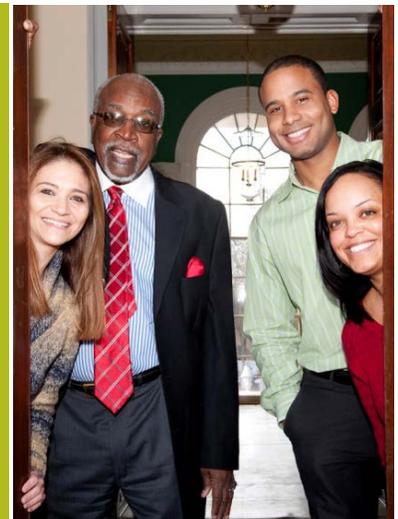


A Study of Occupational Shifts and Workforce Characteristics

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A Study of Occupational Shifts and Workforce Characteristics

Executive Summary

In today's global, knowledge-based economy, local communities are increasingly competing based on their ability to educate, train, and recruit a qualified workforce that meets the needs of industry. Talent touches upon all aspects of economic competitiveness. It represents not only the general skills of the workforce to produce top quality goods and services quickly and efficiently, but the specialized capacity found among world-class scientists and engineers to invent, advance discoveries, and develop new technologies. Entrepreneurs and managers also are needed to bring these technological advancements to the global marketplace.

The need for a high-quality workforce in Prince George's County is particularly significant given its location in one of the nation's leading metropolitan areas. As noted in the county's 2005 Economic Development Strategic Plan, "In order to compete within this region, it needs to cultivate a qualified and skilled workforce that can meet the needs of existing employers and that can attract new high quality and high paying jobs."¹

The objective of this study, commissioned by the Prince George's County Planning Department of the Maryland-National Capital Park and Planning Commission (M-NCPPC), is to provide policy/decision makers with a better understanding of occupational changes and workforce development needs and to develop a strategy to meet these needs and promote regional growth and business development. To carry out the analysis, M-NCPPC retained the services of the Battelle Technology Partnership Practice, working together with the University of Baltimore's Jacob France Institute and Market-Economics, Inc. The analysis undertaken included both in-depth quantitative assessments of industry workforce demand and labor supply in the county, along with outreach to industry, educational institutions, and government and economic development leaders encompassing one-on-one interviews and focus groups.

Understanding Prince George's County's current and future workforce needs and developing a strategy to meet those needs required a number of quantitative and qualitative analyses. Several key questions had to be addressed to carry out this study. They included:

- What are the primary industry clusters in the county and what is the likely growth potential of each primary industry cluster? This required assessing how well the county has fared in the growth of its primary industry clusters, how they are positioned for future growth considering the broader industry cluster trends found in the region, and how it is positioned for future growth because of core technology competencies found across its base of industry, universities, and federal labs. Likely low and high growth scenarios were identified for each primary industry cluster based on its past performance, relative growth rate to the region and position to gain market share based on the presence of core technology competencies.
- How will the expected growth in Prince George's primary industry clusters translate into industry demand for workers?
- What is the current capacity to generate labor supply and how does it compare to demand across the primary industry clusters?
- What are the broader patterns of labor supply in Prince George's County?

¹ Prince George's Economic Development Strategic Plan, developed with the Prince George's County Economic Development Strategic Planning Committee and prepared by the International Economic Development Council, June 2005, page 19.

- What is the strategic position and economic development readiness of the county? Input and feedback from interviews with industry executives and focus group discussions with workforce and economic development organizations was sought to ensure that the data analysis was well-grounded in perceived reality. In addition, economic development readiness indicators for the county were benchmarked against other comparable counties, both in the region and across the nation.
- What should Prince George's County do? Based on the quantitative analyses and the input received during the interviews and focus groups, a comprehensive set of strategies and actions were developed to address the county's strategic needs in workforce development.

Key Findings

Finding #1: The overall economy in Prince George's County, as well as many of the primary industry clusters, underperformed in overall economic growth compared to both the nation and the Washington, D.C. Metropolitan Region² (the "region") over the full business cycle of 2001 to 2007.

Total employment in the county grew 3.9 percent from 2001 to 2007, compared to 7.2 percent for the region, 5.2 percent for Maryland, and 4.4 percent for the nation. Over the recent recession period of 2007 to 2009, Prince George's County lost employment at a slower rate than the nation. The county lost 3.8 percent of its total employment compared to the nation's 5.0 percent loss of total employment. Still the county's loss of employment in the recession years was greater than for the region (2.4 percent decline) and for Maryland (3.4 percent decline).

Finding #2: There are, however, many primary industry clusters which offer excellent targets for economic development going forward, because of their level of specialization in the county or recent gains in employment, even though for most growing primary industry clusters the rate of growth was well behind the region and the nation. Among the industry clusters that are either current or emerging strengths for Prince George's County are business support services, biosciences, business consulting services, hospitals and health service and travel and tourism. During the recent recession years of 2007 to 2009, a number of primary industry sectors grew in employment, including travel and tourism, biosciences, business consulting services, hospitals and health services, navigation and control instruments, federal government, software and computer services, and legal services.

Finding #3: Prince George's County also possesses a critical mass of core technology competencies or "know how" in eight of the primary industry clusters. Among those industry clusters with a substantial or significant level of core competencies in the county are research, development and engineering, software and computer services, and biosciences.

Finding #4: The projected growth in occupations across the primary industry clusters in Prince George's County reflects both high and low skilled occupations. Among those occupations that are projected to increase at a higher growth rate than overall growth in jobs for the county are high skilled computer and mathematical science and business and financial operations occupations; and low skilled protective service, building maintenance, and personal care and service occupations.

Finding #5: The pipeline of new graduates from post-secondary institutions, formal workforce training programs and apprenticeship programs in the county suggest that there is an ample generation of high skilled talent being generated in the county in order to meet the annual demands by primary industry clusters in the county. The key issue is retaining this talent to work in the county.

² The Washington metro area refers to the Washington–Arlington–Alexandria, DC–VA–MD–WV Metropolitan Statistical Area (MSA) as defined by the United States Office of Management and Budget. This region includes Washington, DC; Calvert, Charles, Frederick, Montgomery and Prince George's Counties in Maryland and Arlington, Clarke, Fairfax, Fauquier, Frederick, Loudon, Prince William, Spotsylvania, Stafford and Warrant Counties and the Cities of Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas and Manassas Park in Virginia and Jefferson County in West Virginia.

Finding #6: At the lower skill level, there appear to be opportunities to put in place additional job training and workforce development programs, particularly targeting incumbent and unemployed workers. This includes occupations in sales, administrative support, maintenance and construction.

Finding #7: The broader trends in labor supply in Prince George's County suggests some considerable concerns, but also points to opportunities in moving forward. The county has a much lower level of educational attainment compared to the region, which is a longer term trend that will take years to address. Of particular concern in the near term is that population growth in the county is well off the pace of the region from 2001 to 2009, and the county actually lost population in 2007 and 2008. A possible opportunity is that Prince George's County has a large base of residents who commute to jobs outside of the county. These resident out-commuters tend to be more highly skilled and earn more than residents working in the county. If the county is able to capture this important segment of its population, it could offer a high valued workforce to industry in the county.

Strengths, Weaknesses, Opportunities, and Threats Assessment

A strengths, weaknesses, opportunities and threats (SWOT) assessment was developed to help in summarizing the quantitative analysis of industry workforce demand and labor supply, along with the input from interviews conducted with key stakeholders from across industry, educational institutions, and government. The value of this SWOT assessment is to consider how Prince George's County is positioned from a strategic perspective in workforce development. Two focus groups, comprised of county business, education and community leaders, were held to review the SWOT as well as discuss preliminary actions identified by Battelle for input, critique, and constructive dialogue.

Below are the main points from the SWOT analysis:

Strengths

- Prince George's County possesses a diverse workforce with a range of skills.
- There is a strong pipeline of talent being generated in Prince George's County.
- Two industry clusters stand as current strengths in Prince George's County, namely business support services and navigation and control instruments.
- Emerging industry clusters in high growth areas are taking hold in Prince George's County.
- Several areas of core technology competencies are found across industry clusters in the county, which provide a strong asset base for innovation that can drive future economic growth.
- The central location of Prince George's County in the region.
- Well served by mass transit.
- Lease rates are lower in Prince George's County.
- Well-functioning, demand-driven workforce development system.

Weaknesses

- Many well-established industry clusters in Prince George's County have recorded weak to declining employment growth over the last business cycle from 2001 to 2007.
- Net loss in population from 2006 levels, with actual declines in county population in 2007 and 2008. In 2009, county population grew by 4,046, but remained below the county's 2006 population level, by over 2,000 people.
- The growing out-migration from Prince George's County tend to be higher skilled and higher income residents, while the persons moving into the county have, on average, lower incomes than those leaving the county.
- There is a high level of county residents commuting to jobs outside of the county.

Opportunities

- Many industry clusters found in Prince George's County are doing well regionally, offering the county an opportunity to target for growth.

- Potential for improving linkages between colleges and universities and the employer community.
- Ability to increase career and technical education in high skilled areas.
- Tap into the large base of residents who commute to jobs outside of the county, and who tend to be mostly high skilled workers.
- Target workforce and economic development efforts to capture the growth around Fort Meade.

Threats

- Further slowdown in the regional economy.
- Faster growth in outer suburbs of the region.
- Expected decrease in overall federal government spending.
- Further cutbacks at NASA Goddard.

Recommended Strategies and Actions

Five key strategic priorities are recommended to advance a comprehensive talent-based development approach for Prince George's County. The focus should be on the intersection of education, workforce, and economic development in the county and creating stronger connections between those activities and stakeholders. These five strategic priorities include:

1. Strengthen the connections across high skilled talent being generated by post-secondary institutions in Prince George's County with employers in the county's primary industries.
2. Promote industry cluster development with a strong emphasis on linking talent and technology core competencies to targeted industry clusters.
3. Advance career and technical education at the K-12 level in high skilled areas.
4. Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.
5. Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.

For each of the strategic priorities, specific actions are identified to address the key objectives for advancing a comprehensive and integrated approach to talent based development in Prince George's County. These actions represent a mix of immediate, near-term, and long-term activities to be undertaken.

Summary of Action Plan

Strategic Priority 1: Strengthen the connections across high skilled talent being generated by post-secondary institutions in Prince George's County with employers in the county's primary industries.

Prince George's County has a strong post-secondary talent pipeline. It is critical for the county to find ways to make students aware of employment opportunities and to connect employers with graduates. Another critical pool of high skilled talent available in Prince George's County is the large numbers of commuters who reside in the county but work elsewhere in the region, which when combined with the strong pipeline of new graduates, offer employers a rich base of entry level to highly experienced workers from which to draw.

Recommended Actions:

- Advance internship and experiential learning programs in Prince George’s County between students in high skilled degree fields such as science, engineering, and business and technology fields from across post-secondary institutions in the county.
- Create a high skilled talent bank in Prince George’s County of both residents who commute and new and recent graduates to connect with employers in the county.

Strategic Priority 2: Promote industry cluster development with a strong emphasis on linking talent and technology core competencies to targeted industry clusters in the county.

A focused strategy to target industry cluster development can be a meaningful way to advance economic and workforce development with scale. That is, rather than simply focusing on an individual firm-by-firm basis, the county can seek ways to assist and grow a broader industry cluster.

There may be opportunities for Prince George’s County to advance a new breed of industry-driven technology and workforce development centers that concentrate on the distinctive nature of work within an industry cluster. For a number of the more specialized and emerging industry clusters, there is also an opportunity to create stronger connections to university research activities, taking place at University of Maryland—College Park (UMCP). By promoting more substantive ties between industry and academia around translating core technology competencies into new products and startup companies, the county can realize its potential for higher paced economic growth.

Recommended Actions:

- Convene industry cluster interest groups to facilitate networking and shared services.
- Advance skill centers by encouraging industry-post-secondary collaborations through competitive planning grants that can be used to tap state and federal funding.
- Create a Prince George’s County Technology Transfer Center, which promotes commercialization relationships and entrepreneurial development between industry and research drivers in the county, particularly targeting UMCP and national labs.
- Leverage the core technology competency strengths of UMCP for existing and emerging companies through the use of faculty-student teams.
- Stay abreast of emerging cluster opportunities by monitoring industry trends for Prince George’s County and the region.

Strategic Priority 3: Advance career and technical education at the K-12 level in high skilled areas.

The Career Technical Education program (CTE) is an important means to engage and motivate K-12 students to pursue more rigorous academic courses needed for today’s technology-driven careers. Prince George’s County has a substantial number of students enrolled in CTE, but most of these students are enrolled in the business management, marketing and finance area. The county needs to encourage greater CTE enrollment in those occupation areas in which there are high workforce demands. These include health, biosciences, and information technology, as well as construction fields, including skilled positions such as plumbers and electricians.



Recommended Actions:

- Advance an integrated CTE curriculum which links Science, Technology, Engineering, and Mathematics (STEM) education with problem-solving, team building, and experiential learning activities in defined areas of technology and industry.
- Promote Career Academies as a model for educational reform in the county.

Strategic Priority 4: Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.

It is important for Prince George’s County to provide training for lower skilled occupations that are in demand, including office and administrative support, construction, building maintenance, installation, maintenance and repair of equipment, transportation and logistics, and health care support. To meet this demand for low skilled occupations, there is a large and growing base of the county’s workforce that is lacking in higher education and English language skills, who are in need of training to take on the more technical levels within these lower skill level occupations.

Recommended Actions:

- Establish a Jobs Funnel initiative in Prince George’s County for entry-level jobs and career development targeted to lower skilled immigrant groups.
- Assess the reach and expansion opportunities for adult literacy and basic skills development.

Strategic Priority 5: Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.

A key challenge for Prince George’s County is to raise the demand for workers and generate more jobs. The weak demand for labor is found across many of the county’s well-established industry clusters. So, it is critical that the county address its overall demand for labor by providing funding and support for more pro-active economic development activities.

Recommended Actions:

- Address the business and overall image of Prince George’s County.
- Create more incentives and direct financing programs for emerging growth companies.

A summary of the recommended action plan, encompassing 13 actions, is shown in Table ES-1.

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Table ES-1: Summary of Strategies and Actions

Strategic Priority	Action	Time Frame³	Resources Required from Local, State and Federal Sources
1. Strengthen the connections across Prince George's County's high skilled talent generated by post secondary institutions and employers in the county's primary industries.	Action 1a: Advance internship and experiential learning programs in Prince George's County between students in high skilled degree fields in science, engineering, business and technology fields from across post-secondary institutions in the county.	Near-term	Up to \$250,000 annually
	Action 1b: Create a highly skilled talent bank in Prince George's County of both residents who commute and new and recent graduates to connect with employers in the county.	Immediate	Up to \$250,000 annually
2. Promote industry cluster development with a strong emphasis on talent and technology core competencies to targeted industry clusters in the county.	Action 2a: Convene industry cluster interest groups to facilitate networking and shared services.	Immediate	Less than \$200,000 annually
	Action 2b: Advance skill centers by encouraging industry-post-secondary collaborations through competitive planning grants that can be used to tap state and federal funding.	Near-term	\$150,000 annually for up to three planning grants each year
	Action 2c: Create a Prince George's County Technology Transfer Center, which promotes commercialization relationships and entrepreneurial development between industry and research drivers in the county.	Long-term	\$300,000 annually
	Action 2d: Leverage the core technology competency strengths of the University of Maryland-College Park for existing and emerging companies in Prince George's County through the use of faculty-student teams.	Long-term	\$250,000 annually or \$25,000 of matching funds for 10 projects each year
	Action 2e: Stay abreast of emerging cluster opportunities by monitoring industry trends for Prince George's County and the region.	Long-term	No new resources
3. Advance career and technical education at the K-12 level in high skilled areas.	Action 3a: Advance an integrated career and technical education curriculum which links science, technology, engineering, and mathematics (STEM) education with problem-solving, team building, and experiential learning activities in defined areas of technology and industry.	Long-term	\$300,000 annually
	Action 3b: Promote Career Academies as a model for educational reform.	Long-term	No new resources
4. Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.	Action 4a: Establish a Jobs Funnel initiative in Prince George's County for entry-level jobs and career development targeted to lower skilled immigrant groups in the county.	Long-term	\$250,000
	Action 4b: Assess the reach and expansion opportunities for adult literacy and basic skills development.	Near-term	\$100,000 one time
5. Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.	Action 5a: Address the business and overall image of Prince George's County.	Near-term	\$500,000
	Action 5b: Create more incentives and direct financing programs for emerging growth companies.	Near-term	\$5 million revolving loan fund

³ Immediate refers to within the current fiscal year; near-term is generally in the next fiscal year; long-term is 2–5 years out. Near- to long-term reflects a more complex action that can be partially implemented in the near-term, but will require a longer time period to be fully implemented.

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Introduction

In today's global, knowledge-based economy, local communities are increasingly competing on their ability to educate, train, and recruit a qualified workforce that meets the needs of industry. Talent touches upon all aspects of economic competitiveness. It represents not only the general skills of the workforce to produce top quality goods and services quickly and efficiently, but the specialized capacity found among world-class scientists and engineers to invent, advance discoveries and develop new technologies. Entrepreneurs and managers also are needed to bring these technological advancements to the global marketplace.

For economic development in the 21st century, a high quality workforce is critical to defining a positive business climate. As the National Governors' Association points out in their series on State Leadership in the Global Economy: "CEOs report that the availability of technically trained talent is their top priority—one that often determines where they locate high-value investments."⁴

In looking towards advancing economic development, the National Center on Education and the Economy in its nationally prominent 2006 report, *Tough Choices, Tough Times*, explains the importance of growing a workforce to meet the needs of targeted growth industries: "It is now clear that the most effective strategies for economic development are technology-based and regionally-focused. It is also clear that the most effective way to provide a real future for people is to provide education and training that is related to the economic future of the region those people live in, for jobs in growth industries."⁵

The need for a high quality workforce in Prince George's County is particularly significant given its location in one of the nation's leading metropolitan areas. As noted in the county's 2005 Economic Development Strategic Plan, "A location's workforce is one of its strongest assets. Prince George's County is located in one of the fastest growing and prosperous metropolitan regions in the country. In order to compete within this region, it needs to cultivate a qualified and skilled workforce that can meet the needs of existing employers and that can attract new high quality and high paying jobs."⁶

Given the importance of workforce development to the county's future economic growth, the Prince George's County Planning Department of The Maryland-National Capital Park and Planning Commission (M-NCPPC) has undertaken this study of the county's future workforce development needs. The objective of this study is to provide policy/decision makers with a better understanding of occupational changes and workforce development needs, and to develop a strategy to meet these needs and promote regional growth and business development.

⁴ National Governors' Association, *State Leadership in the Global Economy*, 2002.

⁵ National Center on Education and the Economy, *Tough Choices, Tough Times*, 2006.

⁶ Prince George's Economic Development Strategic Plan, developed with the Prince George's County Economic Development Strategic Planning Committee and prepared by the International Economic Development Council, June 2005, page 19.

Approach of the Study

Understanding how to build a workforce development system that keeps pace with the constantly evolving economy, including the changing demands of the regional industrial base as well as fluctuations in the supply of labor, is a challenge facing Prince George's County as it develops a comprehensive workforce development strategy. This calls for a comprehensive assessment of the expected future workforce demands from likely industry drivers and a rigorous analysis of the county's capacity to meet these future needs.

The most effective way to assess industry drivers is to focus on industry clusters. Industry clusters have become a mainstay of regional economic analysis because of the recognition that individual industries do not stand alone within local economies, but are better understood as being part of a broader complex of industries that are inter-related. As Michael Porter, one of the world's leading experts in business and regional competitiveness explains:

“Clusters are a striking feature of virtually every national, regional, state, and even metropolitan economy, especially in more economically advanced nations... Clusters are not unique; however, they are highly typical—and herein lies a paradox: the enduring competitive advantages in a global economy lie increasingly in local things—knowledge, relationships, motivation—that distant rivals cannot match.”⁷

Given that the objective of this study is to advance economic development in the county, the focus is on those industries that address the “wealth creating” sectors of the county's economy, often referred to as “economic base” or “primary” industries. These primary industries address needs beyond local residents and businesses. They are either involved in exports or substitutes for imported goods and services from outside of the county. Non-primary industries, often referred to as local or sheltered economic activity, do not generate new economic wealth for the county. However, they are important because they address local needs and ensure a high quality of life for residents. Typically, these non-primary industries include most retail services, physician offices, state and local government, and other firms that provide services to local residents.

To help ensure that a robust strategy is developed that meets the needs of the county's primary industrial base, thereby fostering regional growth and business development, the analysis focuses on addressing several key questions, including:

- **What are the primary industry clusters in the county and what is the likely growth potential of each primary industry cluster?** This required assessing how well the county has fared in the growth of its primary industry clusters, how they are positioned for future growth considering the broader industry cluster trends found in the region, and how it is positioned for future growth because of core technology competencies found across its base of industry, universities, and federal labs. Likely low and high growth scenarios were identified for each primary industry cluster based on its past performance, growth rate relative to the region and position to gain market share based on the presence of core technology competencies.
- **How will the expected growth in Prince George's primary industry clusters translate into industry demand for workers?** Based on the expected primary industry growth scenarios, standard occupational forecasting techniques were utilized to forecast future workforce demands of the county's primary industry clusters.
- **What is the current capacity to generate labor supply and how does it compare to demand across the primary industry clusters?** In other words, looking to the future, will the county be able to generate the workforce that will be needed to meet industry demand? The current output

⁷ Michael Porter, Harvard Business School Professor, “Clusters and the New Economics of Competition,” Harvard Business Review, November-December 1998.

of graduates from post-secondary institutions, workforce training programs and apprenticeship programs were examined to determine if they are producing the graduates that will be needed.

- **What are the broader patterns of labor supply in Prince George’s County?** Current labor market conditions, current and projected workforce demographic and socio-economic characteristics, in- and out-migration trends, and commuting patterns were examined to assess current market conditions.
- **What is the strategic position and economic development readiness of the county?** Input and feedback from interviews with industry executives and focus group discussions with workforce and economic development organizations were sought to ensure that the data analysis was well-grounded in perceived reality. In addition, the county’s economic development readiness indicators were benchmarked against other comparable counties, both in the region and across the nation.
- **What should Prince George’s County do?** Based on a comprehensive examination of the quantitative analyses and the input received during the interviews and focus groups, a comprehensive set of strategies and actions were developed to address the county’s strategic needs in workforce development.

Details on the methodology used and data developed to support the labor demand and supply analyses are found in the Technical Appendix.

Study Team

To conduct this study, M-NCPPC sought out a consulting team with expertise and experience in economic development planning, research and policy development, economic and public policy analysis, commercial real estate trends analysis, and labor force and industry trends analyses.

Battelle’s Technology Partnership Practice (TPP), the economic development consulting arm of the world’s largest independent non-profit research and development organization, led the effort. Battelle TPP is the national leader in advanced, technology-based and cluster-driven economic development practice with an established track record in developing and advising many of the most successful modern development programs in the U.S. Battelle TPP is also the leading firm in advancing workforce development strategies across the U.S.

The University of Baltimore’s Jacob France Institute, a research unit at the Merrick School of Business at the University of Baltimore, provided in-depth analysis of labor supply and forecasting of workforce development. The Jacob France Institute is a leading Maryland research group on workforce development research, planning and evaluation. The Institute prepared the State of the Workforce Report for the Governor’s Workforce Investment Board and has conducted workforce studies for numerous communities in Maryland.

Supporting the forecasting of workforce development and economic readiness indicator assessment is Market-Economics, Inc., a well regarded economic consulting firm with emphasis in real estate analysis and forecasting, financial risk management, small business market analysis and economic forecasting of housing and employment. Among its clients are the Baltimore Development Corporation, Maryland Transportation Authority, Appalachian Regional Commission, and City of Annapolis.

Methodology

Understanding Prince George's County's current and future workforce needs and developing a strategy to meet those needs required a number of quantitative and qualitative analyses. The Battelle project team 1) identified future workforce demand, 2) identified future workforce supply and compared supply with demand to identify workforce needs, and 3) examined the county's workforce and economic development policies to identify areas that should be addressed to better position the county to be able to meet current and future workforce needs and thereby accelerate economic growth.

The steps undertaken to estimate **future workforce demand** included:

- Identifying the county's primary industry clusters. These are the clusters that will drive economic growth in the county.
- Assessing the performance of these industry clusters during the 2001 to 2007 time period. This performance is one of several factors considered in estimating future workforce demand of these sectors.
- Identifying the core competencies of the county's industry, universities and federal labs. This is another factor considered in estimating future workforce demand.
- Developing growth scenarios. In order to project future demand, the Battelle project team developed a methodology for estimating anticipated employment growth in the primary industry clusters between now and 2030.
- Calculating employment growth by occupation using the growth scenarios.

Determining **future workforce supply** required:

- Assessing the current supply of workers being generated by the county's educational institutions, workforce training programs, and apprenticeship programs.
- Evaluating the characteristics of the current workforce.
- Reviewing factors, such as migration, commuting patterns, and transportation that will influence the size of the county's future labor force.

The Battelle project team also conducted interviews and held focus groups with industry leaders and workforce development and economic development organizations to obtain input on the workforce and economic development strengths, challenges, and opportunities facing the county. The findings from the quantitative analyses and the input from the interviews and focus groups were used to inform the development of a set of strategies and actions for meeting workforce needs and growing the county's economy.

This report summarizes key findings from all of the analyses and presents the recommended strategies and actions. Details on the methodology used and data developed to support the labor demand and supply analyses are found in the Technical Appendix.

Key Findings

Given the extensive data analysis found in this study, it is important to cull out from the results the particularly relevant findings that can help decision-makers advance future workforce development and relevant economic development strategies for Prince George’s County. These relevant findings also reflect input from interviews with primary industry executives and focus group discussions with key stakeholders, including those involved in Prince George’s County workforce development system. A Technical Appendix provides the detailed analysis that underpins these key findings.

Performance of Primary Industry Clusters

Industry clusters represent closely related industries that are logically connected. Many industry clusters share a common market that they serve, while others are based more on shared “know how” such as in the biosciences or information technology.

There is not a standard set of industry clusters defined for all localities. Instead, identifying local industry clusters requires analyzing the specific, local industries that are focused on economic base activities and determining where there are logical connections and inter-relationships.

In consultation with the M-NCPPC, Battelle identified 380 detailed industries involved in economic base activities and organized them into 23 primary industry clusters. Altogether, these 23 primary industry clusters employed 150,689 workers in Prince George’s County in 2008 or 48 percent of total employment in the county. These 23 industry clusters are listed in Table 1.

Table 1: Listing of Primary Industry Clusters Identified in Prince George’s County

Industry Cluster	Prince George’s County Employment, 2008	Types of Industries
Aerospace Products & Parts	517	Aircraft and aircraft engines and parts mfg; guided missile and related parts mfg.
Big Box Retail	11,217	Home centers, clothing stores, book stores
Biosciences	1,168	R&D, medical labs, drugs & pharmaceuticals, medical devices
Business Consulting Services	2,202	Management consulting, marketing consulting, human resources
Business Support Services	8,512	Office administration, facility support, security guards, janitorial
Communications & Media Equipment	210	Telephone, broadcast and wireless comm. equipment, A/V equip, fiber optic cables
Computer & Peripheral Equipment	609	Computer and related device mfg; software and A/V media reproduction
Construction	31,810	Commercial, industrial and residential contractors of all types
Finance & Insurance	6,986	Commercial banks, investment banking, insurance agencies
Hospitals and Health Services	12,041	Hospitals plus outpatient facilities, nursing care, mental health facilities, kidney dialysis centers
Legal	1,291	Lawyer offices
Marketing & Advertising	803	Graphic design, advertising agencies, media buying and representatives, market research, opinion polling

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Media Services	212	Video production, sound recording, radio and TV
Navigation & Control Instruments	1,120	Search, detection, and navigation instruments; Environmental controls; analytical lab instr.
Research, Development & Engineering Services	3,671	Engineering services, non-bioscience research and development
Semiconductors & Electronic Components	23	Electron tubes, circuit boards, semiconductors and related devices
Software & Computer Services	10,501	Data processing/hosting, programming, systems design, computer facilities
Strategic Office Centers	3,070	Managing offices, call centers
Telecommunications Services	2,390	Landline, wireless, web portals, resellers
Traditional Print Media	2,057	Commercial printing, newspapers, books, periodicals
Transportation, Distribution and Logistics	19,265	Commercial transportation, wholesalers, warehousing, transportation support
Travel & Tourism	5,575	Hotel and lodgings, museums, amusement, travel agencies, etc.
Federal Government	25,439	All types of federal agency employment, including labs

Finding #1: The overall economy in Prince George’s County, as well as many of the primary industry clusters, underperformed in overall economic growth compared to both the nation and the Washington, D.C. Metropolitan Region (the “region”) over the full business cycle period of 2001 to 2007, though the job losses in the recession were below the national rate.⁸ Total employment in the county grew 3.9 percent from 2001 to 2007, compared to 7.2 percent for the region, 5.2 percent for the state of Maryland, and 4.4 percent for the nation (see Table 2). A particular weakness for the county was in private sector job growth, which advanced a mere 1.1 percent compared to a robust growth of 7.9 percent for the region, 5.3 percent for Maryland, and 4.3 percent for the nation.

Over the recent recession years, 2007 to 2009, Prince George’s County lost employment although at a slower rate than the nation, with the county losing 3.8 percent of its total employment and the nation losing 5.0 percent of total employment. Still the county’s loss of employment in the recession years were greater than for the region (2.4 percent decline) and for Maryland (3.4 percent decline).

Meanwhile, 13 of the 23 primary industry clusters in Prince George’s County lost employment over the 2001–2007 full business cycle period, and six other primary industry clusters grew more slowly than the nation. During the recent recession years of 2007 to 2009, a number of primary industry sectors grew in employment, including travel and tourism, biosciences, business consulting services, hospitals and health services, navigation and control instruments, federal government, software and computer services, and legal services.

⁸ The Washington, D.C. Metropolitan Region is defined as the geographic area encompassing refers to the Washington–Arlington–Alexandria, DC–VA–MD–WV Metropolitan Statistical Area (MSA) as defined by the United States Office of Management and Budget. This region includes Washington, DC; Calvert, Charles, Frederick, Montgomery and Prince George’s Counties in Maryland and Arlington, Clarke, Fairfax, Fauquier, Frederick, Loudon, Prince William, Spotsylvania, Stafford and Warrant Counties and the Cities of Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas and Manassas Park in Virginia and Jefferson County in West Virginia.

Table 2: Comparison of Employment Growth of Prince George’s County to Washington, D.C. Metropolitan Region, State of Maryland and U.S., 2001-07 (Full Business Cycle) and 2007-09 (Recession)

Geographic Area	Employment Growth, Total Employment (Public and Private)				Employment Growth, Total Private Sector			
	2001-2007 (Full Business Cycle)		2007-2009 (Recession)		2001-2007 (Full Business Cycle)		2007-2009 (Recession)	
	Change in Jobs	% Change	Change in Jobs	% Change	Change in Jobs	% Change	Change in Jobs	% Change
Prince George’s County	11,842	3.9%	-11,868	-3.8%	2,416	1.1%	-14,024	-6.0%
Washington, D.C. Metro Region	284,581	7.2%	-101,363	-2.4%	165,255	7.9%	-72,410	-3.2%
Maryland	125,452	5.2%	-86,242	-3.4%	105,357	5.3%	-101,869	-4.9%
United States	5,730,306	4.4%	-6,758,264	-5.0%	4,692,900	4.3%	-7,068,300	-6.2%

Source: Battelle analysis of Bureau of Labor Statistics Quarterly Census of Employment and Wages data from IMPLAN.

Finding #2: There are many primary industry clusters which offer excellent targets for economic development going forward because of their level of specialization in the county and/or performance during the recent gains in employment, even though for most growing primary industry clusters the rate of growth was well behind the region and the nation. Specifically,

- Two industry clusters are well positioned in the county as current strengths because they are specialized, growing in employment and gaining competitive share compared to the nation:
 - Business support services
 - Navigation and controls
- Four industry clusters are promising targets for retention in the county because they are specialized despite lagging employment trends in the full business cycle period from 2001 to 2007 while growing in the region:
 - Construction
 - Federal government
 - Research, development and engineering services
 - Software and computer services
- Six industry clusters are emerging strengths or opportunities because they have been gaining employment in the county and two already stand as current strengths in the region:
 - Biosciences, a current regional strength
 - Business consulting services, a current regional strength
 - Communications and media equipment
 - Hospitals and health services
 - Strategic office centers
 - Travel and tourism

Core Competencies

Another factor that will influence the growth of the county's primary industry clusters is the presence of core competencies found in the county's industry, universities, and federal laboratories. Core competencies are those fields in which a state, region, or county has a critical mass of ongoing research and innovation activity along with some measure of excellence. As defined by Gary Hamel and C.K. Prahalad in *Competing for the Future*,⁹ a "competence is a bundle of skills and technologies representing the sum of learning across individual skill sets and organizational units." No single source of information is sufficient to identify research core competencies. The analysis considered four measures: patent activity, presence of innovative emerging companies, publications, and presence of major research centers.

Finding #3: Prince George's County possesses a critical mass of core technology competencies or "know how" that relate to eight of the primary industry clusters.

Prince George's County is home to five significant research drivers including the University of Maryland–College Park (UMCP), Bowie State University (BSU), NASA Goddard Space Flight Center (NASA Goddard), the Army Research Laboratory, and the United States Department of Agriculture's (USDA) Beltsville Agricultural Research Center (BARC). The presence of these core technology competencies provides a basis for the county to generate home-grown innovations and economic growth. The primary industry clusters in which core technology competencies of a substantial or significant level were identified are:

- Aerospace products and parts
- Biosciences
- Communications and media equipment
- Research, development and engineering
- Semi-conductors and electronic components
- Software and computer services
- Computer and peripheral equipment
- Navigation and control instruments



Projected Job Growth and Openings by Occupation

Since every industry cluster has its own specific mix of occupations, it is critical to start with an understanding of likely development scenarios of each industry cluster when considering overall occupational demands for Prince George's County out to the year 2020. A high and low growth scenario was developed for each of the primary industry clusters. These scenarios were then used to estimate projected job growth in occupations within each industry cluster. The development of scenarios for estimating likely employment growth is a critical input for projecting the future occupational demands in Prince George's County across its primary industry clusters. Future industry growth is a standard building block in occupational forecasting used by the U.S. Department of Labor and each state's Labor Market Information office.

The approach undertaken in determining the likely growth scenarios for each primary industry cluster involved two key steps:

⁹ G. Hamel and C.K. Prahalad. *Competing for the Future*. Harvard Business School Press: Boston, MA, 1994, pp. 90 and 217.

- Step One: Defining a set of standard “possible” industry cluster growth scenarios that can be calculated in a uniform manner across industry clusters. These standard set of potential growth scenarios are informed by the national context of expected future employment growth for each industry cluster as projected by the U.S. Bureau of Labor Statistics, past performance of each industry cluster in Prince George’s County, and the potential for accelerated growth for the Prince George’s industry cluster based on the broader region’s position.
- Step Two: Applying the results of the regional economic analysis and core competency scan for each primary industry cluster to identify what are the best fits from among the set of possible industry cluster growth scenarios for a “low” and “high” scenario growth level.

Finding #4: The projected growth in occupations across the primary industry clusters in Prince George’s County reflects both high and low skilled occupations. Under both the low industry growth and high industry growth scenarios, a number of major occupational groupings, representing a mix of high and low skilled occupational groups, stand to increase at a higher growth rate than overall growth in jobs for the county.¹⁰ These include:

- Computer and mathematical science occupations (high skilled)
- Business and financial operations occupations (high skilled)
- Protective service occupations (low skilled)
- Building and grounds cleaning and maintenance occupations (low skilled)
- Personal care and service (low skilled)

Other fast growing occupational groups under the low industry growth scenario are generally lower skilled occupational groupings, including:

- Construction and extraction occupations
- Installation, maintenance, and repair occupations
- Health care support occupations
- Community and social services occupations
- Healthcare practitioners and technical occupations



It is important to recognize that if the county were to reach its potential under the high industry growth scenario, then several other high skilled occupations would grow significantly in the county, including engineering and architecture occupations; life, physical, and social scientists occupations; education, training, and library occupations; and management occupations.

Comparing Labor Supply and Demand

Finding #5: The pipeline of new graduates from post-secondary institutions, formal workforce training programs and apprenticeship programs in the county suggest that there is an ample generation of high skilled talent being generated in the county in order to meet the annual demands by primary industry clusters in the county. The analysis comparing new graduates to projected annual job openings suggests that across higher skilled occupational areas, such as computer sciences, engineering, and business and financial operations, the county is generating more graduates than expected demand—even under the high industry growth scenario. This strong pipeline reflects the breadth of post-

¹⁰ High skilled occupational groups require post-secondary education, while low skilled occupational groups do not require post-secondary education.

secondary institutions found in the county, including, UMCP, BSU, and Prince George's Community College.

Among the high skilled occupations in which supply exceeds demand are:

- Engineering & architecture occupations
- Life, physical, and social scientists
- Management occupations
- Business and financial operations
- Computer and math scientists

These are the occupations in which demand would increase under the high growth scenario. This suggests that the county is well positioned for meeting the increase in demand for workers in these occupations. The finding that the labor supply of new post-secondary graduates is sufficient, in broad terms, to meet labor demand for higher skilled workers suggests that the county has the ability to address its workforce needs if it is able to attract these graduates in large numbers to work in the county.

Finding #6: At the lower skill level, there appear to be opportunities to put in place additional job training and workforce development programs, particularly targeting incumbent and unemployed workers.

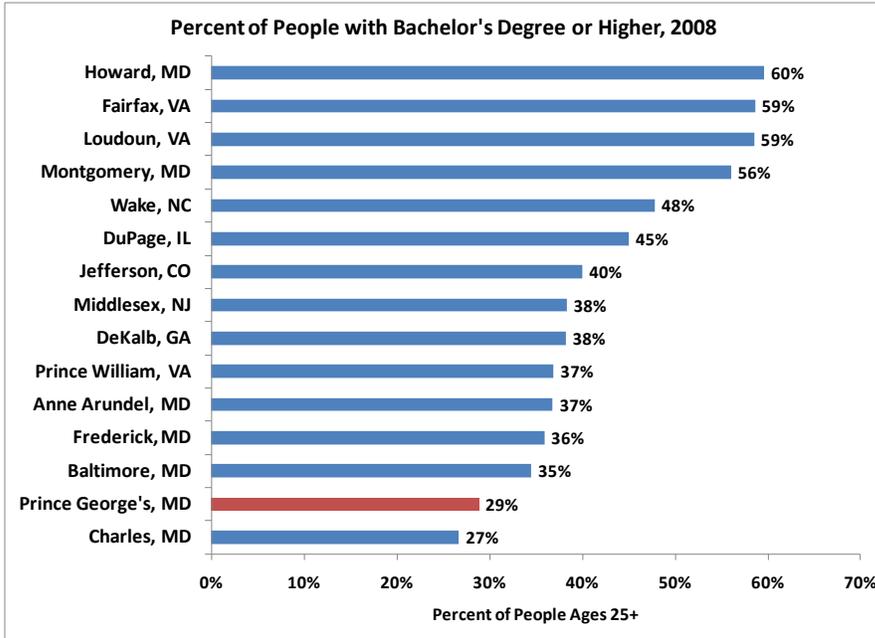
Job training and development programs may include the fields of:

- Construction occupations
- Maintenance occupations
- Administrative support occupations
- Sales occupations

Finding 7: The broader trends in labor supply in the county suggest some considerable concerns, but also point to opportunities in moving forward.

- The county has a much lower level of educational attainment compared to the region, which is a longer term trend that will take years to address. While the level of the adult population with associate's degrees is slightly higher than the region, the county falls off as educational levels rise, standing at only 17 percent with bachelor's degrees, compared to 25 percent for the overall region and 12 percent with graduate degrees, compared to 22 percent for the region overall. This lagging position in educational attainment is also found in comparing the county with regional and national benchmark counties. The county lags nearly all of the benchmark counties in terms of postsecondary degrees of residents ages 25 or older. (See Figure 1).

Figure 1: Percent of Residents with Bachelor's Degree or Higher



Source: U.S. Bureau of the Census, 2008 American Community Survey

- Population growth in the county has been well off the pace of neighboring counties and is among the lowest of the counties benchmarked across the nation. (See Table 3.) The county's population grew just one percent between 2001 and 2009 compared to an increase of seven percent nationally, and nine percent within the region. (See Table 4.)

Table 3: Population Growth for Prince George's County and Benchmark Counties, 2000 to 2009

County	Percentage Change
United States	8.8%
Prince George's County, MD	3.9%
Anne Arundel, County, MD	6.1%
Baltimore County, MD	4.5%
Charles County, MD	1.37%
Frederick County, MD	16.0%
Howard County, MD	12.9%
Montgomery County, MD	10.7%
Fairfax County, VA	6.4%
Loudoun County, VA	73.2%
Prince William County, VA	33.4%
Jefferson County, CO	2.0%
DeKalb County, GA	11.7%
DuPage County, IL	2.9%
Middlesex County, NJ	5.1%
Wake County, NC	41.6%

Source: U.S. Census Bureau, Population Division, March 2010



Table 4: Population Growth in the U.S., Washington, D.C. Metropolitan Region, and Prince George’s County 2001–2009–2030

	Historical		Projections		2001–2009		2009–2030	
	2001	2009	2020	2030	# Change	% Change	# Change	% Change
United States	285.1M	307.0M	341M	373M	21.9M	8%	66M	22%
Total Washington, D.C. Metro Region	4.9M	5.5M	6.4M	7M	549,000	11%	1.6M	28%
Prince George’s County	815,028	834,560	921,900	960,800	19,532	2%	126,240	15%

Source: *2001, 2008 and 2009 Population Estimates were taken from County Population Datasets. U.S. Projections from the U.S. Bureau of the Census

- Of particular concern in the near term is that population growth in the county is well off the pace of the region from 2001 to 2009, and the county actually lost population in 2007 and 2008. The county is losing residents to other jurisdictions in Maryland and to other states. The economic problem of this out-migration pattern is compounded by the fact that the out-migrants in the county have, on average, higher incomes than in-migrants. IRS data show that the average adjusted gross income of out-migrants in the county was \$52,070, compared to \$36,404 for in-migrants during the 2007–2008 time period.¹¹
- A possible opportunity for Prince George’s County is to tap the large base of residents that work outside of the county. Resident out-commuters tend to be more highly skilled and earn more than residents working in the county. Prince George’s County is a major source of out-commuters for the larger regional economy with only 38.6 percent employed in their county of residence, much lower than the average for the region. (See Table 5.) Furthermore, compared to the benchmarks, the county has the second lowest level of residents working within their county. (See Table 6.) These resident out-commuters tend to be more highly skilled and earn more than residents working in the county. If the county is able to capture this important segment of its population, it could offer a high valued workforce to industry in the county.

Table 5: Commuting Patterns – Place of Work of Prince George’s County Residents, 2008

Item	Prince George’s	% of Total	Washington DC Metro Region	% of Total
Total	440,212	100.0%	2,893,548	100.0%
Worked in state of residence	248,926	56.5%	2,141,794	74.0%
Worked in county of residence	169,809	38.6%	1,421,890	49.1%
Worked outside county of residence	79,117	18.0%	719,904	24.9%
Worked outside state of residence	191,286	43.5%	751,754	26.0%

Source: U.S. Bureau of the Census, 2008 American Community Survey

¹¹ Internal Revenue Service

Table 6: Percentage of Residents Working in County for Prince George’s County and Benchmark Counties

County	Worked in county of residence, 2008
United States	73%
Prince George’s, MD	39%
Anne Arundel, MD	56%
Baltimore County, MD	50%
Charles, MD	40%
Frederick, MD	60%
Howard, MD	40%
Montgomery, MD	60%
Fairfax, VA	54%
Loudoun, VA	48%
Prince William, VA	36%
Jefferson, CO	51%
DeKalb, GA	46%
DuPage, IL	60%
Middlesex, NJ	56%
Wake, NC	82%

Source: U.S. Bureau of the Census, 2008 American Community Survey



An Assessment of Strengths, Weaknesses, Opportunities, and Threats Facing Prince George's County in Workforce Development

The analysis of the occupational shifts and workforce characteristics of Prince George's County, up to this point, has been primarily focused on a detailed quantitative analysis of the labor supply and demand trends impacting Prince George's County. However, to identify needed strategic actions for talent and workforce development in Prince George's County, it is also critical to ensure that the detailed quantitative assessment is grounded by the perspectives from industry executives, who represent the market-drivers of workforce demand, as well as broader stakeholders helping to lead the county's workforce and economic development efforts.

The Battelle project team completed interviews with 29 industry executives in Prince George's County, focusing on their perspectives of workforce and broader economic development issues confronting the county. Focus groups were also conducted with key stakeholders in the workforce development system in the county to assess and validate the results of the quantitative analysis of labor market supply conditions. This included interviews with Prince George's County Economic Development Corporation Workforce Services Division, the County Vocational Services' Regional Learning Center, Prince George's Community College, and with the Career Technical Education staff at Prince George's County Public Schools.

In addition, broader measures of economic development readiness of Prince George's County in comparison to the benchmark counties were considered, including the availability of economic development tools.

Putting together the intelligence gathered from the quantitative analysis and industry interviews, along with input from the focus group meetings, the Battelle project team developed a strategic analysis of the county's strengths, weaknesses, opportunities, and threats (SWOT) to inform future directions in workforce and talent development actions. Two additional focus groups comprised of county business, education, and community leaders, were held to review the SWOT as well as discuss preliminary actions identified by Battelle for input, critique, and constructive dialogue.

Strengths

There are a variety of strengths identified from the quantitative analysis and interviews, including:

- **Prince George's County possesses a diverse workforce with a range of skills.** This is important because firms—even high-technology ones—typically need a variety of skills and occupations to operate their businesses. Compared to the rest of the region, Prince George's County has a sizable level of its workforce at high skilled management, professional, scientific, and engineering skills (39 percent), but offers slightly higher levels of workforce at lower skilled occupations of service, sales and production.
- **There is a strong pipeline of talent being generated in Prince George's County.** The analysis comparing new graduates to projected annual job openings suggests that across higher skilled occupational areas, such as computer sciences, engineering, and business and financial operations, Prince George's County is generating more graduates than expected demand, even under the high industry growth scenario. This strong pipeline reflects the breadth of post-

secondary institutions found in the county, including the University of Maryland College Park (UMCP), Bowie State University, and Prince George's Community College.

- **Two industry clusters stand as current strengths in Prince George's County, namely business support services and navigation and control instruments.** These current industry strengths reflect those industry clusters where the county is growing faster in jobs than the nation and where the county already has a much higher concentration of the industry than the nation.
- **Emerging industry clusters in high growth areas are taking hold in Prince George's County.** Among these emerging industry clusters—which are gaining jobs, but not yet specialized in the county—are biosciences, business consulting services, strategic office centers, and hospitals and health services.
- **Several areas of core technology competencies are found across industry clusters in the county, which provide a strong asset base for innovation that can drive future economic growth.** Based on the scan of patent activities, emerging innovative companies, and research activities at the universities and federal labs in Prince George's County, eight industry clusters have a substantial base of core technology competencies, including research, development and engineering; biosciences; software and computer services; communications and media equipment; navigation and control instruments; computer and peripheral equipment; semi-conductors and electronic components; and aerospace products and parts.
- **The central location of Prince George's County in the region.** The interviews with industry executives clearly identified the county's central location as a key advantage.
- **Well served by mass transit.** Another advantage of the county is having available mass transit. Prince George's County appears to be well served by mass-transit, with a higher share of its workforce commuting by mass transit both to jobs in the county and outside of the county and a lower share by car than the State of Maryland or Baltimore Metropolitan Area and comparable results to the region. This reflects the presence of Metro stations across the county.
- **Lease rates are lower in Prince George's County.** Another strength of the county is that while it possesses a sizable commercial real estate base, its leasing rates are generally lower than other counties in the region, which is an attraction for firms, particularly in these difficult economic times.
- **Well-functioning, demand-driven workforce development system.** Based on the interviews and focus group meetings, there is a general consensus that the Prince George's County workforce development system operates as a “demand-driven” system that seeks to create partnerships between the employer and the education and workforce training system. There is a general consensus in the interviews and focus group meetings that the workforce development system is working well, and there is high level of respect for the Workforce Services Division.

Weaknesses

There are a variety of weaknesses identified from the quantitative analysis and interviews, including:

- **Many well-established industry clusters in Prince George's County have recorded weak to declining employment growth over the last business cycle, from 2001 to 2007.** Prince George's County has sizable and high concentrations of employment compared to the nation in software and computer services, research, development and engineering, federal government, and construction. Yet, these specialized industry clusters found in the county did not fare well during the last business cycle, either growing slower than the nation and the region, or actually declining as in the case of federal government employment, software and computer services, and research, development and engineering.
- **Net loss in population since 2006.** In 2006, Prince George's County population reached 836,644, but then declined in population in 2007 to 832,699 and 2008 to 830,514. In 2009, county

population grew by 4,046 to reach 834,560, but still remained below the county's 2006 population level by just over 2,000 people.

- **The growing out-migration from Prince George's County tend to be higher skilled and higher income residents, while the persons moving into the county have, on average, lower incomes than those leaving the county.** International migration has been an important source of population growth for Prince George's County, but the county is attracting younger, less educated immigrants who tend to be employed in lower wage industries and occupations than immigrants to the region. Of particular concern expressed in the focus groups was that the black middle class is tending to move out of the county.
- **There is a high level of county residents commuting to jobs outside of the county.** Prince George's County has one of the highest levels of its workers commuting to jobs outside of the county, not only within the region, but compared to benchmark counties from across the nation.

Opportunities

Opportunities for Prince George's County efforts in workforce and economic development represent key trends that can be leveraged and capitalized upon. They include:

- **Many industry clusters found in Prince George's County are doing well regionally, offering the county an opportunity to target for growth.** Of particular consequence for the future economic development of Prince George's County is the economic robustness of the overall region. It is important to consider the broader region because it represents a self-contained economy, as defined by commuting patterns, while Prince George's County is just one jurisdiction within that regional economy. Therefore, Prince George's County is presented with the opportunity to position itself in the years ahead to gain a growing share of the region's overall economic growth, particularly in its primary industry clusters.

Over the 2001 to 2007 period, there was a significant divergence in the performance of many industry clusters found in Prince George's County compared to the performance of those same industry clusters in the region. In particular, four of the retention industry clusters, which represent specialized industry clusters that are not growing in the county, have recorded strong growth across the region, and so present an opportunity for Prince George's County to position itself for the future. These include software and computer services, research, development and engineering services, federal government, and construction.

Also, among the emerging industry clusters found in Prince George's County, several are already current strengths in the region, including biosciences and business consulting services. So, this suggests that Prince George's County has an opportunity to continue to grow in these emerging industry clusters by positioning itself as a location site within the region.

- **Potential for improving linkages between colleges and universities and the employer community.** The potential for UMCP to be a major economic driver for Prince George's County is clearly identified by both its strengths in core technology competencies and in the breadth and depth of the graduates it is generating, particularly in key high skill areas such as computer sciences, engineering, and business and financial operations. There was much concern raised in the focus group meetings that the county was not fully leveraging the presence of UMCP for economic development.

A specific concern raised in the focus group meetings was that UMCP is not well identified as being located in Prince George's County. It was strongly endorsed that the county needs to take better advantage of UMCP, better connecting county employers to the talent being generated by the university as well as building around the university as is being done around Johns Hopkins University and other major research campuses throughout the nation. In addition, the interviews with those involved in education and workforce development activities in the county saw an opportunity to strengthen the working relationship between the workforce development system

and UMPC. As Maryland's largest public university, UMCP is a core workforce development asset. The university is highly supportive of several key workforce development efforts. UMCP participates in summer youth hiring programs and works with the public school system; however, enhanced cooperation between the university and the workforce development system in linking its highly skilled and educated pool of students with the broader employer community is viewed as a key effort to improve the pipeline of skilled workers in the county.

- **Ability to increase career and technical education in high skilled areas.** While Prince George's County has a substantial number of students enrolled in Career and Technology Education (CTE) with 13,900 students, the second largest CTE enrollment in the state, its focus is not well aligned with the overall future demand for workforce in the county. On a positive note, the largest county CTE program is in the business management, marketing, and finance area with 65 percent of total CTE enrollment, a higher concentration than in all other counties in this field.¹² The county should increase the relatively low CTE enrollment in other key occupation groups in which there are high workforce demands, including health, biosciences and information technology—all of which are either key existing or targeted employment sectors in the county. Another area for considering a potential CTE program raised in the focus group meetings was in construction fields, including skilled positions such as plumbers and electricians.
- **Tap into the base of Prince George's County residents who commute to jobs outside of the county.** The large number of Prince George's County residents who work outside of the county need to be considered as a significant asset offering a pool of skilled and experienced workforce that can be accessed for expansion of businesses in the county. It is important to develop ongoing connections to these residents who are working outside of the county, particularly helping them learn about employment opportunities in the county, leading employers in the county, expanding businesses in the county, etc.
- **Target workforce and economic development efforts to capture the growth around Fort Meade.** There is a major build-up around Fort Meade based on the most recent round of Base Realignment and Closure (BRAC) decisions by the Department of Defense. While Fort Meade is just outside of Prince George's County, its proximity to the county offers significant opportunities for spill-over business expansion in the county as well as being an important source for hiring county residents across a spectrum of occupations from construction, facility maintenance, information technology, protective services, etc. The Prince George's County Economic Development Corporation is already a member of the Fort Meade Alliance, but the broader engagement of educational and workforce entities in Prince George's County can be raised.



Threats

Threats to Prince George's County efforts in workforce and economic development represent key concerns and trends outside the control of decision-makers in the county. They include:

- **Further slowdown in the regional economy.** As mentioned earlier, Prince George's County is but one jurisdiction in a broader regional economy, connected by close ties. If the regional

¹² The analysis of CTE enrollment by area is from data in the MSDE 2009 Fact Book.

economy were to experience a slowdown from the continued dragging national economy, then economic and workforce prospects for the county would be diminished.

- **Faster growth in outer suburbs of the region.** The typical development pattern of the region is for more developer-driven growth in outlying suburbs. If developers were to further ramp-up commercial and residential areas in the outer suburbs, this presents significant competing locations that could slow growth in Prince George's County, and particularly its closer-in areas to the Beltway.
- **Expected decrease in overall federal government spending.** Prince George's County did not fare well in federal government employment over the 2001 to 2007 period, realizing a decline in overall federal government employment. With the pressing federal deficits, it is likely that the federal government spending and employment opportunities will decline nationally, putting more downward pressure on federal government employment in Prince George's County.
- **Further cutbacks in NASA Goddard.** The presence of NASA Goddard in Prince George's County is a significant economic driver not only because of its direct employment, but its significant contractor base. In addition, NASA Goddard is a driver of core technology competencies found in the county, particularly in navigation and control instruments and sensing technologies. The threat of decreased funding and more limited missions for NASA may continue to negatively impact NASA Goddard and the county.

Recommended Strategies and Actions

Based on the above findings, Battelle recommends a comprehensive and integrated approach to advancing talent-based development for Prince George’s County— that focuses on the intersection of education, workforce, and economic development in the county— and creating stronger connections between those activities and stakeholders.

In particular, five key strategic priorities are recommended to advance such a comprehensive talent-based development approach for the county:

1. Strengthen the connections across high skilled talent being generated by post-secondary institutions in Prince George’s County with employers in the county’s primary industries.
2. Promote industry cluster development with a strong emphasis on linking talent and technology core competencies to targeted industry clusters in the county.
3. Advance Career and Technical Education at the K-12 level in high skilled areas.
4. Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.
5. Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.

For each of the strategic priorities, specific actions are identified to address the key objectives for advancing a comprehensive and integrated approach to talent based development in Prince George’s County. These actions represent a mix of immediate, near-term, and long-term activities to be undertaken.

Strategic Priority 1: Strengthen the connections across high skilled talent being generated by post-secondary institutions in Prince George’s County with employers in the county’s primary industries

Realizing the potential of the strong post-secondary talent pipeline in Prince George’s County requires identifying ways to make students aware of employment opportunities and to connect employers with graduates. It also is important that this base of high-skilled, post-secondary graduates gain real-world experience so that they are prepared to step into the world of work in a seamless manner.

Another critical pool of high skilled talent available in Prince George’s County is the large numbers of commuters who reside in the county, but work elsewhere in the region. When combined with the strong pipeline of new graduates, these commuting residents offer employers a rich base of entry-level to highly experienced workers from which to draw.

Action 1a: Advance internship and experiential learning programs in Prince George’s County between students in high skilled degree fields such as science, engineering, and business and technology fields from across post-secondary institutions in the county.

Student internships with employers can be a powerful means to establish relationships between employers and students. A 2010 survey of the 884 industry members of the National Association of Colleges and Employers revealed that 82.5 percent of employers surveyed have an internship or co-op program. Furthermore, over 50 percent of interns accept full-time employment with the company for whom they interned.

Internships come in a variety of forms; from one-on-one summer internships, in which a student works at the site of a specific employer, to more group experiences during the course of a school year or during a

break, in which teams of students, often supported by faculty mentors and coaches, work on a project for a specific company.

Educational institutions have increasingly begun to recognize the value of these experiences. For example, the University of New Haven now requires all of its undergraduates to have a substantial experiential learning activity in order to graduate. Perhaps best known is Northeastern University where internships and co-op experiences are required for many degree programs.

To promote student internship efforts as a more broadly utilized connecting mechanism for students and employers, several steps are proposed:

1. Provide employers in targeted industries with incentives for hiring post-secondary student interns in STEM fields, such as a flat dollar subsidy for each paid internship in which over \$1,000 was paid in wages.
2. Provide annual grant support for university degree programs in the county that offer co-op education programming. These annual grants should be based on the number of students participating in the co-op program.

Resources Required: Up to \$250,000 each year should be targeted to support student internship and co-op initiatives.

Time Frame: Near-term – to be implemented in the next fiscal year.

Action 1b: Create a high skilled talent bank to connect both residents who commute and new and recent graduates to employers in the county.

The county needs to create mechanisms that raise the awareness of high skilled job opportunities from across its employer community. It also needs to identify residents with high skills commuting to jobs outside of the county and students and new graduates interested in pursuing work opportunities in the county.

There is a growing use of talent banks by states and regions across the nation, particularly as a means to attract back residents who moved for jobs outside the state or region. Examples of these programs include: Oklahoma Project Boomerang, Iowa Life Changing's "smart careermove.com" on a statewide basis, and "Come Home to Syracuse!" on a regional basis.

Project Boomerang is a broad-based workforce initiative sponsored by the Oklahoma Department of Commerce designed to attract out-of-state, highly skilled professionals with Oklahoma ties back to the state to fill high-quality, knowledge-based jobs. This effort is based on the finding that in-state employers had higher success rates for their out-of-state recruitment in targeting expatriates. The project utilizes a web portal, email marketing, social media and other methods to identify and reach out to former Oklahomans who are more likely to be interested in career opportunities in the state. The project targets and partners with knowledge-based firms that are seeking to fill in-state positions requiring a bachelor's degree or higher, pay annual wages of at least \$50,000, and are willing to report Boomerang success stories. Also in recognition that university alumni networks can be a fruitful means of reaching out to skilled graduates, the project is currently partnering with Oklahoma State University, the University of Oklahoma, the University of Tulsa, and Oklahoma City University to help identify "elsewhere Oklahomans" who may be interested in coming back. This effort includes direct mail campaigns, event marketing, and other tactics to find and persuade Oklahomans to return home.

Similar to Project Boomerang, Iowa Life Changing's smart careermove.com targets out-of-school professionals while serving as a portal that provides "Live, work, play" information to visitors. A key partner with the Iowa Department of Economic Development (IDED) in this effort is the Iowa Careers

Consortium (ICC). This is a public-private partnership created to meet Iowa's need for highly skilled employees. ICC includes Iowa businesses, communities, educational institutions, professional associations, IDED, and Iowa Workforce Development. ICC's efforts are designed to reach as many qualified individuals as possible in information technology, engineering, manufacturing, research/scientific, financial/insurance, and professional/managerial career fields. ICC incorporates several marketing strategies to help achieve its mission. Some of these include recruitment trips to areas with a high concentration of Iowa alumni or targeted skilled workers, national and in-state public relations, participation in special events and career fairs, and development of collateral materials.

It is proposed that Prince George's County build upon its one-stop center to maintain a "live" database of high skilled job openings in targeted fields of business, engineering, information technology, and other sciences. This live database of job openings can piggy-back on recently announced State of Maryland efforts that will be searching employer web sites to identify job openings.

Furthermore, it is recommended that the county augment that "live" database of high skilled job openings with a focused effort to engage interested residents and graduates from specific high skilled fields to join the talent bank. As part of its activities, the talent bank should undertake marketing through an ongoing campaign and branding strategy that would involve targeted mailings and ads, and sponsoring networking events and workshops involving students, recent graduates, and residents with employers around targeted high demand occupations.

Resources Required: It is estimated that it would cost the county approximately \$250,000 annually to support the base operations of the Prince George's County Talent Bank to include staffing and resources needed to develop and maintain the talent portal, as well as resources to promote it through a combination of email and direct mail promotions, event marketing, and other activities.

Time Frame: Immediate.

Strategic Priority 2: Promote industry cluster development with a strong emphasis on linking talent and technology core competencies to targeted industry clusters in the county.

As discussed previously, many primary industry clusters in the county are specialized in terms of having a high employment presence in the county relative to their size nationally. However, during the last business cycle period (2001 to 2007) job growth in these industry clusters underperformed relative to the nation and the region. This suggests that a focused strategy to target industry cluster development can be a meaningful way to advance economic development with scale. That is, rather than simply focusing on an individual firm-by-firm basis, the county can seek ways to assist and grow a broader industry cluster.

Focusing on workforce and talent based needs is a very common approach to building such cluster initiatives. As the National Governors Association 2007 report on "*Cluster-Based Strategies for Growing State Economies*" point out:

Of all the factors that motivate and grow clusters, none is more universally important than human resources. In almost any cluster's plan, the availability of pools of experienced and skilled labor and the customized and specialized education and training that produce, upgrade, and deepen the skills and knowledge are two of its highest priorities. Companies need talented managers and researchers; mid-level technical, clerical, and support staff; and entry-level workers. The most highly educated and specialized are recruited globally as well as drawn from local universities.¹³

¹³ "Cluster-Based Strategies for Growing State Economies," National Governor's Association, 2007, p. 14.

There may be opportunities for Prince George's County to go beyond shared training into what is heralded as a new breed of industry-driven technology and workforce development centers that concentrate on the distinctive nature of work within an industry cluster. Such centers can offer a resource to industry that can understand a cluster's particular needs and interests, solve problems, assure a continued flow of qualified workers, and serve as a source of skill upgrading for the incumbent workforce. It also allows students access to better and deeper programs ("know what"), better employment information and more rungs on career ladders ("know who"), deeper understanding of industry context ("know why"), and more informal learning opportunities ("know how").

For a number of the more specialized and emerging industry clusters there is also an opportunity to create stronger connections to university research activities, taking place at UMCP. This includes many technology clusters—biosciences, software and computer services, management, navigation and controls, and research, development and engineering services. By promoting more substantive ties between industry and academia around translating core technology competencies into new products and startup companies, the county can realize its potential for higher paced economic growth.

Action 2a: Convene industry cluster interest groups to facilitate networking and shared services.

A critical first step in nearly all cluster strategies is engaging industry and other key stakeholders within a cluster to work collectively to identify shared needs and opportunities and pursue common services. This requires advancing networking activities to engage industry. A key lesson in examining technology-driven regions, whether they are Silicon Valley, Route 128, Research Triangle, or others, is the establishment of formal mechanisms to encourage networking among academe, industry, non-profit, and public sector groups and organizations. As Annalee Saxenian has noted,

For these older industrial regions, the task will be to construct more decentralized industrial systems that encourage collaboration as well as competition. But even the newer industrial regions that boast elements of network systems will need to promote the local relationships needed to sustain collaborative—and competitive—advantage.¹⁴

Traditionally, economic development practitioners have tended to work with single firms to address their individual needs. Under a networking approach, practitioners work with industry clusters to identify and address common concerns and to encourage firms to network with each other and with other sectors of the economy that are critical to their long-term competitiveness, particularly industry, venture capital, and other business service providers. To sustain momentum, early success, and maintain sustainability, work programs must be designed for each industry cluster network that delivers early results, but are also flexible and easily modified to take account of external and internal changes.

An excellent example of industry networking taking place at a county level was the formation of the Montgomery County High Technology Council. It was organized around a common need or problem of its members located in Montgomery County—lack of accessible and nearby graduate higher education facilities, degrees, and courses. By undertaking a cooperative approach to working with multiple higher education institutions, the council was able to encourage public and private educational institutions to meet various needs of regional employers, partly by instituting a biennial education and training survey of technology employees in the region. The council also used networking efforts to bring together academe, industry, and the public sector.

The council's monthly biotechnology network, which started with 10 people, and became a standing room only 100 plus crowd, became a place where firms connected with each other, undertook joint R&D, shared personnel and equipment, and learned about trends and developments. A firm was spotlighted

¹⁴ Annalee Saxenian, *Regional Advantage* (Cambridge: Harvard University Press, 1994), pg. 205.

monthly, and panels of CEO-level firms, academe, and government were brought together regularly to discuss problems, needs, and opportunities. An outgrowth of the network was forging of business relationships with the Maryland Biotechnology Institute (University of Maryland) including evening graduate programs and a research center located in the heart of the I-270 Technology Corridor; the Maryland Bioprocessing Center; and linkages to the National Institutes of Health (NIH) and the National Institute of Science and Technology (NIST). While the Montgomery County High Technology Council transformed into first the Suburban Maryland Technology Council, which included Prince George's County, it continued to develop into the statewide Technology Council of Maryland, and lost its more focused attention on Prince George's County.

What is needed in the county is a staff function at the Prince George's County Economic Development Corporation responsible for facilitating and supporting industry cluster networking and shared services development. This should begin with a mid-level staff position for a Coordinator of Industry Cluster Networks, who possesses the skills of business marketing, sales, project management, entrepreneurship, communication/public speaking, government protocols, and private industry experience. Significant exposure to economic development projects or policies in Maryland would be a considerable plus. Other attributes include: collaborative leadership approach coupled with excellent written and oral communication skills. The ideal candidate would have more than five years of relevant experience in sales and marketing, economic development, or business development. Also preferred is a track record of working effectively in a team environment. Over time, additional staffing can be added as the success of the effort is demonstrated.

Resources Required: Less than \$200,000 for a mid-level staff position and resources for marketing, outreach, and networking events. It is expected that over time many of these resource expenses can be cost-shared with industry members participating in the networking activities.

Time Frame: Immediate.

Action 2b: Advance skill centers by encouraging industry-post-secondary collaborations through competitive planning grants that can be used to tap state and federal funding.

An examination of successful industry clusters suggests that workforce development activities are perhaps the most valuable shared service beyond networking and information sharing. A valuable "carrot" for advancing industry cluster activities into more effective workforce development efforts is to encourage the creation of skill centers at post-secondary institutions in targeted occupational areas addressing the needs of identified industry clusters. There may be opportunities for a skill center to serve more than one industry cluster, such as in the case of business and financial operation occupations that can be of value to business support services, strategic office centers, and business consulting services. An example of an advanced skill center is Anne Arundel Community College's efforts in partnership with Baltimore Washington International Airport (BWI) and the Port of Baltimore to develop a Transportation Logistics and Cargo Security (TLC) Homeland Security workforce training program to provide talent in the transportation security industry, for which over 300 students have enrolled since 2008.

The goal is not for the county to fund these advanced skilled centers, but to support the planning activities and grantsmanship needed to tap into state and federal funding. Particularly at the federal level, there are skill collaboration grants that can be accessed from numerous federal agencies, including the U.S. Department of Labor, National Science Foundation, and U.S. Department of Education, among others. At the state level, a more direct route would be to seek administration and/or General Assembly support for this effort.

A competitive grant process would be undertaken for awarding these planning grants, which would require a consortium of at least five participating industry members and a post-secondary institution.

Resources Required: \$150,000 for up to three grants each year of \$50,000 each.

Time Frame: Near-term—implement in next fiscal year.

Action 2c: Create a Prince George’s County Technology Transfer Center, which promotes commercialization relationships and entrepreneurial development between industry and research drivers in the county.

The focus of the Prince George’s County Technology Transfer Center would be to promote commercialization relationships and entrepreneurial development between industry and research drivers in the county, particularly targeting UMCP and national labs in the county. This effort would be modeled after the highly successful CONNECT program in San Diego. CONNECT was created 25 years ago as a partnership of the City of San Diego’s Economic Development Corporation, the University of California at San Diego and the private sector. Its mission was to stimulate the commercialization of science and technology discoveries from local research institutions through education, mentoring and access to capital. Since 1985, CONNECT has assisted in the formation and development of more than 2,000 companies and is widely regarded as one of the most successful regional programs linking investors and entrepreneurs with the resources they need for commercialization.¹⁵

Among the services to be offered would be:

- Showcase Conferences—Two to four per year, in which the county’s firms and entrepreneurs would be featured along with research drivers.
- Entrepreneur Boot Camp—One-day and advanced four-day training, done in conjunction with the National Collegiate Inventors and Innovators Alliance (NCIIA) or the University of Maryland’s Dingman Center for Entrepreneurship.
- Entrepreneurial coaching in focused platforms in which serial entrepreneurs, venture investors and professional service providers would be tapped to help emerging entrepreneurs with preparing an investor pitch.
- Seed and marketing grants to enable the county’s entrepreneurs and emerging companies to take the next steps towards advancing their companies and/or applying for Small Business Innovation Research and Small Business Technology Transfer awards (SBIR/STTR). The SBIR/STTR program is an effort under which a number of federal agencies allocate a portion of their extramural R&D budgets for small businesses. The program is an excellent source of very early-stage capital.

It is recommended that the Prince George’s County Technology Transfer Center be undertaken in partnership with UMCP. It is recommended that the center be staffed by the Maryland Technology Enterprise Institute (Mtech), which houses UMCP’s innovation efforts. The Technology Transfer Center would also benefit from the proposed industry cluster networking activities and would also be a value-added initiative to the industry cluster networks.

Resources Required: It is proposed that the county fund this effort at an annual level of \$300,000 per year to be matched by UMCP and other national labs.

Time Frame: Long-term—implement in next two to five years.

¹⁵ www.connect.org/about, accessed 02/07/2011.

Action 2d: Leverage the strengths of the University of Maryland-College Park (UMCP) for existing and emerging companies in Prince George’s County through the use of faculty-student teams.

Another direct way to link firms in the county’s primary industry clusters with UMCP, while also connecting to its students, is to provide matching funds for projects that would involve a team of students conducting work for a private company during the school year or during a break. The student teams would be supported by faculty mentors.

The county, in partnership with UMCP (and could be extended to other post-secondary institutions in the county), would hold a competition in which businesses would set out projects that address a company’s needs within defined areas of technology strengths at UMCP. In consultation with faculty at UMCP, projects would be selected that have technical merit and also potential impact on growing the business in Prince George’s County.

Resources Required: It is proposed that Prince George’s County fund this effort at an annual level of \$250,000 per year or \$25,000 per project to be matched by industry sponsors of projects.

Time Frame: Long-term—implement in next two to five years.

Action 2e: Stay abreast of emerging cluster opportunities by monitoring industry trends for Prince George’s County and the region.

Given the pace of economic change in today’s global knowledge-based economy, it is critical that Prince George’s County keep a close eye on industry trends to see emerging areas of cluster development opportunity. In recent years, the emergence of the internet, digital media, and cleantech are all examples of fast moving industry developments that were hard to predict solely based on past trends and studies.

To stay abreast of emerging cluster developments requires continued monitoring of industry trends data using the quantitative analysis approaches set out in this study. It is suggested that every two to three years, M-NCPPC update the industry cluster review to see if there are emerging clusters in the county. If emerging clusters are taking hold, then it is important for the key economic and workforce development agencies to reach out to companies in those clusters to learn about their specific locational needs, workforce requirements, and how best the county can promote their growth and development.

Resources Required: No new resources required.

Time Frame: Long-term—implement in next two to five years.

Strategic Priority 3: Advance career and technical education at the K-12 level in high skilled areas.

An important ingredient in ensuring that high school graduates are focused on pursuing specific career paths is to incorporate career technical education (CTE) into the K-12 curriculum. As the National Governor’s Association Center for Best Practices points out: “Despite CTE’s past reputation as a less-demanding track, research proves that career technical education engages and motivates students by offering them real-world learning opportunities, leading to lower dropout rates and greater earnings for high school graduates. When CTE courses also incorporate more academic rigor, research shows that student achievement significantly increases.”¹⁶ As discussed above, the county has a substantial number of students enrolled in CTE, but most of these students are enrolled in the business management, marketing and finance area. The county needs to encourage greater CTE enrollment in those occupation

¹⁶ “Retooling Career Technical Education,” Issue Brief, NGA Center for Best Practices, June 11, 2007.

areas in which there are high workforce demands. These include health, biosciences, and information technology. In addition, a CTE program in construction fields, including skilled positions such as plumbers and electricians, is suggested by focus group participants.

Action 3a: Advance an integrated Career and Technical Education curriculum which links Science, Technology, Engineering, and Mathematics (STEM) education with problem-solving, team building, and experiential learning activities in defined areas of technology and industry.

With the 2006 changes in the federal Carl D. Perkins Career and Technical Education Improvement Act, which provides federal funding for career technical education (CTE) to states for high school programs, the county has an unprecedented opportunity to connect CTE efforts with broader school reform. For the first time, federal legislation requires that career-oriented courses teach essential academic skills, while also requiring greater collaboration between high schools and postsecondary education and an increased focus on the needs of business and industry in identifying specific career clusters for CTE to emphasize.

One way to accomplish this is to create more enriched CTE courses to build off of the basic courses in STEM (such as biology, math and other sciences) and demonstrate their relevancy to students, linking to mastering critical thinking, problem-solving and experiential learning. This type of effort would involve combining experiential learning together with CTE courses and offering a team-building challenge in which student teams, along with their teachers, interact with each other and with business mentors from around the county, along with college student mentors from local colleges.

An example of this is Connecticut Career Choices (CCC), an initiative of the Connecticut Office for Workforce Competitiveness to engage pre-kindergarten through post-secondary education students in technology-related career development. Since its inception, CCC has accomplished the following:

- Core curriculum developed and implemented, including E-Commerce, Biotech R&D, Foundations in Health, Digital Media and Film Making, Innovation (IT) Research & Development, and Science Research Seminar.
- Fifty high schools offering one or more CCC courses involving nearly 6,000 students and 125 teachers.
- Almost 100 experiential learning activities reaching over 400 students and 130 student teams at the HS Innovation Challenge.
- Providing on-line content and tools over the Connecticut Education Network.

Most notably, in July of 2007, Education Connection—CCC curriculum and education delivery partner—was successful in winning a prestigious three-year grant from the National Science Foundation (NSF) for the “Connecticut Pathways to Innovation (CPI) Project.” The CPI project will enable Education Connection to articulate CCC courses into post-secondary education programs in partnership with Connecticut’s College of Technology. The project will place an emphasis on serving underserved and underrepresented students and will focus on equipping students with skill sets to enter the workforce of our 21st century knowledge economy. This new NSF grant will complement and augment CCC activities and enable it to spur the focus on talent pipeline development in a more concrete manner.

To pursue a similar course of action, Prince George’s County would need resources to identify and utilize existing curriculum, such as from Connecticut Career Choices, plus provide the teacher training, classroom equipment, web portal and web-based tools, and experiential learning opportunities.

Resources Required: It is proposed that Prince George’s County fund this effort at an annual level of \$300,000.

Time Frame: Long-term—implement in next two to five years.

Action 3b: Promote Career Academies as a model for educational reform.

Another way to advance career technical education is to establish more high school career academies. According to the Manpower Development Research Corporation, which has been monitoring the growth and success of career academies, they were first developed some 35 years ago with the aim of restructuring large high schools into small learning communities and creating pathways between high school and further education and the workplace. Since then, the career academy approach has taken root in an estimated 2,500 high schools across the country. The proliferation of career academies, along with their continuing relevance to high school reform policy initiatives currently unfolding at the federal, state, and local levels, has fueled the need for reliable evidence about how the approach affects high school performance and the transition to further education and careers.

Operating as schools within schools and typically enrolling 30–60 students per grade, career academies are organized around such themes as health, business and finance, computer technology, and the like. Academy students take classes together, remain with the same group of teachers over time, follow a curriculum that includes both academic and career-oriented courses, and participate in work internships and other career-related experiences outside the classroom. Over time, improving the rigor of academic and career-related curricula has become an increasingly prominent part of the career academies agenda.

The Manpower Development Research Corporation has been rigorously evaluating career academies across the nation since 1993. They have found that:

- Career academies produce sustained earnings gains that averaged 11 percent more per year for academy group members compared to non-academy members.
- Career academies serve as viable pathways to postsecondary education, in line with other types of efforts.

In Prince George's County, there is one career academy in biomedical sciences at Bladensburg High School, with total enrollment of approximately 200. Expanding the number and range of career academies would be a valuable effort on the part of the Prince George's County Public Schools, particularly to include information technology as well as business/management.

Resources Required: No new funding required. Redeploy existing funding within the Prince George's County Public Schools.

Time Frame: Long-term—implement in next two to five years.

Strategic Priority 4: Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.

The analysis of labor demand points out that many lower skilled occupations will continue to be in demand in the future. This includes occupations in office and administrative support, construction, building maintenance, installation, maintenance and repair of equipment, transportation and logistics, and health care support. However, other than in health care support, the level of existing training opportunities for these occupations is minimal in the county.

At the same time, the county has a large and growing base of its workforce that is lacking in higher education and English language skills, who are in need of training to take on the more technical levels within these lower skill level occupations. The driver of this population is the large international migration into Prince George's County of younger, less educated immigrants.

Action 4a: Establish a Jobs Funnel initiative in Prince George's County for entry-level jobs and career development targeted to lower skilled immigrant groups in the county.

Addressing the needs of lower skilled, young residents of Prince George's County for career development is critical. An important initiative in Hartford, Connecticut that has shown signs of success is the Jobs Funnel. It helps those who have failed through their youth to get back on their feet as adults.

The Jobs Funnel is an outreach/recruitment, case management, pre-employment preparation, job training, and placement service for Hartford and area residents seeking employment. The idea of the funnel stems from the process individuals go through—funneling into the system to gain specific work competencies and trade-related certifications. They then funnel out to embark on a self-sustaining and rewarding career journey. Any Hartford resident above the age of 18 has the opportunity to participate. So far, the Hartford Jobs Funnel has helped over 2,000 individuals learn the skills required to embark on their career journey.

Currently the Jobs Funnel in Hartford includes:

- **Construction Jobs:** There are several training components conducted by Co-Opportunity/YouthBuild Hartford, Connecticut Light & Power and the Permanent Commission on the Status of Women/Non-traditional Employment for Women Program. Trades include bricklayers, carpenters, drywall finishers, electricians, operating engineers, painters, plumbers and laborers, among other trades.
- **Customer Service/Hospitality:** Many opportunities have been created as a result of the new development projects in Hartford such as the Connecticut Convention Center, Marriott Hotel, and Hartford 21.

It is proposed that Prince George's County establish its own Jobs Funnel, particularly with major projects ongoing in the county.

Resources Required: Funding of up to \$250,000 is required.

Time Frame: Long-term—implement in next two to five years.

Action 4b: Assess the reach and expansion opportunities for adult literacy and basic skills development.

Adult literacy and basic skills development is of importance to many lower skilled workers, including the need for training in business ethics, manners and how to dress. Employers in Prince George's County expressed concerns that young adults are missing these key basic work skills. There is also growing demands from the rising number of immigrant groups in Prince George's County, whose native language is not English, to also combine these literacy and basic skills development in the context of English as a second language (ESOL) programs. A review of current Adult Education programs suggests that there are limited avenues available for adult education in the county with Prince George's Community College, offering more GED oriented programming, and the Literacy Council of Prince George's County working through tutors to reach approximately 1,400 adults in need of literacy training, including those whose native language is not English.

It is recommended that an assessment be undertaken to assess how well adults in need are being served and the level of unmet demand. Innovative approaches to service delivery, including through employers, use of volunteers, and improved linkages to career pathways should be considered.

Resources Required: Funding of up to \$100,000.

Time Frame: Near-term—implement in the next fiscal year.

Strategic Priority 5: Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.

As discussed earlier, the county fell well short in generating industry demand for workers during the last full business cycle period of 2001 to 2007. This weak demand for labor is also found across many of the county's well-established industry clusters. So, it is critical that the county address its overall demand for labor by providing funding and support for more pro-active economic development activities. The good news is that based on interviews with industry executives the reality of doing business in Prince George's County is more positive than the recent economic trends would indicate.

This positive view of the county is also in line with the findings from the analysis of economic readiness indicators, in which the county rates well on leasing costs for space, access to mass transit, and competitive energy costs. Conversely, the following pose concerns for the county: high rates of business failures, low rates of business formation (including businesses formed by women and minorities), and business tax burdens that are insufficiently competitive to attract or retain existing businesses that are able to conveniently relocate to adjacent counties that offer lower business taxes.

Action 5a: Address business and overall image of Prince George's County.

Improving its image is an integral part of marketing the county for economic development. Marketing alone, of course, is not sufficient to turn around a business image, but this study suggests that for existing employers Prince George's County is a well-regarded place to do business and that is a key element for changing the views of Prince George's County. In addition, the county is home to many leading institutions, such as the University of Maryland, NASA Goddard, Beltsville Agricultural Research Center, and the Census Bureau, which need to be more closely associated with the county.

It is also important to work on the issues that create the poor business image that Prince George's County faces. Efforts such as Envision Prince George's that bring together broad community stakeholders to develop and implement a clear action agenda to improve the county's quality of life and economy are essential.

Modern economic development marketing involves a broad suite of goals and objectives—it needs to:

- Build brand image and awareness
- Provide specific messages and outreach tied to the specific mix of location factors appealing to individual target industry sectors—i.e., customizing the county's value proposition for specific business sectors
- Identify and target specific companies or business groups that will enhance existing clusters or fill identified gaps in a cluster supply chain
- Leverage networks, existing business relationships and “ambassadors” to gain access to senior decision makers in target industries
- Target recruitment of companies in key industry clusters
- Selectively use seminars, trade shows, and other events for sustaining visibility and outreach to targeted groups.

Best practices in marketing recognize that changing an image, creating a brand, and organizing for outreach begins by establishing an internal marketing effort to complement external efforts. Internal marketing includes creating active news stories on companies thriving in the county, and creating committed industry executives to serve as ambassadors.

External marketing needs to go beyond simply serving site consultants and call for advancing more “alliance marketing” with universities and existing businesses to recruit new business expansion. For

Prince George's County to become more competitive in the local region, attracting new business expansion is a primary objective. However, it may be that in order to change the "local" image, a wider outreach effort that targets international companies seeking a U.S. location is also needed. The county should advertise its assets by promoting its prestigious institutions including UMCP, NASA Goddard, BARC, and the U.S. Census Bureau.

Resources Required: A \$500,000 Economic Development Fund targeted to marketing needs to be established for the Prince George's County Economic Development Corporation (PGCEDC) that should be replenished based on a portion of the county tax revenues generated from new business expansion resulting from PGCEDC activities. This novel approach is currently being used by the Kansas Biosciences Authority.

Time Frame: Near-term—implement in next fiscal year.

Action 5b: Create more incentives and direct financing programs for emerging growth companies.

Prince George's County needs to be more aggressive and pro-active than other counties in the region given its lagging growth rates from 2001 to 2007. Business as usual is not a recipe for turning around the slow growth of the past decade. Economic development incentives and direct financing programs can have a very critical role in establishing the fact that the county is pro-business growth, and are needed in light of the fact that the county is not typically a location of first choice in the region.

Right now Prince George's County is out of step with surrounding jurisdictions in having available direct financing for businesses. Examples of other county finance programs include:

- Anne Arundel County provides new and expanding businesses with access to loans of up to \$300,000 through the Arundel Business Loan (ABL) program.
- Baltimore County has several direct financing programs. The Advanced Technology Loan Fund provides loans to small technology and/or defense-related businesses and new and expanding businesses can take advantage of the Business Growth Loans, which provides loans of up to \$250,000. Their Small Business Loan Partnership offers real estate and fixed-asset loans through partnerships between Baltimore County and area financial institutions.
- Montgomery County's Economic Development Fund Grant/Loan Program provides funding for private employers who retain and create jobs, particularly high technology and manufacturing jobs. This loan assistance ranges from \$5,000 to \$100,000, with larger companies having access to larger grants and loans.
- Howard County has the Jim Rouse Entrepreneurial Fund that provides loans of up to \$100,000 along with mentoring and business planning support to small or start up businesses.

It is recommended that Prince George's County create a revolving loan financing program that could provide funding of up to \$250,000 to companies in primary industries that create high-quality jobs. This funding could be used for working capital as well as equipment. Similar to the Economic Development Fund for marketing, the revolving loan fund should be replenished not only from repayments, but from a portion of higher county taxes generated from companies receiving loan payments.

Resources Required: \$5 million initial investment in a revolving loan fund.

Time Frame: Near-term—implement in next fiscal year.

A summary of the recommended action plan, encompassing 13 actions, is shown in Table 7.

A Study of Occupational Shifts and Workforce Characteristics

Table 7: Summary of Strategies and Actions

Strategic Priority	Action	Time Frame¹⁷	Resources Required from Local, State and Federal Sources
1. Strengthen the connections across Prince George's County's high skilled talent generated by post secondary institutions and employers in the county's primary industries.	Action 1a: Advance internship and experiential learning programs in Prince George's County between students in high skilled degree fields in science, engineering, business and technology fields from across post-secondary institutions in the county.	Near-term	Up to \$250,000 annually
	Action 1b: Create a highly skilled talent bank in Prince George's County of both residents who commute and new and recent graduates to connect with employers in the county.	Immediate	Up to \$250,000 annually
2. Promote industry cluster development with a strong emphasis on talent and technology core competencies to targeted industry clusters in the county.	Action 2a: Convene industry cluster interest groups to facilitate networking and shared services.	Immediate	Less than \$200,000 annually
	Action 2b: Advance skill centers by encouraging industry-post-secondary collaborations through competitive planning grants that can be used to tap state and federal funding.	Near-term	\$150,000 annually for up to three planning grants each year
	Action 2c: Create a Prince George's County Technology Transfer Center, which promotes commercialization relationships and entrepreneurial development between industry and research drivers in the county.	Long-term	\$300,000 annually
	Action 2d: Leverage the core technology competency strengths of the University of Maryland-College Park for existing and emerging companies in Prince George's County through the use of faculty-student teams.	Long-term	\$250,000 annually or \$25,000 of matching funds for 10 projects each year
	Action 2e: Stay abreast of emerging cluster opportunities by monitoring industry trends for Prince George's County and the region.	Long-term	No new resources
3. Advance career and technical education at the K-12 level in high skilled areas.	Action 3a: Advance an integrated career and technical education curriculum which links science, technology, engineering, and mathematics (STEM) education with problem-solving, team building, and experiential learning activities in defined areas of technology and industry.	Long-term	\$300,000 annually
	Action 3b: Promote Career Academies as a model for educational reform.	Long-term	No new resources
4. Enrich the skill sets of incumbent/unemployed workers to address key skill shortages and provide workers with new career options.	Action 4a: Establish a Jobs Funnel initiative in Prince George's County for entry-level jobs and career development targeted to lower skilled immigrant groups in the county.	Long-term	\$250,000
	Action 4b: Assess the reach and expansion opportunities for adult literacy and basic skills development.	Near-term	\$100,000 one time
5. Ramp up labor demand through expanded economic development marketing and incentives targeted to key primary industry cluster growth.	Action 5a: Address the business and overall image of Prince George's County.	Near-term	\$500,000
	Action 5b: Create more incentives and direct financing programs for emerging growth companies.	Near-term	\$5 million revolving loan fund

¹⁷ Immediate refers to within the current fiscal year; near-term is generally in the next fiscal year; long-term is 2–5 years out. Near- to long-term reflects a more complex action that can be partially implemented in the near-term, but will require a longer time period to be fully implemented.

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