant in Garrett County. The plant will open in fall 2001. Ocala, Fla.-based ClosetMaid, a division of Emerson Electric, manufactures wire shelving, hardware and storage products

Though the region as a whole has struggled, Washington County, with a current unemployment rate of just 2.17 percent, remains an exceptional performer. Washington

County has successfully carved a niche for itself as an operations center, and is now home to the administrative operations of a number of expanding companies including Citicorp Credit Services and First Data Merchant Services.

The County saw over 1,800 jobs created in 1999 and expectations are that 3,000 jobs will have been created in 2000. Last year the County saw new investments of \$280 million and more than 2 million square feet of office space under construction. Expansion of existing distribution centers and other firms account for much of the growth, but the tourism industry also underwent expansion.

Several new hotels will open including a 54-room Microtel Inn at Interstate 81 and an 83-room Hampton Inn to be located at the same intersection. A planned 98-room Sleep Inn is under construction and should be completed by the end of the year off Sharpsburg Pike, while an 80-room Holiday Inn Express Center will be located near Underpass Way in Hagerstown. It is true, however, that a disproportionate share of new jobs created in Hagerstown are low- to medium-wage.

Critical Skills of High Demand Occupations

Of the top 25 occupations in Western Maryland ranked by future job openings, fully 16 require short-term-on-the-job-training rather than work experience or formal education. As a result, skills more routinely in demand in Western Maryland relative to the balance of the State are primarily oriented around the ability to communicate, including active listening, speaking, writing, social perceptiveness, and, of course, service orientation. For workforce development professionals in the region, there must be an emphasis on communicative skills. Though communication skills are vital for all areas of the State, an analysis of Western Maryland data reveals them to be vital.

Western Maryland Skill Frequency	<u>% of Top Occupations Requiring Skill</u>
Active Listening	68
Speaking	64
Service Orientation	56
Social Perceptiveness	56
Writing	52
Reading Comprehension	44
Coordination	40
Problem Identification	40
Information Gathering	36
Information Organization	36
Time Management	36

As a major retail and tourism attraction, Washington County in particular will add jobs in numerous low-wage, service sectors. Top growth occupations in Western Maryland include cashiers, (#1; \$7.16/hour), retail sales persons (#2; \$9.10/hour) and waiters/waitresses, (#3; \$6.18/hour). Among the top 25 growth occupations are positions

that serve as promising vehicles of upward mobility, such as clerical supervisors and marketing/sales supervisors. Skills that distinguish these occupations from lower-wage occupations include monitoring, critical thinking, implementation planning, judgment and decision-making, solution appraisal and idea evaluation.

Workforce Indicators for Western Maryland

- ✓ Western Maryland accounts for 4.4% of Maryland's population (1998), 4.3% of its public school enrollment (1998), and 4.3% of its employment (1999).
- ✓ Of Western Maryland's population age 25 and over, 38.3% have a high school degree as their maximum attainment, 6.3% have a bachelor's degree as maximum attainment, and 5.1% have a graduate degree as maximum attainment.
- ✓ Garrett County (81%) and Washington County (74%) teachers have integrated technology into curricula at a faster rate than the State (67%).
- ✓ Allegany's per capita income growth (1996-1997) is 1.8% greater than Maryland's. However, Allegany County experienced a decline in population between 1990 and 1998 of 4.8%. This is the second largest population decline among Maryland jurisdictions (exceeded only by Baltimore City).
- ✓ The area lags behind the State in population age 25 and over with a bachelor's degree (9.3% less) and graduate degree (5.8% less).
- ✓ All three counties trail Maryland in terms of their per capita income and average weekly wage levels.

Western Maryland has the lowest proportion of population age 25 and over with a bachelor's degree or above in Maryland. It also has a relatively high proportion of population lacking a high school degree. Moreover, certain portions of the region, particularly Allegany County, face ongoing population declines.

It appears that the region recognizes its challenges and is meeting them head-on. Garrett County scores high in Internet access (100%) and in the integration of technology into curriculum (81%). Washington County also scores well on these pivotal fronts. As noted in the economic background section, Western Maryland is converging its economy and negative trends seen now may reverse course using the same Indicator series moving forward.

V. NEXT STEPS

The Governor's Workforce Investment Board is committed to improving the workforce information available to all stakeholders, including the State Board, its twelve local counterparts, and all employers, job seekers, and workforce and economic development professionals across the State.

One of the great ironies of the Workforce Investment Act of 1998 ("WIA") that guides the structure of workforce boards across the country is that it encourages boards to "think globally and act locally" but provides mostly global data. WIA holds State and local areas responsible for creating the local information they must have to plan for and measure the results of workforce development policy, but provides scant resources or direction in doing so.

The Board acknowledges that the *2001 State of the Workforce Report* is only one small step in the provision of improved workforce information. It answers only *some* of the questions, for a variety of reasons. Chief among those reasons is the limited amount of local information available, difficulty identifying and securing the resources necessary to create new data products, and staff time.

Understanding all of that, Board staff will work with our partners at the Office of Labor Market Analysis and Information and elsewhere to issue a "Fall Supplement" to this report that develops skill frequencies of the top 25 occupations for the State of Maryland and the twelve Local Workforce Investment Areas based not just on openings, but on a combination of openings, training requirements, and wages. This process allows for a more accurate portrait of "high-skill, high-wage" in demand occupations and their associated skill frequencies. In addition, the Supplement will attempt to include 2000 Census data to the degree data is available and feasible to include.

Furthermore, the Board will pursue other means of improving workforce information over the next year or two, including:

- Identification of the information needed by employers, and implementation of projects that serve to provide the information.
- Provision of all workforce information available over the Internet so that users may query and customize data to meet specific needs.
- Increased ability to analyze in-demand *technical* skills necessary for survival in the 21st century workforce.
- Continued alignment of workforce information with education's career clusters framework and economic development's targeted growth sectors to allow for closer coordination and collaboration.
- Creation of real-time job vacancy information by workforce area and industry.
- Development of a critical skills model that proactively forecasts key shortages.
- Analysis of business training trends.
- Maximization of cross-agency research systems.

Workforce Indicators

County	1998 Population	% Change Population 1990-98	Total Public School Enrollment	Total Student to Staff Ratio	% Population Graduated HS	% Population Bachelors Degree	% Population. Masters Degree	% Post HS Grad. Coll. Plans	% Classrooms w/Internet Access	% Technology Integration
Allegany	71,333	-4.82%	10,978	11.5	25.84%	3.99%	2.44%	74.00%	86.00%	62.00%
Anne Arundel	476,060	11.43%	74,079	14.1	19.58%	10.18%	4.10%	81.50%	53.00%	71.00%
Baltimore City	645,593	-12.29%	106,540	13.2	17.71%	5.45%	2.73%	80.10%	33.00%	52.00%
Baltimore County	721,874	4.30%	105,914	13.0	19.86%	10.25%	4.21%	80.40%	60.00%	65.00%
Calvert	71,877	39.91%	15,241	13.8	23.16%	7.26%	2.58%	74.10%	100.00%	65.00%
Caroline	29,489	9.08%	5,685	11.3	24.75%	4.53%	1.60%	69.60%	78.00%	69.00%
Carroll	149,697	21.34%	27,224	14.2	22.21%	8.10%	3.29%	80.80%	97.00%	74.00%
Cecil	82,522	15.66%	15,550	12.7	22.81%	4.75%	1.98%	69.00%	94.00%	52.00%
Charles	117,963	16.27%	22,263	13.9	22.03%	6.47%	2.47%	78.10%	99.00%	67.00%
Dorchester	29,503	-2.42%	5,143	12.7	27.16%	4.55%	1.80%	70.00%	88.00%	52.00%
Frederick	186,777	24.35%	35,383	13.5	21.50%	8.63%	3.57%	77.70%	79.00%	71.00%
Garrett	29,238	3.91%	5,082	10.6	26.65%	3.45%	2.04%	68.40%	100.00%	81.00%
Harford	214,668	17.86%	38,909	13.3	19.78%	8.90%	3.38%	82.60%	45.00%	65.00%
Howard	236,388	26.19%	41,858	11.2	12.23%	18.11%	8.69%	89.40%	67.00%	72.00%
Kent	18,925	6.07%	2,891	11.9	24.50%	7.24%	2.53%	76.40%	100.00%	72.00%
Maryland	5,134,808	7.41%	841,671	12.9	18.37%	10.18%	4.47%	80.80%	72.00%	67.00%
Montgomery	840,879	11.08%	127,933	12.0	11.35%	18.11%	8.84%	86.80%	98.00%	77.00%
Prince George's	777,811	6.76%	130,259	13.3	18.39%	10.17%	4.07%	80.10%	78.00%	57.00%
Queen Anne's	39,672	16.84%	6,888	13.4	23.36%	8.83%	3.12%	75.90%	100.00%	54.00%
Somerset	24,296	3.65%	3,113	10.9	23.48%	4.83%	1.36%	70.10%	100.00%	67.00%
St. Mary's	87,670	15.39%	14,743	13.3	21.36%	6.90%	2.43%	78.00%	79.00%	78.00%
Talbot	33,065	8.24%	4,590	13.0	22.78%	11.12%	2.93%	75.60%	98.00%	100.00%
Washington	127,352	4.91%	20,159	12.5	24.83%	4.41%	2.31%	72.60%	93.00%	74.00%
Wicomico	79,367	6.76%	14,330	11.3	22.00%	7.67%	2.65%	80.50%	92.00%	49.00%
Worcester	42,789	22.16%	6,916	10.5	25.10%	7.24%	2.13%	77.40%	92.00%	57.00%

Workforce Indicators (continued)

County	Wkly Wage 1999 Avg.	Emplmt 1999 Avg. Annual	1996-97 % Chg. Employment	99 Avg. Annual Un Rate	1997 Per Capita Income	%Change 96-97 Per Capita Income	1997 Retail Sales Per Capita \$	1998-99 % change TCA Cases	% Living Below Poverty
Allegany	469	29,622	3.65%	7.1	19,803	6.80%	9,133	-29.98%	15.90%
Anne Arundel	636	183,253	8.98%	2.8	28,663	4.77%	10,127	-33.12%	5.30%
Baltimore City	711	383,066	0.04%	7.1	24,444	7.12%	5,229	-23.81%	23.70%
Baltimore County	626	354,097	6.78%	3.7	29,900	4.32%	11,448	-26.55%	7.60%
Calvert	576	16,475	13.31%	2.6	25,310	5.49%	5,830	-35.03%	6.60%
Caroline	467	8,949	12.52%	3.2	17,452	4.22%	6,490	-28.16%	12.80%
Carroll	488	45,253	10.94%	2.5	26,043	4.10%	7,899	-18.29%	4.90%
Cecil	569	22,029	12.32%	4.6	22,291	5.74%	7,599	-26.91%	9.00%
Charles	521	34,974	2.57%	2.5	24,306	4.73%	10,793	-36.65%	7.40%
Dorchester	466	10,891	-1.08%	7.3	19,860	3.37%	9,567	-19.83%	15.50%
Frederick	560	73,034	13.95%	2.2	26,270	8.05%	10,048	-22.03%	5.80%
Garrett	402	10,010	2.62%	8.5	17,396	4.43%	7,576	-19.02%	15.80%
Harford	553	65,174	11.80%	3.2	24,510	4.77%	8,265	-26.10%	6.40%
Howard	693	121,452	20.56%	1.8	33,127	4.43%	8,783	-34.08%	4.40%
Kent	435	7,403	5.86%	3.8	24,136	0.94%	6,969	-44.06%	10.70%
Maryland	663	2,347,638	7.93%	3.5	28,674	5.04%	9,116	-27.95%	9.50%
Montgomery	794	426,844	9.84%	1.8	41,539	4.01%	10,758	-34.89%	5.60%
Prince George's	666	298,082	5.47%	3.5	25,194	4.63%	8,301	-41.52%	9.30%
Queen Anne's	443	10,060	15.63%	2.9	26,455	3.82%	8,252	-30.01%	7.50%
Somerset	463	6,708	12.80%	7.5	15,241	4.54%	6,476	-23.52%	8.80%
St. Mary's	669	32,289	25.78%	3.1	22,823	10.85%	2,784	-27.31%	21.80%
Talbot	514	17,746	9.70%	2.8	33,123	4.00%	13,977	-17.74%	9.70%
Washington	530	61,237	7.67%	3.4	20,800	4.24%	9,589	-31.39%	10.10%
Wicomico	504	40,456	5.03%	4.6	21,965	4.58%	12,567	-26.69%	13.50%
Worcester	389	22,735	7.90%	8.8	24,427	3.61%	12,958	-25.53%	11.90%

Appendix A

About the Governor's Workforce Investment Board

The Governor's Workforce Investment Board, first created in 1983, is the State's chief policy-making body on workforce development. The Governor appoints its forty members, who represent the business community, General Assembly, key State agencies, education, organized labor, and community-based organizations. The Board meets four times a year, as does the Board's Executive Committee. The Board and its staff function as an independent agency reporting to the Governor and Lt. Governor.

The Governor and Lt. Governor have charged the Board with taking the leadership role in building a world-class workforce that will drive the State's economy. The Board's overall mission is to close the skills gaps, increase economic growth and meet the 21st Century workforce needs of employers and job seekers. Simply put, the Board's role is to advocate strategies and oversee an accountability system that will assure that graduates of schools and colleges and graduates of training programs in Maryland have the education and skill sets employers need, now and in the future.

As required by the 1998 Workforce Investment Act, the Board's chairman and 51% of its membership are from the private sector. This private sector majority works with the Cabinet Secretaries of six State agencies (Department of Labor, Licensing, and Regulation; Department of Business and Economic Development; State Department of Education; Higher Education Commission; Department of Human Resources; and Department of Aging) along with other stakeholders to ensure that the needs of employers are clearly and directly communicated to key policy makers.

FY 2001 Action Plan

The Board's FY 2001 Action Plan resulted from a strategic planning session that helped shape the Board's focus and strategic priorities. The major action items within the Plan include: (1) address critical skills shortages in technology, tourism, construction, health care, and teaching; (2) develop a centralized web portal for all workforce information; develop a communications plan that informs customers and stakeholders about the excellent efforts being undertaken by the partners in the workforce system; and (3) developing system measures to guide the Board at the "30,000 foot level". A complete copy of the Action Plan can be downloaded at the Board's web site, www.gwib.state.md.us.

More specifically, there were numerous references to the need for more timely and accurate workforce information to guide the policy decisions of the Board. Included in this discussion was the 2001 State of the Workforce Report, which was seen as a source of occupational and skill information from which the Board could identify workforce priorities across industries (including occupations and skills) and areas.

Appendix B

About the Report Team

Primary Author

Since its inception in 1989, RESI has dedicated itself to providing the highest level of services to decision-makers in the private, public and non-profit sectors. RESI emphasizes an interdisciplinary approach to decision and operational support that combines knowledge with technology. The organization is self-funded through client contracts and has 70 employees, offering the following areas of expertise: (1) Applied Economics; (2) Organizational and Management Consulting; (3) Human Services and Policy Analysis; and (4) Technology Solutions.

Professor Anirban Basu, Director of Applied Economics & Senior Economist, has been with RESI since 1992. He is also an adjunct professor of economics at Towson University, and has taught Micro-, Macro- and International Economics. In 1998, he completed his graduate work in mathematical economics at the University of Maryland. He earned a Masters in Public Policy from Harvard University in 1992. His Bachelors in Foreign Service is from Georgetown University and was earned in 1990. He is currently working toward his J.D. at the University of Maryland, Baltimore.

Professor Basu has used his knowledge of the Mid-Atlantic region to support numerous RESI clients in their strategic decision-making processes, including the Maryland Department of Transportation, St. Paul Companies, Provident Bank, BGE, Bank of Glen Burnie, Baltimore City Public School System, Charles County Economic Development Commission, Baltimore City Community College, Tri-County Council for Southern Maryland, Talbot County Chamber of Commerce, Maryland-National Capital Park and Planning Commission and Carroll County Department of Management and Budget.

Contributing Author and Project Manager

Gary Yakimov, Director of Business Policy, served as Project Manager for the *2001 State of the Workforce Report*, and contributed the Workforce Indicators and Next Steps portion of the report. He is Coordinator of the Board's Technology Workforce Task Force. Prior to joining the Board Mr. Yakimov served as Labor Market Information Supervisor for the Delaware Office of Occupational and Labor Market Information where he was responsible for the management of all federal-state labor market statistical programs, including employment, unemployment, and occupational labor market information. He envisioned and developed *Career Directions*®, an interactive mapping application that provides a customized analysis of employers, adult education, child-care, and public transportation bus routes and bus stops on the Internet.

Other Contributors

Special thanks to Dana Hawkins (RESI) and Linda Miles (Board) who both performed countless hours of research to help make this a substantive report. The Board would also like to thank those who provided preliminary review, including local workforce area representatives, the Director of Office of Labor Market Analysis and Information Patrick Arnold, staff from the Department of Business and Economic Development, and others.

Appendix C

The Top 25 Occupations in Demand

Ranked by Projected Annual Openings

Western Maryland

	Occupational Title	Employment		Annual Openings	Growth Rate*	Avg.	Training
		1996	2006			Hourly Wage**	
						\$	
1	Cashiers	3,841	4,691	252	2.2%	7.16	Short-term on-the-job-training
2	Salespersons, Retail	2,774	3,336	144	2.1%	9.10	Short-term on-the-job-training
3	Waiters & Waitresses	1,621	1,794	100	1.1%	6.18	Short-term on-the-job-training
4	General Mgrs & Top Execs	2,715	3,096	96	1.5%	23.43	Work experience plus degree
5	Food Preparation Workers	1,352	1,598	94	1.9%	7.09	Short-term on-the-job-training
6	Teachers, Secondary School	1,501	1,767	72	1.8%	19.96	Bachelor's degree
7	Comb Food Prep/Serv Wkrs	1,063	1,220	70	1.5%	6.44	Short-term on-the-job-training
8	Truck Drivers, Heavy	2,354	2,702	68	1.5%	14.30	Short-term on-the-job-training
9	Registered Nurses	2,016	2,389	65	1.9%	19.46	Associate degree
10	General Office Clerks	1,646	1,793	52	1.0%	9.67	Short-term on-the-job-training
11	Nursing Aides & Orderlies	1,592	1,881	50	1.9%	9.00	Short-term on-the-job-training
12	Hand Packers & Packagers	774	1,027	46	3.2%	7.84	Short-term on-the-job-training
13	Clerical Supervisors	1,103	1,296	45	1.8%	15.06	Work Experience
14	Marketing/Sales Supervisors	1,387	1,610	44	1.7%	16.41	Work Experience
15	Correction Officers	1,166	1,403	42	2.1%	^16.80	Long-term on-the-job training
16	Maintenance Repairers, Gen Util	1,093	1,282	41	1.8%	11.24	Short-term on-the-job-training
17	Janitors & Cleaners	1,338	1,466	40	1.0%	8.01	Short-term on-the-job-training
18	Secretaries, Ex Legal or Med	1,856	1,865	33	0.1%	10.68	Postsecondary vocational training
19	Truck Drivers, Light	1,100	1,267	32	1.6%	11.10	Short-term on-the-job-training
20	Human Services Workers	384	616	30	5.4%	10.36	Moderate-term on-the-job training
21	Maids & Housekeeping Cleaners	990	1,101	29	1.2%	6.96	Short-term on-the-job-training
22	Reception/Information Clks	715	861	28	2.1%	8.96	Short-term on-the-job-training
23	Counter Attendants, Lunchrm	262	310	26	1.9%	7.10	Short-term on-the-job-training
24	Laborers, Landscp/Groundskeep	524	645	26	2.3%	8.75	Short-term on-the-job-training
25	Teachers, Elementary	685	809	25	1.9%	18.99	Bachelor's degree

^Wage information at County level not available, substituted with MD wages

*Average Annual Growth Rate

**2000 Wages

Appendix D

O*Net Skills and Skill Descriptions

I. Basic Skills

A. Content Skills

- 1 Reading Comprehension
- 2 Active Listening
- 3 Writing
- 4 Speaking
- 5 Mathematics
- 6 Science

Help with learning and rapidly acquiring more knowledge.

Fundamental skills needed to work with or acquire more specific skills

Understanding written sentences and paragraphs in work related documents
Listening to what other people are saying and asking questions as appropriate
Communicating effectively with others in writing as indicated by the needs of the audience
Talking to others to effectively convey information
Using mathematics to solve problems
Using scientific methods to solve problems

B. Process Skills

- 1 Critical Thinking
- 2 Active Learning
- 3 Learning Strategies
- 4 Monitoring

Procedures that contribute to the more rapid acquisition of knowledge and skill

Using logic and analysis to identify the strengths and weaknesses of different approaches
Working with new material or information to grasp its implications
Using multiple approaches when learning or teaching new things
Assessing how well one is doing when learning or doing something

II. Cross Functional Skills

A. Social Skills

- 1 Social Perceptiveness
- 2 Coordination
- 3 Persuasion
- 4 Negotiation
- 5 Instructing
- 6 Service Orientation

Developed capacities that facilitate performance of activities that occur across jobs

Use to work with people to achieve goals.

Being aware of others' reactions and understanding why they react the way they do
Adjusting actions in relation to others' actions
Persuading others to approach things differently
Bringing others together and trying to reconcile differences
Teaching others how to do something
Actively looking for ways to help people

B. Complex Problem Solving Skills

- 1 Problem Identification
- 2 Information Gathering
- 3 Information Organization
- 4 Synthesis/Reorganization
- 5 Idea Generation
- 6 Idea Evaluation
- 7 Implementation Planning
- 8 Solution Appraisal

Use to solve problems in real world settings.

Identifying the nature of problems
Knowing how to find information and identifying essential information
Finding ways to structure or classify multiple pieces of information
Reorganizing information to get a better approach to problems or tasks
Generating a number of different approaches to problems
Evaluating the likely success of an idea in relation to the demands of the situation
Developing approaches for implementing an idea
Observing and evaluating the outcomes of a problem solution to identify lessons learned or redirect efforts

Appendix D (Continued)

O*Net Skills and Skill Descriptions

III. Technical Skills

Use to design, set-up, operate, and correct problems with machines and technological systems.

- | | | |
|----|-----------------------|--|
| 1 | Operations Analysis | Analyzing needs and product requirements to create a design |
| 2 | Technology Design | Generating or adapting equipment and technology to serve user needs |
| 3 | Equipment Selection | Determining the kind of tools and equipment needed to do a job |
| 4 | Installation | Installing equipment, machines, wiring, or programs to meet specifications |
| 5 | Programming | Writing computer programs for various purposes |
| 6 | Testing | Conducting tests to determine whether equipment, software, or procedures are operating as expected |
| 7 | Operation Monitoring | Watching gauges, dials, or other indicators to make sure a machine is working properly |
| 8 | Operation and Control | Controlling operations of equipment or systems |
| 9 | Product Inspection | Inspecting and evaluating the quality of products |
| 10 | Equipment Maintenance | Performing routine maintenance and determining when and what kind of maintenance is needed |
| 11 | Troubleshooting | Determining what is causing an operating error and deciding what to do about it |
| 12 | Repairing | Repairing machines or systems using the needed tools |
| 13 | Systems Skills | Use to understand, monitor, and improve organizations and systems. |

IV. Systems Skills

Developed capacities used to understand, monitor and improve socio-technical systems

- | | | |
|---|-------------------------------------|--|
| 1 | Visioning | Developing an image of how a system should work under ideal conditions |
| 2 | Systems Perception | Determining when important changes have occurred in a system or are likely to occur |
| 3 | Identifying Downstream Consequences | Determining the long-term outcomes of a change in operations |
| 4 | Identification of Key Causes | Identifying the things that must be changed to achieve a goal |
| 5 | Judgment and Decision Making | Weighing the relative costs and benefits of a potential action |
| 6 | Systems Evaluation | Looking at many indicators of system performance, taking into account their accuracy |

V. Resource Management Skills

Use to allocate resources efficiently.

- | | | |
|---|-----------------------------------|---|
| 1 | Time Management | Managing one's own time and the time of others |
| 2 | Management of Financial Resources | Determining how money will be spent to get the work done, and accounting for these expenditures |
| 3 | Management of Material Resources | Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work |
| 4 | Management of Personnel Resources | Motivating, developing, and directing people as they work, identifying the best people for the job |

**Appendix E
Workforce Indicators**

Employment, Unemployment and Wages

County	Wkly Wage 1999 Avg. \$	Emplymt 1996 Avg. Annual	Emplymt 1999 Avg. Annual	Change Amount	% Change	99 Avg. Annual Un Rate	% 99 Avg. Ann. County - State	% 99 Wkly. Wage Compare County - State	Avg. Ann. Change County - State	Un. Rate Change County - State
Allegany	469	28,580	29,622	1,042	3.6%	7.1	1.3%	-194	-4.3%	-3.6
Anne Arundel	636	168,148	183,253	15,105	9.0%	2.8	7.8%	-27	1.1%	0.7
Baltimore City	711	382,897	383,066	169	0.0%	7.1	16.3%	48	-7.9%	-3.6
Baltimore County	626	331,622	354,097	22,475	6.8%	3.7	15.1%	-37	-1.2%	-0.2
Calvert	576	14,540	16,475	1,935	13.3%	2.6	0.7%	-87	5.4%	0.9
Caroline	467	7,953	8,949	996	12.5%	3.2	0.4%	-196	4.6%	0.3
Carroll	488	40,789	45,253	4,464	10.9%	2.5	1.9%	-175	3.0%	1
Cecil	569	19,613	22,029	2,416	12.3%	4.6	0.9%	-94	4.4%	-1.1
Charles	521	34,097	34,974	877	2.6%	2.5	1.5%	-142	-5.4%	1
Dorchester	466	11,010	10,891	-119	-1.1%	7.3	0.5%	-197	-9.0%	-3.8
Frederick	560	64,094	73,034	8,940	13.9%	2.2	3.1%	-103	6.0%	1.3
Garrett	402	9,754	10,010	256	2.6%	8.5	0.4%	-261	-5.3%	-5
Harford	553	58,297	65,174	6,877	11.8%	3.2	2.8%	-110	3.9%	0.3
Howard	693	100,743	121,452	20,709	20.6%	1.8	5.2%	30	12.6%	1.7
Kent	435	6,993	7,403	410	5.9%	3.8	0.3%	-228	-2.1%	-0.3
Maryland	663	2,175,133	2,347,638	172,505	7.9%	3.5				
Montgomery	794	388,621	426,844	38,223	9.8%	1.8	18.2%	131	1.9%	1.7
Prince George's	666	282,627	298,082	15,455	5.5%	3.5	12.7%	3	-2.5%	0
Queen Anne's	443	8,700	10,060	1,360	15.6%	2.9	0.4%	-220	7.7%	0.6
Somersert	463	5,947	6,708	761	12.8%	7.5	0.3%	-200	4.9%	-4
St. Mary's	669	25,670	32,289	6,619	25.8%	3.1	1.4%	6	17.9%	0.4
Talbot	514	16,177	17,746	1,569	9.7%	2.8	0.8%	-149	1.8%	0.7
Washington	530	56,877	61,237	4,360	7.7%	3.4	2.6%	-133	-0.3%	0.1
Wicomico	504	38,520	40,456	1,936	5.0%	4.6	1.7%	-159	-2.9%	-1.1
Worcester	389	21,070	22,735	1,665	7.9%	8.8	1.0%	-274	0.0%	-5.3

Source: U. S. Department of Labor, Licensing, and Regulation

Appendix F

Workforce Indicator Methodology

Notes:

- Data may not add precisely due to rounding.
- Data reference points are not always the same due to publishing schedules and availability (i.e. population references 1990 – 1998, while employment references 1996 – 1999.)
- Raw totals and percentage change categories are both included negating biases towards larger areas (raw totals) and smaller areas (percentage change).

1998 Population

Date: 1998
Source: Maryland Office of Planning, Planning Data Services
Utility: Strong indicator of relative “size” of a given area.
Notes: 1998 population data are estimated.

Percent Change of Population: 1990 – 1998

Date: 1998
Source: Maryland Office of Planning, Planning Data Services
Utility: Shows the growth or decline rate of an area’s population over the better part of the past decade.
Notes: 1998 population data are estimated.

Total Public School Enrollment

Date: 1998
Source: Maryland State Department of Education, The Fact Book 1998-1999
Utility: Along with population can provide an indication as to the “size” of the current and future workforce.

Student to Staff Ratio

Date: 1998-1999
Source: Maryland State Department of Education, The Fact Book 1998-1999
Utility: Debatable theory holds that the smaller and more intimate the classroom, the better the learning environment for an individual student.
Notes: Data are preliminary. Staff includes teachers, therapists, media, guidance, and psychological staff, aides, and other professionals.

Appendix F (continued)

Workforce Indicator Methodology

Percent of Population 25 and Older with a High School Degree

Date: 1990
Source: Claritas Inc.
Utility: Provides a snapshot of persons 25 years and older who hold a high school degree as their maximum educational attainment.

Percent of Population 25 and Older with a Bachelor's Degree

Date: 1990
Source: U.S. Bureau of the Census, Maryland Office of Planning, Claritas Inc.
Utility: Provides a snapshot of persons 25 years and older who hold a bachelor's degree as their maximum educational attainment.

Percent of Population 25 and Older with a Graduate Degree

Date: 1990
Source: Claritas Inc.
Utility: Provides a snapshot of persons 25 years and older who hold a graduate degree as their maximum educational attainment.

Percent of High School Seniors with Post-Graduation College Plans

Date: 1998
Source: Maryland State Department of Education, The Fact Book 1998-1999
Utility: Provides an indication of how many students in a given area are planning to continue their education through college.
Note: Data represent students planning to attend college either full-time or part-time. For those attending part-time, respondents may be recorded twice by choosing options such as military or work.

Percent of Classrooms with Internet Access

Date: 1999-2000
Source: Maryland Business Roundtable for Education's "Technology Resource Inventory: Where do We Stand in 2001?"
Utility: How "wired" is a given area's public school system?

Appendix F (continued)

Workforce Indicator Methodology

Percent of Teachers who have Integrated Technology into Curriculum

Date: 1999-2000
Source: Maryland Business Roundtable for Education's "Technology Resource Inventory: Where do We Stand in 2001?"
Utility: Given the availability of Internet in classrooms in a jurisdiction, to what extent do teachers say they have integrated technology into their curricula?

Average Weekly Wage: 1999

Date: 1999
Source: Department of Labor, Licensing and Regulation / Office of Labor Market Analysis and Information (<http://www.dllr.state.md.us/lmi/index.htm>)
Utility: Reflects industrial composition and wage strength of a given jurisdiction.

Annual Average Employment: 1999

Date: 1999
Source: Department of Labor, Licensing and Regulation / Office of Labor Market Analysis and Information (<http://www.dllr.state.md.us/lmi/index.htm>)
Utility: Total annual average employment indicates "size" of the employer base and jobs in a given area.

Percent Change in Employment: 1996 – 1999

Date: 1999
Source: Department of Labor, Licensing and Regulation / Office of Labor Market Analysis and Information (<http://www.dllr.state.md.us/lmi/index.htm>)
Utility: How has the employment picture changed over the past three years?

Annual Average Unemployment Rate: 1999

Date: 1999
Source: Department of Labor, Licensing and Regulation / Office of Labor Market Analysis and Information (<http://www.dllr.state.md.us/lmi/index.htm>)
Utility: Lower unemployment rates generally represent healthier economies, although very low unemployment rates can be indicative of labor and skills shortages.

Appendix F (continued)

Workforce Indicator Methodology

Per Capita Income: 1997

Date: 1997
Source: U.S. Department of Commerce, Bureau of Economic Analysis, July 27, 1999 estimates
Utility: Indicates income levels in a given area.

Percent Change Per Capita Income: 1996 – 1997

Date: 1997
Source: U.S. Department of Commerce, Bureau of Economic Analysis, July 27, 1999 estimates
Utility: How did an area's income level change over a one year period?
Notes: 1996 data also provided by same source

Retail Sales Per Capita: 1997

Date: 1997
Source: U.S. Bureau of the Census, Economic Census, 1997
Utility: Indicates both buying power of a given area, and also some indication of the presence of tourism.

Percent Change Total Temporary Cash Assistance Cases: 1998 – 1999

Date: 1998
Source: Maryland Department of Human Resources, Family Investment Administration, Monthly Statistical Report 1998, 1999
Utility: How has the cash assistance caseload changed over the past year?
Notes: Data represent percent change in average monthly paid cases.

Percent of Population Living Below Poverty Level

Date: 1997
Source: U.S. Bureau of the Census, Small Area Income and Poverty Estimates
Utility: What percentage of an area's population lives in poverty?
Notes: Families and persons are classified as below poverty level if their total family income or unrelated individual income was less than the poverty threshold specified for the applicable family size, age of householder, and number of related children under 18 present. Estimates used here were produced through statistical modeling.