

Target Industry Study County of Prince William, Virginia

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Prepared for:

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About Camoin Associates

Camoin Associates has provided economic development consulting services to municipalities, economic development agencies, and private enterprises since 1999. Through the services offered, Camoin Associates has had the opportunity to serve EDOs and local and state governments from Maine to California; corporations and organizations that include Lowes Home Improvement, FedEx, Volvo (Nova Bus) and the New York Islanders; as well as private developers proposing projects in excess of \$6 billion. Our reputation for detailed, place-specific, and accurate analysis has led to projects in 31 states and garnered attention from national media outlets including *Marketplace* (NPR), *Forbes* magazine, *The New York Times* and *The Wall Street Journal*. Additionally, our marketing strategies have helped our clients gain both national and local media coverage for their projects in order to build public support and leverage additional funding. We are based in Saratoga Springs, NY, with regional offices in Portland, ME; Boston, MA; Richmond, VA and Brattleboro, VT. To learn more about our experience and projects in all of our service lines, please visit our website at www.camoinassociates.com. You can also find us on Twitter [@camoinassociate](https://twitter.com/camoinassociate) and on [Facebook](https://www.facebook.com/camoinassociates).

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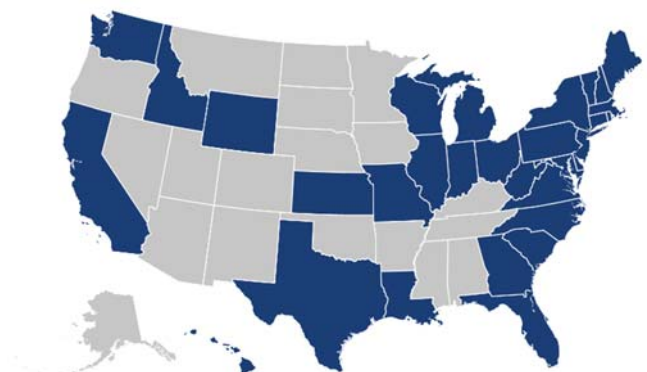


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Executive Summary

Background

Located within the Washington DC Metro area, rapidly growing Prince William County (the “County”) is home to nearly half million highly educated people with higher than average median household income. With recent economic development success, the County has seen a boom in high-tech, high-wage jobs with opportunities remaining for additional development. Overall, the County Department of Economic Development (DED) has done considerable work to attract economic activity in all sectors with a focus on six targeted sectors identified by the County as having competitive strengths in the region.

To further promote growth, and prioritize time and resources, Prince William County commissioned Camoin Associates to conduct an in-depth Target Industry Study. The purpose of the study was to reaffirm, or suggest changes to, its previously identified industry targets, as well as assess the workforce demand and needs characteristics within those targets. Simultaneously with this work, the County Planning Department is undergoing an inventory and assessment of nine (9) small area geographies. Based on findings to date of that planning work, it is also the intention of this study to ascertain which of these areas can best accommodate the County’s targeted clusters and what possible land use modifications and/or investments may be needed to support, attract or retain investment, create job opportunities for residents, and build a sustainable tax base.

More specifically, this study focuses on the below topic areas intended to answer the following questions.

Industry Targets – Are those previously identified industry targets still relevant? Within those targets, which possess the greatest opportunity for overall public benefit in the form of jobs and tax revenue and/or which subsectors is Prince William most competitive?

Workforce – What are the specific workforce requirements of each targeted sector? How does this compare to Prince William County’s available workforce and talent pipeline? What can the Department of Economic Development (“Department or DED”) do to help close any gaps?

Small Area Geographies – Which of the County’s 9 small areas are conducive to supporting each of the target clusters? What are the assets that make them ideal locations for cluster investment and what barriers (land use, infrastructure, etc.) can be addressed to make them more conducive to supporting the County’s targets?

Networks – What companies, institutions, and organizations are in place to supply and support innovation and success for the selected target sectors? Are there gaps that need to be addressed?

Product – Does Prince William County have the land and buildings readily available to meet the requirements of each of the target industries? How does this compare to what is available elsewhere in the DC market? What can the Department do to enhance offerings?

Marketing – How “visible” is Prince William County to each targeted industry sector, site selectors, real estate developers and brokers, and domestic and foreign investors? How defined is the Prince William brand and how well is it understood by outsiders? How can the County grow foreign direct investment inflows and export volume?

Work Completed

To analyze and answer the questions listed above, Camoin Associates completed a significant amount of economic and workforce data analysis, reviewed prior research, conducted two rounds of stakeholder interviews, facilitated two developer/real estate group discussions, completed a tour of the County and its designated Small Area Plan geographies, analyzed real estate market data, and completed a reverse site selection benchmarking analysis. All of

this work led to the development of targeted sector profiles, sell sheets and specific recommendations related to emerging opportunities within each sector and in the context of the county's varying geographies that would lead to economic growth throughout the county.

General Findings

A summary of the more general relevant research findings is highlighted below:

- Overall, Prince William is a wealthy and fast-growing county with a highly educated workforce, many of which are commuting to jobs in the Metro DC region. In fact, the County's total population grew 10% between 2007 and 2017 to 448,754 residents.
- Simultaneously, the number of jobs in Prince William County grew by nearly 17,400 between 2012 and 2017 and is projected to continue growing by another 15,850 jobs by 2022. In addition, 76% (as of 2015) of the county's 185,702 resident workers (Prince County residents that work anywhere) commuted to other regions for work. These demographic and labor growth patterns, along with the County's proximity to surrounding labor markets, provides significant advantages for businesses and industries in need of a robust high-, middle- and lower-skilled labor pipeline.
- According to the business survey, while talent recruitment is the most critical challenge of the overall business environment in the county, talent retention is not.
- The county has varying economic development needs between its eastern and western regions, but also within sub-geographies. Due to its historic development pattern, eastern portions of the county have limited sizeable parcels and thus fewer opportunities to accommodate and capitalize on target sector opportunities. There are, however, economic development tools that can begin to address these issues.
- An abundant supply of vacant office space in Northern VA has resulted in limited new office space investment and thus has hindered the ability to accommodate businesses within Prince William County's industry targets.
- Increased demand for industrial property needed to accommodate data centers is driving up property costs and land availability for other County target businesses including those in manufacturing and distribution. These market forces are likely pushing manufacturers and logistics companies to other lower cost locations.
- The County's approval process for commercial-only development appears reasonable and consistent with competing jurisdictions in the region. However, according to developers, longer residential approval processes and the cost of proffers has led to negative perceptions of Prince William County relative to its neighbors.
- With the County's continued leadership and guidance, Innovation Park will support an industry base of the future. This model has worked elsewhere in the metro DC region and around the country but will take time.
- Critical to George Mason University's commitment to pursue its Sci-tech Campus expansion plans will be the County's commitment to ensure that appropriate land use policies are in place to support the Innovation Park town center concept. The live, go to school/work, and play amenities that are envisioned will attract a needed workforce, while also fostering the collaboration and innovation being designed in other similar developments around the Country.
- Site selectors noted the following observations about Prince William County, including that it is:
 - a good destination for Information Communications Technology-related activity, such as data centers, cyber security, and software development, as well as Health and Life Sciences (such as biotech and medical research);
 - a lower cost option when compared to its competitor jurisdictions in the region;
 - less poised for manufacturing-related projects due to its mostly white-collar labor pool, and;
 - offers some wage savings advantages, but only when compared to its competitor jurisdictions in the region - this proposition falls short when compared on a national scale.

- While marketing to site selectors is necessary, roughly 10% of site selection projects come through site selectors at the county level. The other 90% are carried out directly by companies themselves. For this reason, the County's efforts should be focused on reaching individual company decision-makers, building brand awareness around sub-segments and focusing on value chain gaps that the County can fill.
- The Department of Economic Development's website provides significant information about the County's workforce, available sites, incentives and targeted industries. Continued investment in digital marketing efforts will be needed to boost the County's profile both regionally and nationally.

Target Industry Findings

The six clusters included in this analysis include:

- | | |
|-----------------------------------|--|
| 1. Advanced Manufacturing | 4. Information Communications Technology (ICT) |
| 2. Federal Government Contracting | 5. Life Sciences |
| 3. Healthcare | 6. Logistics |

- The County's six targeted clusters accounted for over 30,500 jobs within Prince William County in 2017, or 20% of all jobs in the county. The largest cluster by far is Healthcare with nearly 11,000 jobs. The six clusters have shown historical growth over the past five years adding over 4,800 jobs, an increase of 19% overall.
- The largest job gains came from the Healthcare Cluster adding 2,400 jobs and Federal Government Contracting Cluster adding 1,400 jobs. This trend of growth is projected to continue for all clusters combined and is projected to add an additional 4,800 jobs over the next five years (16% increase).
- With total average earnings per job of \$55,929 for all industries, the County's targeted clusters offer the following high wage rates and greater opportunity for increased resident prosperity: Advanced Manufacturing-\$90,991, Federal Government-\$90,644, Healthcare-\$57,241, ICT-\$108,362, Life Sciences-\$94,308, and Logistics-\$65,685.
- Prince William County has a diverse economy where strengths are not highly concentrated in one or a few clusters. While the County does not rank highly relative to its primary county benchmark competitors in the six broader targets, site selectors and companies are rarely concerned with jurisdictional boundaries at the county level. Furthermore, there are emerging strengths within the target subsectors such as Proteomics, personalized medicine, compliance in life sciences, data centers, cyber, gaming, federal contracting in IT and last mile logistics in which the county is competing well.
- Although **Advanced Manufacturing** continues to become more highly automated and networked, job growth is expected within the county. However, a lack of sites and the cost of property zoned for manufacturing may force existing and new businesses to locate outside the county.
- Close proximity to large regional contractors, ICT infrastructure, strength as a DC regional cluster, as well as the presence of Quantico and Fort Belvoir Army installations support Prince William County as a competitive location for **Federal Government Contracting**. However, limited real estate (existing buildings or developable land), competition with nearby counties and GSA policy that directs new facilities to metro stops all pose challenges to the cluster.
- Through our findings, as well as support from McKinsey we can conclude that the **Information and Communications Technology Cluster (ICT)**, though small within the county, is a strong and accessible cluster due to the overall regional success of the industry. This cluster is integral to Life Sciences cluster, Healthcare cluster, an emerging serious gaming subsector, cybersecurity and Federal Government Contracting, as well as supporting a high level of public services for residents and businesses. Limitations to its future growth include available sites and emerging resident groups that oppose the installation of additional power transmission power lines.
- Overall growth of the **Healthcare** cluster and synergies with IT and Life Sciences are the two strength opportunities related to a strong health care system. It is also critical to have a good health care system as

many companies and their employees consider that as an indicator of quality of life. A lack of workforce to meet the needs of the growing industry will continue to be a major challenge impacting the county's health care system.

- A diverse region with international professionals, proximity to a large metropolitan area, the emerging GMU R&D and Prince William Innovation Park and Accelerator, highly educated STEM workforce, and transportation access to facilitate connections with international firms and research will help to support a growing **Life Sciences** sector.
- Proximity to Dulles International Airport, access to major highways and less congestion compared to elsewhere in the region, proximity to major markets, overall industry growth potential are all positive attributes and trends that are driving strength of the **Logistics Cluster** in Prince William County. However, access to a more affordable labor pool and land in other regions like the less congested I-81 corridor will require DED to focus on "last mile" logistics investment opportunities.

Recommendations Overview

The final strategy, provided in the form of an Action Matrix, identifies recommendations specific to each of the six targeted industries including Advanced Manufacturing, Federal Government Contracting, Healthcare, Information and Communications Technology, Life Sciences and Logistics. These recommendations are intended to strengthen the county's competitiveness in attracting and retaining investment in its targets.

Highlights of the recommendations include ways to bring about more synergies within and impact among the target sectors. They include, but are not limited to, the need to focus on advanced manufacturing that supports three of the other identified target sectors, and similar synergies for federal contractors that specialize in two of the County's targeted sectors to give more emphasis on cybersecurity, network development and administration, and security compliance. Further recommendations are provided in the Healthcare and Life Sciences arena for DED to assume a leading collaborative role, together with higher education leaders, to better leverage research and development activity and address talent availability that will spur more employment-based opportunities. The strategy also addresses the importance of prioritizing activities within the ICT sector to build on data center, serious gaming, and cybersecurity competitive advantages.

In addition to target industry initiatives, the strategy also offers other overarching recommendations that address issues important to supporting target sector investment including:

- Site selector outreach and tools, as well as capacity for an expanded business retention and expansion efforts;
- Increasing capacity to address real estate development limitations, land use regulations and incentives needed to remove obstacles for investment in certain geographies of the county, namely its more developed eastern region, Route 1/I-95 corridor and small-area planning locations;
- Specific investments or zoning modifications needed in the Small Area Plan geographies that will allow them to become more attractive locations for target industry investment.

Lastly, the research conducted for this study culminated in the development of "sell sheets" that summarize each of the six industry targets and provides an overview of the county's competitive offering for each.

The following provides the major findings of the work with all supporting documentation included as attachments.

Economic Base Analysis

As one of the first steps of a more in-depth industry cluster analysis and economic development strategy, Camoin Associates prepared an Economic Base Analysis for Prince William County. This analysis profiles the county alongside the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area (MSA)¹ as well as the State of Virginia across a variety of sociodemographic and economic factors such as population growth, population characteristics, job growth, and commuter trends. The following is a brief overview of the key findings from this analysis. Note that this analysis does not focus on the selected targeted industries, but rather looks at the economy as a whole.

Sociodemographic Profile

Prince William County's total population was 448,754 in 2017. This marks a growth of 18% in the 10 years from 2007, and the population is likely to continue to grow another 8.6% by 2022. This level of growth between 2007 and 2017 was higher than that of the rest of the Washington, DC MSA (which saw over 13% growth) and more than double that of the entire state (which saw 8.6% growth). The age distribution of Prince William County portrays a region predominantly made up of young families, with children younger than 14, and adults between the ages of 35 and 49 making up a comparatively higher portion of the total population when compared to the rest of the population. The available data supports Prince William County's reputation as a community for Washington, D.C. workers who are seeking affordable real estate to raise their families. Despite the 2016 median household income for residents being just below \$100,000 (roughly \$32,000 above the median of \$68,114 for the Commonwealth of Virginia), the average earnings per worker for jobs based in Prince William County is just above \$55,000. This is further evidence that the highest earners are most likely commuting outside the county and that there are households where there is more than one working adult.

The racial makeup of Prince William County is slightly more diverse than the Commonwealth and roughly as diverse as the MSA, with 57% of residents being non-white as classified by the Census. Notably, 24% of residents identify as Hispanic, which is more than 2.5 times greater than the whole of Virginia. Income distributions in Prince William County favor higher income ranges. Half of Prince William County residents make \$100,000 or more per year, which is substantial given the fact that 32% of Virginia's residents are in the same income range. At \$98,546, the median household income is nearly 6% higher than the Washington, DC MSA and nearly 52% higher than the Commonwealth of Virginia. Prince William County residents are more educated than most of the state, though education levels are not as high as in the Washington, D.C. MSA. Among the three geographies studied, Prince William has the second-highest portion of higher education degrees, with 42% of residents having a bachelor's degree or higher, compared to 53% in the Washington, D.C. MSA and 37% in Virginia.

¹ The MSA is defined by the United States Census Bureau.

Prince William County Key Facts



18%

Population Growth
(2007 – 2017)



\$98,546

2016 Median
Household Income



76%

Of Local Workers
Out-Commute



42%

Of Residents Have a
Bachelor's Degree



22%

Job Growth
(2007 – 2017)

As of 2015, 76% of the county's 185,702 resident workers (Prince County residents that work anywhere) commuted to other regions for work with the rest living and working within the County. Of the people who work in Prince William County, 58% live in the county.

Industry and Occupation Analysis

Between 2007 and 2017, total jobs in Prince William County grew by 22%, compared to 6% in the Washington, D.C. MSA and 3% in Virginia. At the 2-digit NAICS² level, multiple industries in Prince William County saw strong growth between 2007 and 2017, particularly Educational Services (NAICS 61), Health Care and Social Assistance (NAICS 62), and Accommodations and Food Services (NAICS 72), which grew by 58%, 50%, and 38% respectively. These industries are projected to continue their forward momentum into the future. Construction (NAICS 23) is the most concentrated industry in the county, with a location quotient (LQ) of 2.06. Other industries with LQs higher than 1.2 include Retail Trade (NAICS 42 – LQ 1.46); Arts, Entertainment, and Recreation (NAICS 71 – LQ 1.21); and Government (NAICS 90 – LQ 1.53). The Prince William County economy was strongly competitive between 2007 and 2017, adding 22,781 net jobs above the level of expected job growth (as measured by shift-share analysis). Across all jobs, average annual earnings totaled \$55,518, this is compared to \$86,212 in D.C. and \$65,130 for the Commonwealth. Much of Prince William's competitiveness in terms of jobs added was the result of industries such as Construction (NAICS 23), Retail Trade (NAICS 44), and Government (NAICS 90), which all grew significantly despite national industry-wide decline.

Based on the 4-digit industry data, it is evident that county employment is concentrated in consumer goods and services (including health services) along with government, military and education industries. However, there is also a concentration in computer, management, and professional/technical sectors. These typically provide high wages, support other key sectors, and generate wealth through exporting services outside the county. The county has very low concentration in sectors related to making and moving products (manufacturing, transportation, and warehousing).

Military Occupations (SOC 55-9999) are the most prominent category of occupations at the 6-digit level in the county and is four times more concentrated in Prince William County than in the rest of the United States due to the location of Fort Belvoir and Base Quantico in the county. Since 2007, the number of jobs in the Military industry (NAICS 9012 – Federal Government, Military) has grown by 36%, adding over 2,150 jobs.

Of the occupations that are projected to be most numerous in the county in 2027, seven require a bachelor's degree or greater while 11 require no formal educational credential at all. Many of 11 occupations that do not require formal educational credentials are the fastest-growing occupations in the county.

² The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy, according to the U.S. Census.

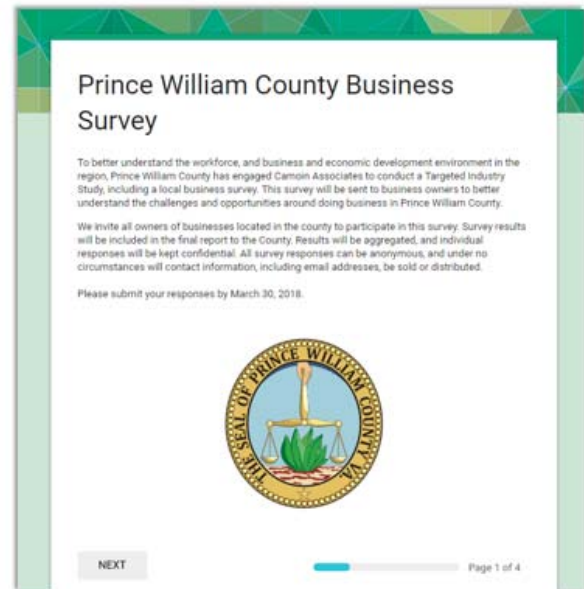
Business Survey

In addition to collecting quantitative data from our proprietary data sources, soliciting information directly from local businesses provides the revealing and helpful information and insights. Through a survey designed by Camoin, primary data was collected from entrepreneurs, businesses and commercial stakeholders within Prince William County. This survey was created through Google forms and was transmitted electronically to business owners in the county. The survey link was sent to Prince William County and the Chamber of Commerce which disseminated it to over 1,600 business people in the region. Over the course of six weeks, 87 total responses were received³.

The survey questions were designed to gain an understanding of the regional workforce as well as the current business and economic development environment, however limited response rate makes the findings inconclusive. Our objective was to gain more information around the following topics:

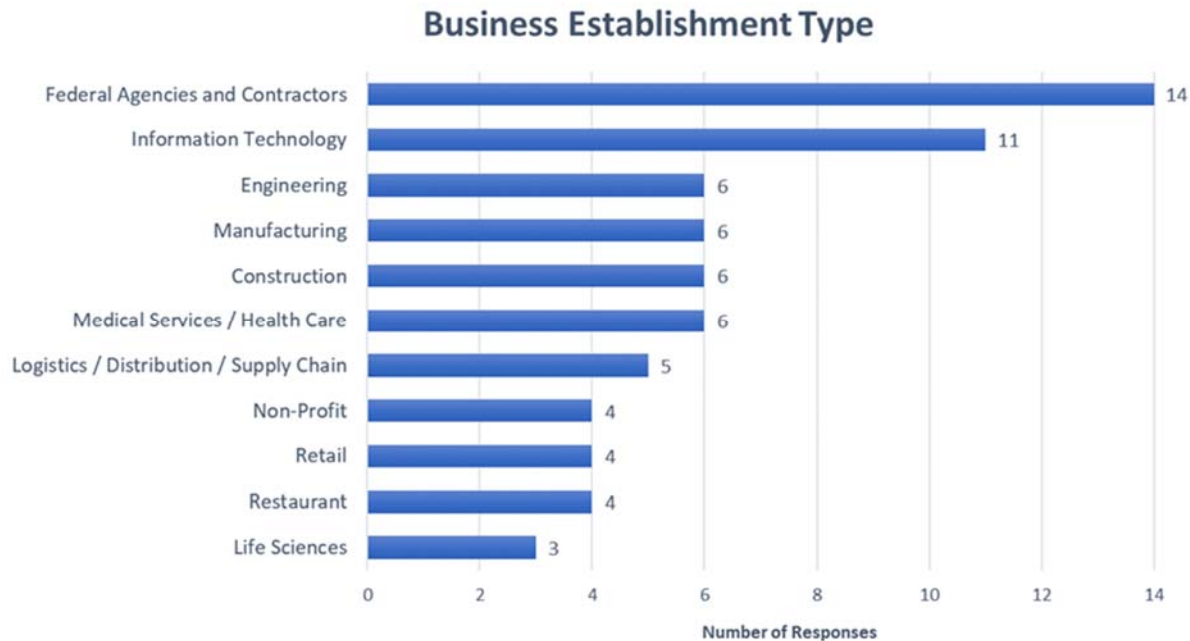
- Current employment figures as well as the anticipated number of new employees in the next 1 to 5 years
- Skills needs and skills gaps
- Education and training needs
- Training challenges
- Desired industry credentials

The following is a brief explanation of the key findings from the survey. Each question is analyzed in detail in Attachment B: Business Survey Analysis.



³ Note: The information gained from the survey was used to support the other research methods such as data collection, interviews, and market analysis and was not intended or expected to be statistically significant.

Key Business Survey Findings



- **Business Establishment Type:** The largest percentage of respondents, 16%, considered their business establishment type to be Federal Agencies and Contractors. The second most popular establishment type was Information Technology at 13% of respondents.
- **Age of Business:** The majority of respondents, 53%, noted their organization had been in business for 20+ years. Seventy-two percent (72%) of respondents noted their organization was at least 11 years old, this shows that of the businesses surveyed, the vast majority are *mature businesses*.
- **Location:** The largest percentage of respondents noted that their business was located in the ZIP code area 20110 (*Manassas*), at 28%; this is followed by an additional 23% noting their business is located in the ZIP code area 22192 (*Woodbridge*).
- **Number of Employees:** The majority of respondents at 51%, noted their organization employs *between 10-99 people*. Conversely, the least commonly chosen employee range was 500+ at 6% of respondents.
- **Average Employee Salaries:** The largest number of respondents, at 30%, note their employees earn \$72,000 or more. The second most popular annual salary range was \$48,000-\$71,999, at 28%. This indicates that the majority of respondents are paying employees near or above the county average (\$56,000).
- **Attracting New Employees:** Respondents find it *more* difficult to attract new employees, as opposed to retaining current employees.
- **Hiring in Next Five Years:** Forty-one respondents, or 47%, state that they will need to hire between 1-10 new employees between 2018-2023. The positions that are most expected to be needed include *Business Support Services / Administrative* (as noted by 45 respondents); followed by *Management* (as noted by 44 respondents). Respondents note that in general, hiring *Business Support Services / Administrative* positions is not difficult, however, hiring *Management* positions is somewhat to very difficult.

- **Hiring Challenges:** the most frequently faced hiring challenges as noted by respondents include a lack of applicants with technical skills, as well as a lack of applicants with soft skills; these rose to the top as the most frequently faced challenges.
- **Business Environment Challenges:** The most critical challenges of the overall business environment in Prince William County include: *talent recruitment* (noted by 39 respondents as being moderately challenging or critically challenging); followed by *government regulation* and *transportation infrastructure* (noted by 37 and 35 respondents, respectively, as being moderately challenging or critically challenging)

Real Estate Analysis

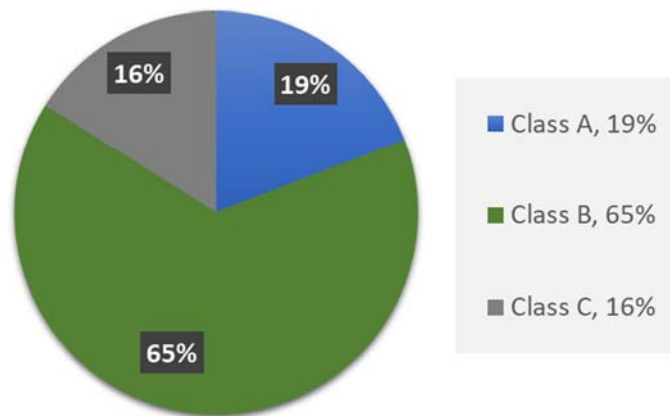
Industrial, Flex, and Office Space

According to Co-Star data provided by Prince William county, there are 36 available industrial building locations; there are also 36 available flex building locations; and 90 available office building locations. The 162 buildings that comprise the three building-types are outlined in more detail in the following sections.

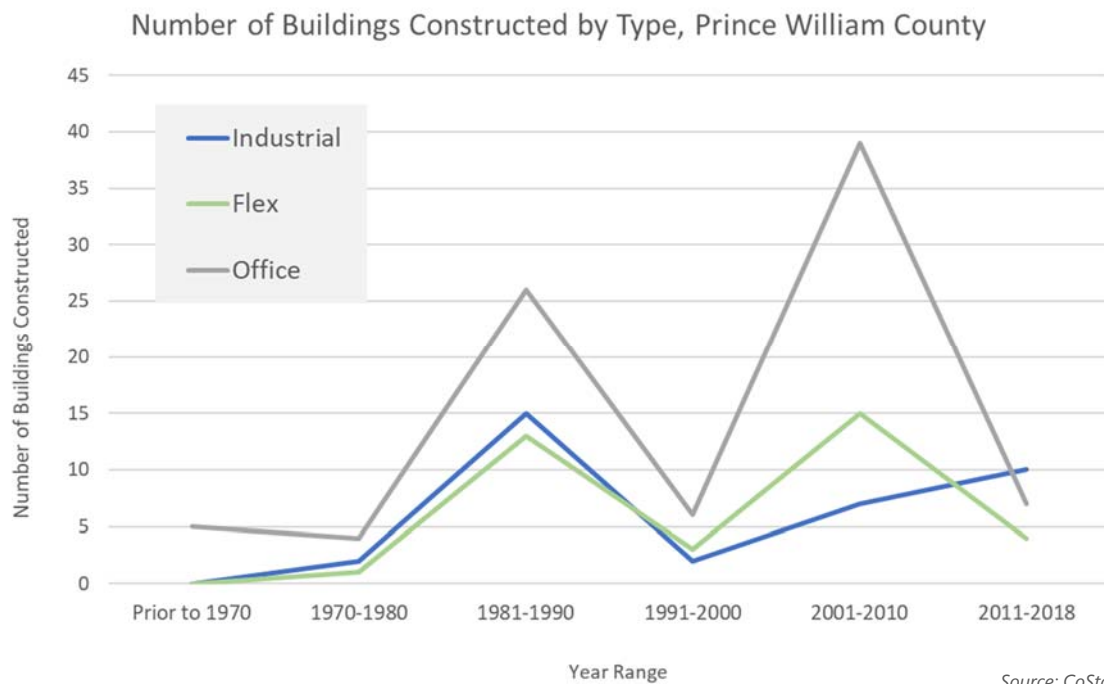
In total, 105 of the 162 available buildings (65%), are designated as Class B space. This is followed by an additional 31 buildings (19%) designated as Class A. The remaining 26 buildings (16%) are designated as Class C. Based on this breakdown, the data suggest that the majority of business space is in good to very good condition.

In all, construction of industrial, flex, and office buildings increased between 1981-1990, as well as between 2001-2010. During these two-time periods the highest number of buildings were constructed in all three types.

**Industrial, Flex, and Office Space by Class
Prince William County VA**



Source: CoStar



Real Estate Use Summary Prince William County				
Use Type	Industrial	Flex	Office	Total
Number of Building Locations	36	36	90	162
Buildings Under Construction	2	1	2	5
Designated as Class A (# and % of Total)	9 25%	6 17%	16 18%	31 19%
Designated as Class B (# and % of Total)	18 50%	27 75%	60 67%	105 65%
Designated as Class C (# and % of Total)	9 25%	3 8%	14 16%	26 16%
Direct Vacant Space (Sq. Ft.)*	881,078	248,196	490,304	1,619,578
Total Vacant Available Space (Sq. Ft.)**	784,368	198,987	469,270	1,452,625
Total Available Space (Sq. Ft.)***	1,134,717	484,309	714,717	2,333,743

Source: CoStar

*Direct vacant space is currently empty space, excluding any space that is currently unoccupied but available for sublet.

**Vacant Available Space is defined as space which is currently vacant and is currently being marketed as available space. Vacant space only speaks to the occupancy of a space without regard to whether there is a lease obligation tied to that space.

***Total available is defined as all of the space that is available for lease, regardless whether it is currently vacant, on the last day of each quarter.

For more information on terminology please see: CoStar Glossary: <http://www.costar.com/about/costar-glossary>

Development Challenges

Common to many counties and regions across the country today is the variation of economic barriers and opportunities that exist within a defined geography. As the global/macro economy and its industries have become more competitive and complex through technology advancements, labor and infrastructure requirements, so too have local economies. Within these economies exist a variety of factors that hinder or promote private investment. The built environment, available sites, allowable land uses, market forces, labor and infrastructure, along with the needs of residents and businesses within sub-areas of a local economy leads to differing economic development needs and opportunities. This condition can be more pronounced in a region that spans urban, suburban and rural landscapes, or one that has a strong tourism and second homeowner aspect.

The varying economic needs of these sub regions within a jurisdiction will often become part of the political discourse as leaders representing their constituents debate how to best allocate public investment in economic development to meet differing needs. This debate between one economic development approach verses another can paralyze or slow economic development efforts. In those cases, where different economic needs and opportunities exist within sub-geographies of the same jurisdiction, more tailored and targeted economic development solutions are required to create consensus and a thus more productive economic development environment.

The initial stakeholder interviews and subsequent county tour revealed that Prince William's economy varies significantly between the "East" and "West". Note that these terms and distinctions were used by the majority of stakeholder interviewees when discussing their most significant economic development concerns for the County). Furthermore, the County Planning Department, recognizing the differing needs of the County's sub-geographies, has initiated a Small Area Planning process that has identified 10 geographies that have different opportunities and needs to support economic development. The opportunities and constraints of these sub areas in the context of the targeted clusters is examined more closely in the next section of this report.

From the larger East/West perspective, the eastern region, defined by the Route 1 and I-95 corridor, began developing in the late 1950s and 60s and is typical of a major transportation corridor. Its densely built environment and lack of significant available parcels limits greenfield investment and development options, while an older housing stock results in an eastern region labor pool with a different skill set than can be found in the less dense western region of the County. The western region of the county, with its available land, power, and broadband capacity has become a very attractive location for new investment, in particular, data centers. It is in this area of the county where there is space and a desire to invest in the infrastructure, structures and activities like Innovation Park and a George Mason University partnership that will support the businesses and institutions that will grow an economy and workforce of the future.

The distinct economic, land, workforce and environmental differences between sub areas of Prince William County would naturally lead to debate over how to best allocate public dollars toward economic development investments that meet the needs of both eastern and western residents and businesses, as well as within each of the sub areas.

There are promising developments happening throughout the county including high end residential and recreation waterfront development, the new Potomac Environmental Research & Education Center, Potomac Shores, mixed use infill development and major Route 1 corridor infrastructure investments in the east. Meanwhile, there continues to be solid new public and private investment to the west in the form of Innovation Park, data centers and a planned campus expansion for George Mason University ("Sci-tech Campus"), where future Life Sciences, Mechanical Engineering and IT programs are expected to eventually serve 3,000-4,000 students with classrooms and lab space, as well as residential facilities accommodating 1,000 students. High quality mixed use developments are occurring throughout Northern Virginia and could find their place in Prince William as well with appropriate infrastructure, transportation access, and development type mix.

So that the entirety of the Prince William economy and commercial tax base can continue to thrive and diversify, it is crucial that this Target Industry Study address varying East/West regional and sub area needs so that all are positioned for unique industry attraction and development/redevelopment opportunities.

The following is a summary of the most significant real estate related issues facing Prince William County and how they relate to economic development and its targeted clusters.

1) Route 1 Corridor: *Expand infrastructure commitment and increase availability.*

The Route 1/I-95 Corridor is representative of an older developed travel corridor characterized generally by smaller scale strip retail and travel related development, along with older residential neighborhoods. The area's labor force characteristics and other real estate market conditions make this region distinctly different from other areas of the County. While the recent investment in infrastructure has helped to address traffic congestion, drainage and other infrastructure issues needed to ease congestion and make the corridor more attractive to redevelopment interests, **the limited availability of sizeable parcels will remain the single greatest barrier to large scale, high wage paying economic development, particularly the marketing and attraction of targeted industry investment.**

Unlike the western portion of the county with its available property for greenfield development, the Route 1/I-95 Corridor is substantially developed. The cost associated with redevelopment and the limited availability of property in the east will offer far fewer opportunities to accommodate those target industries that have historically found the western portion of Prince William an easier and thus more competitive place to invest.

If the County would like to position the eastern region for increased private investment (office, commercial, retail, industrial, or residential), it will need to build upon its infrastructure commitment with an expanded economic development leadership role. This role will need to include increased economic development capacity in the form of real estate redevelopment and entail land assembly and financial incentive tools to address existing financial feasibility and other constraints.

2) Development Perception: *Contradictory goals are a deterrent to growth.*

Based on this study's real estate analysis and facilitated group discussions with real estate professionals and developer representatives, the financial viability of commercial developments is being negatively impacted by a number of regional market forces. These forces include increased housing demand, high office vacancy rates in neighboring counties and high data center demand relative to available industrial space within Prince William.

Currently, market conditions support increased housing development rather than commercial uses. Developers noted that the introduction of residential uses into a commercial development (mixed use) improves financial feasibility. **However, opportunities for greater residential development currently runs contrary to County leadership's goal of increasing the commercial tax base (up to 35% of total tax base) and reducing school enrollment pressure and its reliance on residential tax base to fund public services.**

In addition, the availability of vacant office space in Fairfax and Loudoun Counties is putting downward pressure on office space demand in Prince William County. Metro DC office demand is being met currently by an abundance of Class A space recently developed in Tyson Corners and other locations in Fairfax and Loudoun counties. As a result, **demand and thus market pricing for new office construction is lower in Prince William County, making it a less attractive location for new office development.** Simultaneously, increasing demand for industrial space by data center users is driving up costs for other County industry targets including logistics and manufacturing. As a result, these users are being forced to find space in more rural locations outside Prince William.

Yet another influence is Prince William County's re-zoning process and/or the application of residential proffers required of projects with a residential component which has resulted in a costlier and/or lengthier approval process relative to strictly commercial proposals. **It is the lengthier process associated with residential development proposals that has contributed to a negative developer perception for Prince William County, not the**

commercial approval process. In fact, based on in-depth discussions with both Development Services and Planning Department leaders, there are few delays for commercial only development approvals.

Furthermore, efforts appear to be in place to ensure that the Prince William County permitting process for commercial development continues to be timely, efficient and like that of Loudoun and Fairfax counties. According to County officials, permitting for target sector projects requiring a rezoning takes a reasonable 6-9 months, considerably shorter when the proposed use is "By Right", and is in line with surrounding counties. In addition, the County has assembled a development planning team that comes together regularly to identify and mitigate potential permitting road blocks.

3) George Mason University Sci-tech Campus Expansion: *Support Innovation Park with the long-term in mind.*

The George Mason University (GMU) Prince William campus expansion plans will become a tremendous asset in support of the county's targeted clusters. In addition to the increased economic activity generated by greater University employment and student spending, regional labor and business access to higher education and research and development will strengthen the County's labor and business competitiveness. Furthermore, as an institution that has recently been recognized among those conducting the "highest research activity" (R1), **GMU will continue building and supporting entrepreneurial and innovation activities that with time will support new business formation and job creation in emerging industries.**

While there is evidence already that GMU, through its Virginia Serious Game Institute, is beginning to have some positive effect on innovation and entrepreneurial activity in the county, its ability to significantly impact the county economy through these and other investments and activities will take years if not decades to materialize. However, it is critical that the county **continue to support GMU's investments as needed to ensure it will attract the Life Sciences, Mechanical Engineering and Information Technology education programs to Prince William County.**

Key to GMU's commitment to pursue its Sci-tech Campus expansion plans will be the **County's commitment to ensure the appropriate land use policies are in place to support the Innovation Park town center** style concept that will provide the live, go to school/work, and play environment that is believed to attract a needed workforce and foster collaboration and innovation. These types of developments appear to be very successful in attracting a workforce within other Metro DC counties.

During interviews with developers, it was clear they neither fully understood nor supported the County's control, involvement or investment in the planning and development of Innovation Park. According to discussions, the group "did not support the County's desired development objectives". In fact, developers believe Innovation Park should be allowed to develop based on market forces and that the County "should not be in the real estate business".

However, while many of those interviewed have their community's interests in mind, a developer's timeframe for a return on investment is considerably shorter than those of a public body whose mission is to insure the long-term economic viability of its jurisdiction through increased employment opportunities and a healthy tax base for its residents. As experienced elsewhere, universities that make such investments do so intentionally. For example, UMBC in Maryland, located along the I-95, established an innovation park decades ago (bwtech@umbc Research & Technology Park) that now houses dozens of businesses and a Cyber Institute. Across I-95 from UMBC now also stands the BWI Tech Park. These facilities have helped the nearby NSA hire over 900 UMBC graduates. Similar to Maryland, **it is Prince William County, not private developers, that will have the longer term public perspective that will build an industry base of the future.**

Small Area Plans

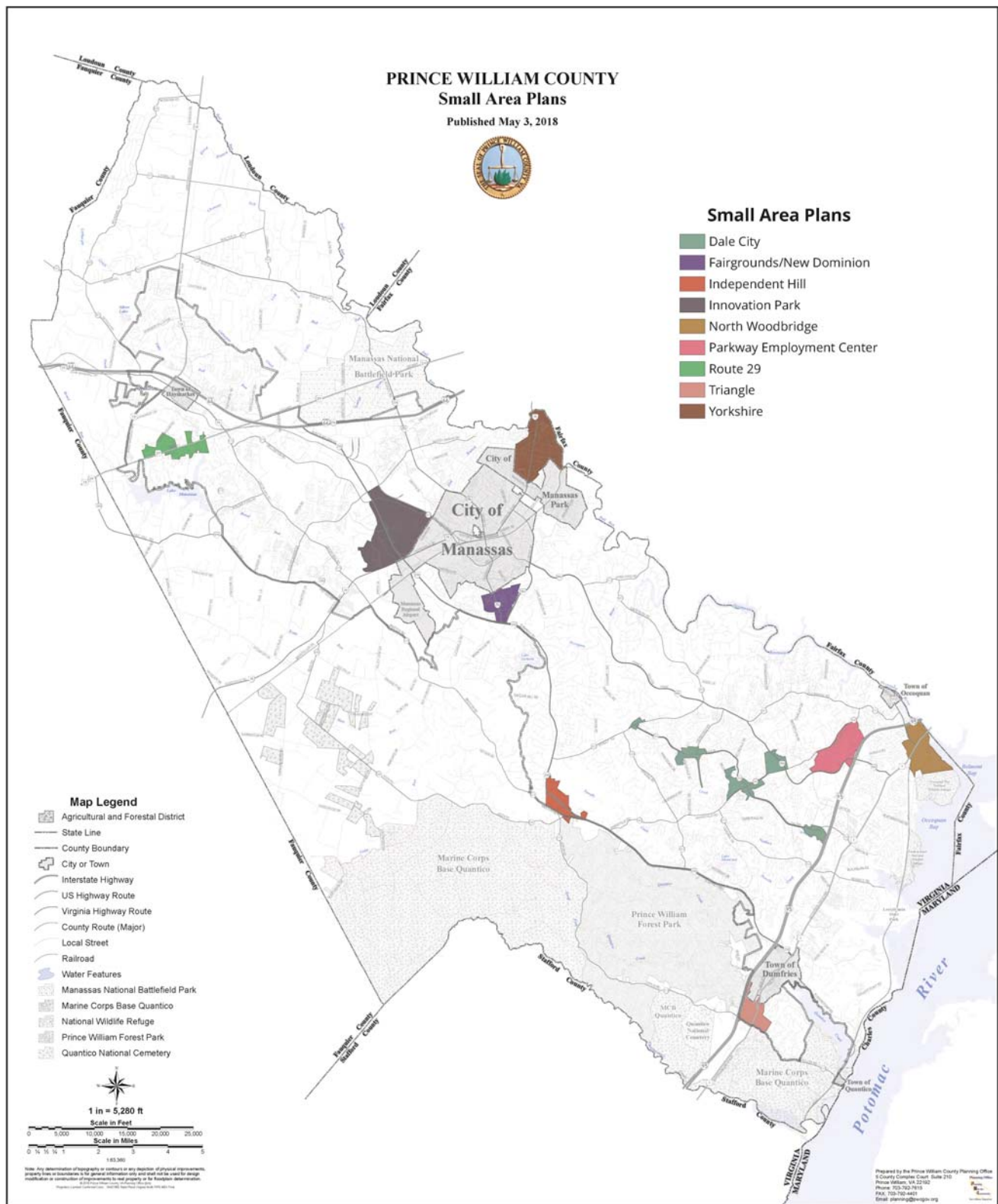
Economic development relies on land use regulations that align with the economic goals of the community. Prince William County is in the process of updating the Comprehensive Plan, including designating specific small areas for which to direct additional growth. The Small Area Planning process includes research, stakeholder and public engagement, visioning, and a final plan. The intent of these Small Area Plans is to “provide greater emphasis on detailed planning, visioning, economic development, and design in order to develop plans that represent each study area with its own character, vision, and implementation strategy.” There are nine Small Area Plans, all at different stages of the process. The following indicate the level of planning that has been completed for each of the designated areas (collectively referred to as “Areas”):

Current Small Area Plan

- Dale City
- Innovation Park
- North Woodbridge
- Parkway Employment Center
- Route 29

Future Small Area Plan

- Independent Hill
- Triangle
- Yorkshire
- Fairgrounds/New Dominion



Source: Prince William County



Working in conjunction with the Prince William County Planning Office, a review of the existing Small Area Plans, additional background documents, and consideration of the different assets and constraints of the Areas was completed. This work was intended to identify which, if any, of the Targeted Clusters was particularly well suited to each of the Areas to provide guidance to the County for which sectors to target for each Area. The following is a summary of the findings of this analysis, organized by Area, as well as a matrix for a quick glance of the opportunities.

The methodology for this analysis involved first identifying key characteristics that the targeted clusters consider when making location decisions. Location factors included were only those that would be unique to the Area such as zoning, transportation, infrastructure, and proximity to assets and not necessarily assets/constraints that would be equal throughout the county such as workforce, access to capital, and available economic development incentives.

The following is a summary of the key location specific criteria for each of the targeted clusters followed by how each of the Areas meets those criteria and whether it would be a good location for the cluster. While the following criteria do not capture all of the factors that location decision makers consider, it captures a good cross section to allow for recommendations to be made relative to the Small Area Plans.

- *Advanced Manufacturing*: Companies in the Advanced Manufacturing cluster look to locate places with:
 - o Industrial zoning
 - o Water/sewer infrastructure and capacity
 - o Access to transportation
 - o Electricity infrastructure (multiple phases)
 - o Natural gas infrastructure
 - o Existing buildings with high ceilings
 - o Fast Track permitting process
 - o Land with little due diligence concerns
 - o Broadband infrastructure
- *Federal Government Contracting*: Companies involved with Federal Government Contracts look to locate places with:
 - o Proximity to military infrastructure/installations and nearby market, anchor companies, and supply chain
 - o Commercial zoning
 - o Class A and B office space
 - o Major underutilized assets like airfields, and ports
 - o Information technology infrastructure
 - o International airport access
- *Healthcare*: Companies that are engaged with the Healthcare cluster typically look to locate places with:
 - o Proximity to major health and education institutions
 - o Commercial zoning
 - o Proximity to market – high population density
- *Information Communications Technology*: Companies in the Information Communications Technology cluster typically look for locations with:
 - o Resilient and affordable power
 - o Commercial zoning
 - o Telecommunications infrastructure – fiber
 - o Existing water capacity

- Proximity to educational institutions and entrepreneurship asset/environment
- International airport access
- *Life Sciences*: Life Sciences' companies usually look to locate in places with:
 - Existing cluster related companies and workforce
 - Commercial zoning and R&D zoning
 - Proximity to education and pure research institutions
 - Abundant water for pharmaceutical manufacturing
 - Access to an integration with healthcare services
 - Available space, including lab space
 - International air service
- *Logistics*: Companies that are in the Logistics cluster usually look to locate places with
 - Larger parcels of affordable land
 - Industrial zoning
 - Easy access to highway and transportation infrastructure with limited congestion
 - Arterial roads upgraded to support trucking

The following compares the above listed criteria to the different Areas to identify where certain targeted sectors may be particularly well suited to locate. This information is then summarized in a matrix at the end of the section.

Dale City

- *Advanced Manufacturing*: Dale City has the water/sewer, natural gas, broadband and transportation infrastructure that would be desired by an advanced manufacturing firm, however the lack of industrially zoned property and existing residential development would present a challenge.
- *Federal Government Contracting*: With its proximity to military infrastructure, international airport access and IT Infrastructure in place, Dale City has the assets that would make it attractive for businesses engaging in Federal Government Contracting. However, limited parcels that are commercial zoned available office space may constrain this type of business attraction effort.
- *Healthcare*: The limited amount of commercially zoned property and lack of major health and educational institution within the Dale City Area makes this Area less attractive for those in the healthcare industry.
- *Information Communications Technology*: With resilient and affordable power, telecommunications infrastructure (fire and electricity), water capacity, educational institutions, and international airport access, Dale City is a good location for the ICT cluster. One limiting factor may be the limited amount of commercially zoned property.
- *Life Sciences*: Without available lab space, research institutions, commercially zoned property, or an existing life sciences cluster of companies, Dale City would likely not be a great fit for a Life Sciences company.
- *Logistics*: Dale City lacks large parcels of affordable land and industrial zoning necessary for the Logistics cluster.

Innovation Park

- *Advanced Manufacturing*: With industrial zoning, infrastructure capacity, transportation access, and land without many environmental concerns, Innovation Park would be a good location for businesses in the Advanced Manufacturing cluster.
- *Federal Government Contracting*: The area does have commercial zoning, IT infrastructure, and airport access. However, with only limited access to military infrastructure, Innovation Park may not be a top location choice for companies that are involved with Federal Government Contracting.
- *Healthcare*: With access to major institutions within the area and commercial zoning, Innovation Park would be an attractive location for the Healthcare industry.

- *Information Communications Technology*: The characteristics of Innovation Park align well with the ICT cluster, including commercial zoning, infrastructure capacity, educational and entrepreneurial assets.
- *Life Sciences*: Innovation Park is well suited for the Life Sciences cluster, including existing cluster businesses, appropriate zoning, and capacity for water. The only challenge is limited availability of space, including lab space.
- *Logistics*: The large parcels and affordable land in Innovation Park with easy access to highway and upgraded arterial roads make it attractive to the Logistics cluster.

North Woodbridge

- *Advanced Manufacturing*: The water/sewer capacity in North Woodbridge and access to transportation is well aligned to the cluster. However, there is only a limited amount of industrially zoned parcels.
- *Federal Government Contracting*: North Woodbridge does have access to military infrastructure and commercial zoning, making it a potential location for companies involved with Federal Government Contracting. One concern is related to the lack of existing class A office space.
- *Healthcare*: Without a clear connection to major institutions, North Woodbridge may not be a great location for those in the Healthcare industry.
- *Information Communications Technology*: Although North Woodbridge does not have a strong connection with educational or entrepreneurship assets, the telecommunications infrastructure, capacity, and commercial zoning could make it an attractive location for a company in the ICT cluster.
- *Life Sciences*: Without existing companies in the cluster, proximity to related institutions, or available space it is unlikely that North Woodbridge would be a good location for a Life Sciences business.
- *Logistics*: Although there is good access to transportation infrastructure and upgraded arterial roads, without large parcels of affordable land it would be difficult to attract a company in the Logistics cluster to North Woodbridge.

Parkway Employment Center:

- *Advanced Manufacturing*: With industrial zoning, water/sewer infrastructure, broadband access, and transportation access, Parkway Employment Center is a good location for the Advanced Manufacturing cluster.
- *Federal Government Contracting*: The proximity to military infrastructure, commercial zoning, and international airport access, the Parkway Employment Center may be moderately attractive to Federal Government Contracting related companies. However, limited existing office space may hinder development.
- *Healthcare*: With nearby institutions and commercial zoning, Parkway Employment Center may be a good location for companies involved with the Healthcare cluster.
- *Information Communications Technology*: The Parkway Employment Center has the zoning, power, and infrastructure that is attractive to companies in ICT, including the including the Northern Virginia Community College campus with IT and cybersecurity programs.
- *Life Sciences*: Lacking existing Life Sciences businesses, nearby institutions, or available lab space most likely makes the Parkway Employment Center unattractive to those in the cluster.
- *Logistics*: Although the arterial roads in and around the Parkway Employment Center area could use some improvements, the availability of large affordable parcels, zoning, and access to transportation infrastructure make it a good location for Logistics cluster businesses.

Route 29:

- *Advanced Manufacturing*: Although there is limited industrial zoning in the Route 29 area and areas of environmental concern, the area does have infrastructure, transportation access, and fast track permitting making it a potential location for Advanced Manufacturing companies.

- *Federal Government Contracting*: With limited commercial zoning, limited proximity to military infrastructure, and lack of office space this area is not a good fit for companies engaged in Federal Government Contracting work.
- *Healthcare*: The Route 29 area does have access to major institutions within the geography, however limited commercial zoning may make it hard to attract healthcare companies. Change in zoning could make it more compatible to this cluster.
- *Information Communications Technology*: This area does have resilient and affordable power, telecommunications infrastructure, water capacity, and airport access. However, limited commercial zoning and lack of connection with major educational institutions or entrepreneurship assets may make the Route 29 area less attractive than other areas for ICT companies.
- *Life Sciences*: The Route 29 area's lack of existing Life Sciences cluster businesses, limited commercial zoning, and lack of proximity to educational and research institutions make it a challenging location for Life Sciences related companies.
- *Logistics*: Limited access to large and affordable parcels and industrial zoning may make it more difficult to attract a Logistics cluster business, however the area does have good access to transportation infrastructure.

Independent Hill:

- *Advanced Manufacturing*: With very limited access to industrial zoning and transportation, Independent Hill may not be an ideal location for Advanced Manufacturing, however the area does have electricity and water/sewer infrastructure.
- *Federal Government Contracting*: Very limited commercial zoning, limited access to military infrastructure, no office space, and limited IT infrastructure make this area challenging for companies engaging in Federal Government Contracting work.
- *Healthcare*: Without much commercial zoning or access to major health or educational institutions, Independent Hill would not be a good location for Healthcare companies.
- *Information Communications Technology*: Independent Hill area does have infrastructure and available parcels that would be attractive to Information Communications Technology cluster companies, however there is only limited commercial zoning. A change in zoning regulations could make this area much more attractive to ICT companies.
- *Life Sciences*: Limited commercial zoning, no existing cluster companies or access to research institutions makes Independent Hill a difficult location for Life Sciences related companies.
- *Logistics*: Although the arterial roads have been upgraded for trucking, other aspects of Independent Hill are less attractive for Logistics companies such as limited amount of large affordable parcels, limited industrial zoning, and limited access to highway transportation infrastructure.

Triangle:

- *Advanced Manufacturing*: A lack of industrial zoning and small parcels already developed make it a challenging location for Advanced Manufacturing cluster companies. However, the area does have water/sewer infrastructure, access to transportation, and electricity and natural gas infrastructure.

- *Federal Government Contracting*: The availability of commercial infrastructure and proximity to military infrastructure makes the Triangle area a good fit for Federal Government Contracting companies. There is a limited amount of class A space currently, however there are opportunities for new office development.
- *Healthcare*: The Triangle area is not in close proximity to other health or educational institutions, making it a challenging location for attracting Healthcare companies.
- *Information Communications Technology*: The Triangle is a good location for companies in the Information Communication Technology cluster except for lack of proximity to education institutions and entrepreneurship assets.
- *Life Sciences*: Without existing companies, proximity to education or research institutions, available space, or access to existing health care services, the Triangle area is not a good fit for Life Sciences companies.
- *Logistics*: A lack of large and affordable parcels of land and industrial zoning make the Triangle a poor fit for Logistics companies.

Yorkshire:





















































- *Advanced Manufacturing*: The Yorkshire area does not have access to natural gas infrastructure and only limited industrial zoning and transportation access, making it a challenging location for Advanced Manufacturing companies.
- *Federal Government Contracting*: While the Yorkshire area does have commercial zoning, there is only limited access to military infrastructure and limited office space, making it a poor location for Federal Government Contracting companies.
- *Healthcare*: Lack of proximity to major health and education institutions makes the Yorkshire area a poor location for Healthcare cluster companies.
- *Information Communications Technology*: With commercial zoning, power, telecommunications infrastructure, and water capacity, the Yorkshire is a good location for ICT companies. The lack of education institutions and entrepreneurship assets may make it slightly less attractive to certain companies.
- *Life Sciences*: Without existing cluster companies, proximity to education or research institutions, or available space, the Yorkshire area is a poor location for Life Sciences related companies.
- *Logistics*: Lack of large and affordable parcels and only limited industrial zoning will make it challenging for the Yorkshire area to attract Logistics related companies.

Fairgrounds/New Dominion:

- *Advanced Manufacturing*: Lack of industrial zoning and only limited access to transportation would make it challenging for an Advanced Manufacturing company to locate in the Fairgrounds/New Dominion area. Change in zoning regulations could improve the attractiveness of the area.
- *Federal Government Contracting*: With only limited access to military infrastructure and lack of office space, the Fairgrounds/New Dominion area is not a great fit for Federal Government Contracting related companies.
- *Healthcare*: The Fairgrounds/New Dominion area does have commercial zoning, but it is lacking proximity to major health and education institutions which will make it challenging to attract Healthcare cluster companies.
- *Information Communications Technology*: Fairgrounds/New Dominion area does have commercial zoning, power, telecommunications infrastructure, and water capacity that would be attractive to an Information

Communications Technology company. One challenge relates to lack of connection or proximity to educational institutions or entrepreneurship assets.

- *Life Sciences*: The lack of existing cluster companies or proximity to education or research institutions makes the Fairgrounds/New Dominion area unattractive to Life Sciences cluster companies.
- *Logistics*: With only a limited number of large and affordable parcels, no industrial zoning, and limited transportation infrastructure, this would be a challenging area to attract a Logistics company to.

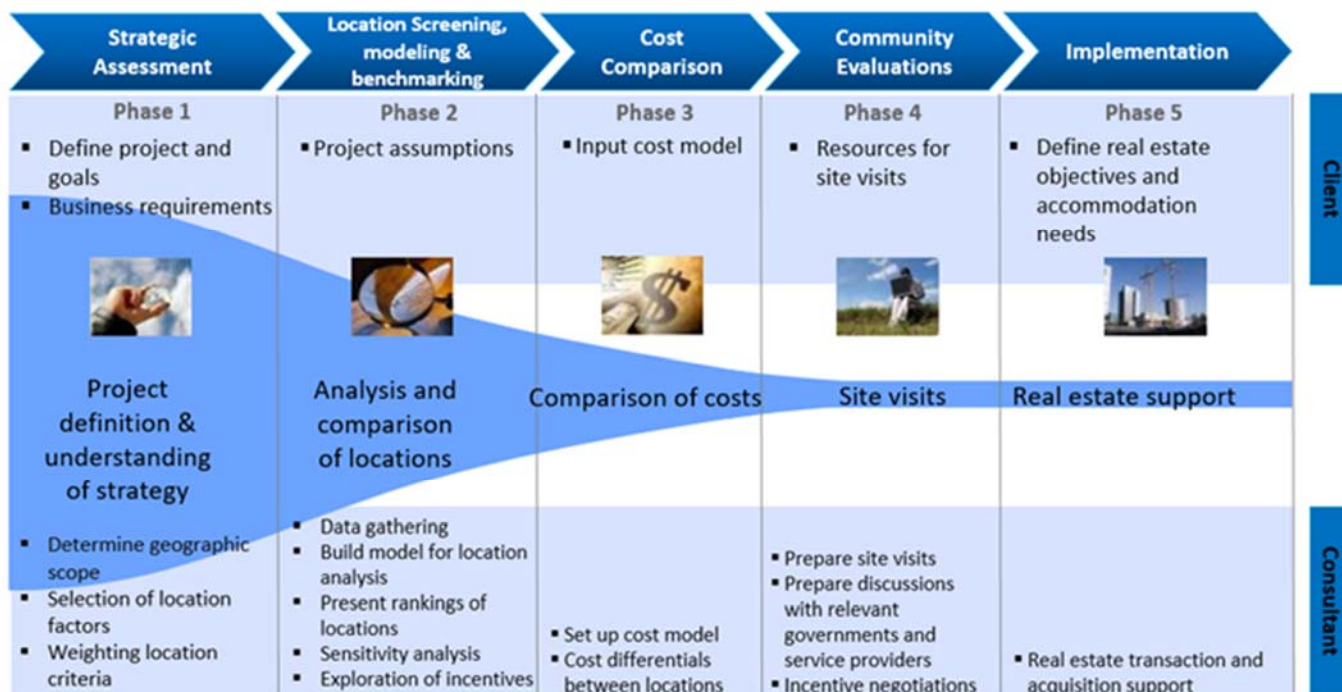
Targeted Clusters by Small Area Plan - Opportunity Assessment						
	Advanced Manufacturing	Federal Government Contracting	Healthcare	Information Communications Technology	Life Sciences	Logistics
Dale City						
Innovation Park						
North Woodbridge						
Parkway Employment Center						
Route 29						
Independent Hill						
Triangle						
Yorkshire						
Fairgrounds/New Dominion						

Source: Camoin Associates

Key					
Good Location		Needs Work		Poor Location	

Reverse Site Selection Benchmarking Analysis

ICA conducted a reverse site selection analysis to benchmark the competitive performance of the Prince William County against its peers. Companies making expansion or relocation decisions typically undergo a multi-phase process of selecting the location that best fits its needs. This process, the “site selection analysis,” first uses a data-driven approach to weight and rank locations based on a variety of categories, such as labor markets, access to markets, infrastructure, and tax environment, to name a few. The process continues to narrow down the list of options until a shortened list is selected to begin field confirmation of the business environment and contextual themes that data alone cannot reveal. Below is an illustrated example of the site selection process:



Source: ICA

The reverse site selection analysis assesses the community from a corporate project perspective. The “reverse” aspect is that the assessment is done on behalf of the public, rather than a corporate client. By using this analysis, a community can identify its strengths and weaknesses as compared to its competitors, thereby helping strategically capture opportunities by addressing threats and positioning for future growth. It entails the data-driven phases of site selection, namely Phase 1 and Phase 2 illustrated above.

This methodology was applied to evaluate Prince William County against its peers of Fairfax County, VA; Loudoun County, VA; Montgomery County, MD; Chester County, PA; Forsyth County, GA; and Warren County, OH. The non-regional peers of Prince William County, namely Chester, Forsyth, and Warren Counties, were selected using a specific methodology used by a previous study by Angelou Economics to find communities with similar characteristics as Prince William County. The non-regional peers had to meet the following criteria:

- County within a major MSA
- Population between 180,000 – 1,200,000
- Median household income higher than US average
- Bachelor's Degree attainment rate higher than US average
- A non-primary population center of the MSA

Each location was compared across various categories:

- Population & Demographics
- Household Statistics
- Labor Force Availability
- Industry & Occupation-Specific Employment
- Occupation-Specific Salaries
- Education
- Transportation & Market Access
- Tax Regime
- Crime & Quality of Life
- Real Estate Availability
- Economy of Scale

The ICA team ran individual model scenarios based on each target sector profile. This sort of approach allows us to identify the competitive gaps that Prince William County faces among its various target industries, as well as its business environment in general.

General Results

The initial reverse site selection analysis takes a fairly neutral approach to evaluating Prince William County against its peers, meaning fairly equal weights were applied to a number of the more important categories. In a detailed site selection project, the company would have specific drivers depending on its sub-sector and activity, which in turn would place greater weight on the most relevant categories and sub-categories reflecting the project drivers. In the table below, a rank of #1 is the best.

Categories	Prince William County, VA	Fairfax County, VA	Loudoun County, VA	Montgomery County, MD	Chester County, PA	Forsyth County, GA	Warren County, OH
Population and Demographics	3	4	1	5	6	2	7
Household Statistics	6	3	1	4	5	2	7
Labor Force Availability	7	5	3	1	4	2	5
Industry-Specific Employment	4	6	2	7	3	1	5
Occupation-Specific Employment	4	4	4	1	2	7	3
Occupation-Specific Salaries	5	5	5	4	3	2	1
Education	7	2	1	4	5	3	5
Transportation and Market Access	4	3	5	2	1	7	6
Tax Regime	1	1	1	4	7	6	5
Climate and Natural Hazards	1	1	1	1	5	7	6
Crime and Quality of Life	3	3	2	5	6	7	1
Real Estate Availability	4	4	4	7	3	1	2
Economy of Scale	6	1	4	2	3	5	7
Overall Rank	7	3	1	2	5	4	6

The benchmarking finds that Prince William County ranks 7th out of the seven locations assessed. The County demonstrates its most significant strength in the Tax Regime category due to Virginia's competitive tax environment coupled with a low county sales tax and average real estate tax rate.

To see how Prince William County's competitive environment compares to its peers regarding its specific Target Industries, ICA tailored the data and adjusted the weighting to reflect how each location performs for each scenario based on our site selection experience. The County's performance varied, presenting its strongest cases for IT, Federal Government Contracting, & Logistics. The County's low intensity of Life Sciences and Advanced Manufacturing employment harmed its competitiveness for these target sectors.

Target Sector	Prince William County, VA		Fairfax County, VA		Loudoun County, VA		Montgomery County, MD		Chester County, PA		Forsyth County, GA		Warren County, OH	
	Rank	% of Leader	Rank	% of Leader	Rank	% of Leader	Rank	% of Leader	Rank	% of Leader	Rank	% of Leader	Rank	% of Leader
IT	4	68.15	2	97.88	1	100.00	3	79.10	5	66.65	6	63.83	7	50.27
Life Sciences	7	45.33	3	64.92	6	56.91	1	100.00	2	90.50	5	57.13	4	58.95
Logistics	6	86.78	7	85.43	4	89.89	5	86.92	2	98.32	3	97.84	1	100.00
Federal Gov. Contracting	4	88.56	2	99.08	3	95.69	1	100.00	6	76.95	5	77.39	7	76.77
Adv. Manufacturing	7	63.55	6	78.72	5	79.09	3	93.05	1	100.00	4	87.27	2	95.83

A more detailed breakdown of the County's competitive advantages and gaps is included in the full report included as Attachment C: Benchmarking & Reverse Site Selection Analysis.

While Prince William County may rank poorly against the selected peer group in a number of its target sector categories, this does not mean the County is targeting the wrong sectors. Site selectors and companies are rarely concerned with jurisdictional boundaries at the County level. They first narrow down possible locations based on MSA (regional) level. From there, they examine possible locations based on qualitative criteria, such as proximity of assets and availability of sites and buildings. In other words, while the tables above are illustrative of Prince William County's strengths and weaknesses, it is not representative of the typical method a company would use making its location decision, which would instead compare the D.C. metro area against Philadelphia or Atlanta metros, for example.

Since Prince William County shares much of the same labor shed as Fairfax and Loudoun County, jurisdictional boundaries become much less relevant. This should highlight the importance of taking a regional approach to economic development.

Site Selector Survey

Site selectors with previous experience operating in Prince William County were interviewed in order to gauge the general awareness, experiences, and impressions of the county from this important investment attraction channel. While general participation rate was low, the interviews that were conducted did reveal key insights.

Topic	Feedback
Experience with Prince William County	<ul style="list-style-type: none">• Have visited PWC with last 2 years• PWC was considered for projects due to its proximity to D.C. & major East Coast markets• Lost projects due to lack of manufacturing talent and available space
Strengths	<ul style="list-style-type: none">• Geographic location• Quality of Life• Population density (regionally)• Lower cost than competing regional jurisdictions
Weaknesses	<ul style="list-style-type: none">• Perception as commuter area• Lack of mass transit• Limited manufacturing talent• High wages compared to other regions in U.S.
Target Industries & Functions	<ul style="list-style-type: none">• ICT (software development, cybersecurity, data centers)• Health & Life Sciences (biotech, medical research)• Fintech• Non-profits
Marketing	<ul style="list-style-type: none">• Preferred marketing channel for site selectors varies• Face-to-face more effective: familiarization tours, conferences & trade shows, etc.• Focus on company decision-makers (90% of projects handled by companies themselves)
Suggestions	<ul style="list-style-type: none">• Continue personal outreach to site selectors and company decision-makers• Dedicate sizable portion of resources towards existing business

Recommendations

The interviewees suggested several items that the County could focus on to improve its economic development efforts, including:

- 1) The County should **use more personal outreach to keep the county first in the minds of potential investors and site selectors**. Prince William County was commended for its outreach via trade shows. The site selectors noted that it should continue such activity and make a larger investment in public relations and branding.
- 2) While the County's efforts towards investment attraction are encouraged, it should also **dedicate a sizable portion of its resources towards the county's existing industry base**. By continually engaging and learning about the existing businesses of the area, the County will most likely identify numerous

opportunities for helping the expansion of local industry, in addition to deepening the expertise and understanding of its own staff.

Business Retention & Expansion

It is important to note that **DED follows a number of “best practice” Business Retention & Expansion initiatives and policies.** Also referred to as BR&E, this economic development initiative is one of the two most common efforts EDOs (Economic Development Organizations) undertake to strengthen their economies. A BRE program requires periodic meetings with local businesses to understand their needs, along with any barriers or issues that may impede growth, such as infrastructure, workforce, permitting, financing, etc.

Among the qualities of a sound BR&E program are i.) use of a Customer Relationship Management (CRM) tool, ii.) focus on targeted industries, iii.) establishing an annual goal for business leader meetings and iv.) the use of information gathered to guide future retention programs and initiatives, as well as to inform marketing, attraction, sites, financing and a host of other efforts.

It is clear DED is utilizing a sophisticated Salesforce platform and is meeting with approximately 50 on-site targeted industry business leaders annually to identify and resolve any pressing issues that arise. The system is being used to track contacts, projects and leads. The department is also focusing its BR&E effort on its established target industries and findings are being input into the CRM to record information and to make it available to others.

Utilization of CRM is evolving and a handful of large EDOs are attempting to gather significant company data, combining it with other information resources and utilizing increased business intelligence to develop industry expertise and predictive models. The Minneapolis-St. Paul Regional Economic Development Partnership (MSP), Greater Oklahoma City Chamber of Commerce and the Charlotte Regional Partnership are

leading the way with high level industry analytics that tie local business information (via BR&E) with marketing and attraction information into industry intelligence. In the case of the Charlotte Regional Partnership, this intelligence is being used to predict which of its companies are poised for growth and need assistance, as well as which in the larger region and beyond would find the Charlotte a more competitive location. As a result, the Partnership is approaching companies ahead of their announcements to expand or identify new sites.

Understanding that the DED’s resources and capacity are limited and that a formal Regional Economic Development Organization (REDC) supporting broader northern Virginia EDO collaborative efforts does not currently exist, **DED should consider developing an internal process that insures relevant target**

According to IEDC (“International Economic Development Council”) research, today’s most effective BRE programs have the resources to utilize a formal Customer Relationship Management (“CRM”) tool (Salesforce, ExecuPulse, Synchronist, etc.) to record company data, convert it to business and industry information, analyse it over time and feed business intelligence into the organization’s target industry retention, expansion and attraction efforts. More advanced EDOs integrate the BRE business intelligence to better understand supply chain, workforce and other needs over time and develop and deploy new target industry programs and marketing and attraction initiatives to meet evolving needs. The most progressive EDOs are now experimenting with predictive models that combine BRE intelligence with lead generation and other industry data to identify specific companies that are most likely to expand or look for new facilities before they announce or begin the process themselves.

industry information gathered during a BR&E business visit can be disseminated to other key DED staff.

Furthermore, additional BR&E data would allow with time the identification of detailed ecosystems of companies that are in or could connect with the county's target industries. These resources should demonstrate each company's product or service, how many they employ in the county (or region), which educational assets support sector ecosystems, and the quantity of the workforce pipeline that these assets produce. Connecting this local expertise with a regional approach through partnerships is a method that site selectors widely agree as more effective than the restricted method of focusing strictly on services limited to county boundaries.



Targeted Industry Findings and Recommendations

Background

Based on the targeted industries identified by Prince William County, Camoin Associates prepared individual profiles for the following strategic clusters:

- Advanced Manufacturing
- Federal Government Contracting
- Health Care
- Information communications Technology
- Life Sciences
- Logistics

These profiles aim to update data and market research specific to the clusters and at the same time confirm that they continue to be the correct clusters for county focused resources. As part of the profile research, Camoin Associates focused on identifying any emerging trends, sub-sectors for focus, and recommendations around strengthening the industries throughout the county. The full profiles can be found in Attachment D with the major findings shown below.

The clusters were shaped by an in-depth data analysis of the region, various stakeholder interviews, and a thorough review of previous work focusing on targeted industries, including both the *2017 Virginia Economic Development Strategy and Action Plan* created by McKinsey & Company, as well as the *2013 Prince William County Target Industry* report created by Angelo Economics. The clusters Camoin focused on are very similar to those of the *2013 Prince William County Target Industry* report which included: (1) Life Sciences, (2) Defense & Federal Support Facilities, (3) Information & Communications Technology, (4) Advanced Logistics, and (5) Enabling Technologies. In addition to these five clusters, we also focused on the large and growing healthcare industry due to its significance and relationships to Life Sciences and ICT.

Similarly, the *2017 Virginia Economic Development Strategy and Action Plan* suggests the state focus on high growth sectors, including information technology and logistics. The 2017 report shares data that supports our focus on the Information and Communications Technology Cluster; particularly in noting that Virginia has the largest population of cyber analysts and highest location quotient of information technology occupations of any state.⁴ Through our findings, as well as support from McKinsey we can conclude that the Information and Communications Technology Cluster, though small within the county, is a strong and accessible cluster due to the overall regional success of the industry. Similarly, the McKinsey report provides data and insight about the strength of the broader logistics and manufacturing cluster within the state. Prince William County's Logistics Cluster can benefit from the overall logistics industry being well-positioned at the state level, with access to many regional assets including various ports,

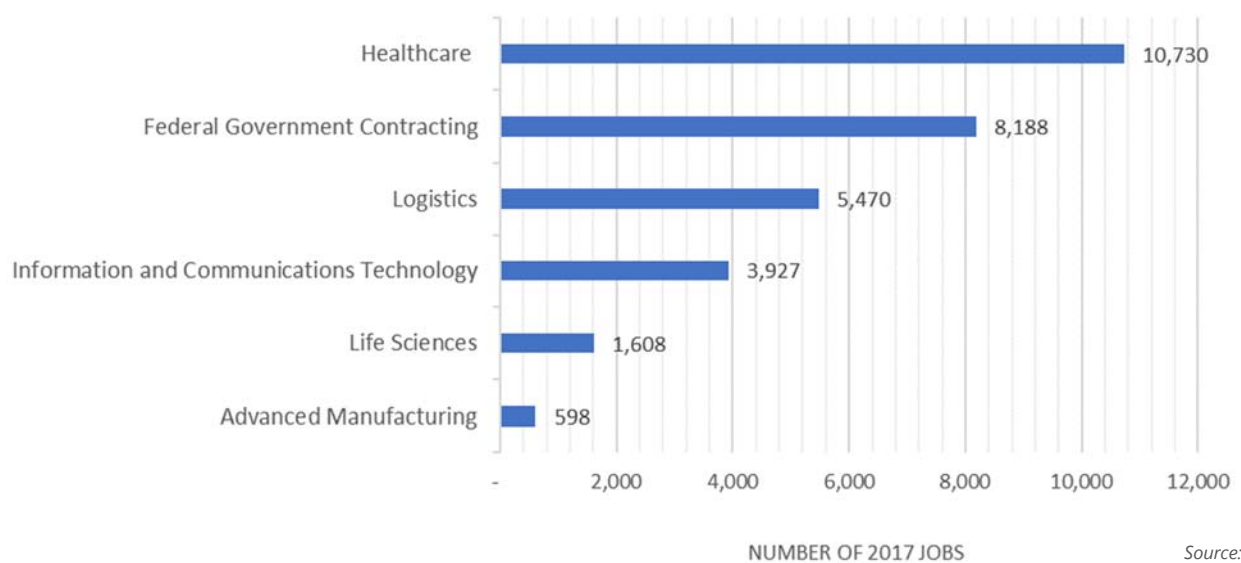
⁴ 2017 Virginia Economic Development Strategy and Action Plan created by McKinsey & Company

transportation infrastructure and manufacturing and warehousing facilities. Overall, the *2017 Virginia Economic Development Strategy and Action Plan* lays out similar suggestions for growth as the Camoin team related to each targeted cluster. These overlapping suggestions include but are not limited to: supporting, training, and retaining a high-quality workforce to work in targeted industry clusters and focus on enhancing overall site-readiness and availability for new development opportunities.

Cluster Overview

The targeted clusters within Prince William County include Federal Government Contracting, Information and Communications Technology, Logistics, Life Sciences, and Advanced Manufacturing. We also added Healthcare because although it is not a traded sector, it does relate to and support both ICT and Life Sciences. Collectively, these six clusters accounted for over 30,500 jobs within Prince William County in 2017, which is 20% of all jobs in the county. The largest cluster by far in terms of jobs is Healthcare with nearly 11,000 jobs in 2017, 7% of all industry jobs in the county. Collectively, the six clusters have shown historical growth over the past five years, adding over 4,800 jobs, an increase of 19% overall. The largest job gains came from the **Healthcare Cluster** adding 2,400 jobs and **Federal Government Contracting Cluster** adding 1,400 jobs, over the past five years. This trend of growth is projected to continue for all clusters combined, adding an additional 4,800 jobs over the next five years, another 16% increase overall. The historical and projected growth trends of the combined clusters are consistent with the trends of all industries in the county. The number of jobs in Prince William County has grown by nearly 17,700 between 2012 and 2017 and is projected to continue growing by another 15,700 jobs by 2022.

2017 Jobs by Cluster in Prince William County, VA



Historically, the clusters have grown at a faster rate than all industries in the county in terms of jobs, with clusters showing 19% growth from 2012 to 2017 compared to 13% across all industries. This is true of projected growth as well, where the cluster totals are projected to grow by 16% by 2022, compared to 10% across all industries.

The targeted clusters within Prince William County are all projected to add jobs over the next five years. Collectively, the clusters will add over 4,400 jobs between 2017-2022, which represents 30% of 17,700 total jobs that will be added across all industries within the county. The only cluster that shed jobs over the past five years is the **Information and Communications Technology Cluster**. This decline can be attributed to Wired

Telecommunications Carriers; Custom Computer Programming Services; and Computer Systems Design Services; all shedding between 100 to 200 jobs over the past five years. Although this cluster shed jobs over the past five years, it is projected to grow steadily over the next five years with Computer Systems Design Services projected to add back more jobs than it had shed (-107 from 2012-2017, to +120 from 2017-2022). It is also a strength in the greater DC region of which Prince William is a part of.

Although the **Advanced Manufacturing Cluster** has shown both historic and projected growth, it is the smallest cluster by far (with just under 600 jobs in 2017), and because of its size, this cluster may experience fluctuations in the overall cluster due to changes in any of the specific sub-industries. Although all industries in the cluster are projected to grow, they are all projected to grow at a marginal rate, adding between five and 22 jobs over the next five years.

All Clusters by 2017 Jobs, Prince William County VA							
Cluster	2012 Jobs	2017 Jobs	2022 Jobs	2012 - 2017 Change	2012 - 2017 % Change	2017 - 2022 Change	2017 - 2022 % Change
Healthcare	8,295	10,730	13,192	2,435	29%	2,462	23%
Federal Government Contracting	6,746	8,188	9,394	1,442	21%	1,206	15%
Logistics	4,778	5,470	6,081	692	14%	611	11%
Information and Communications Technology	4,109	3,927	4,072	(182)	(4%)	145	4%
Life Sciences	1,230	1,608	1,864	378	31%	256	16%
Advanced Manufacturing	537	598	707	61	11%	109	18%
All Clusters	25,695	30,521	35,310	4,826	19%	4,789	16%
All Industries in Prince William County	134,093	151,775	167,421	17,682	13%	15,646	10%

Source: EMSI

The high-level data, economic trends key assets, strengths, and challenges for each cluster are detailed below:



Advanced Manufacturing

- In total, the cluster accounted for nearly 600 jobs in 2017, the smallest of the clusters analyzed. Of those 600 jobs, the 6-digit industries that contributed the largest number of employees is Fabricated Structural Metal Manufacturing (NAICS 332312), employing over 150 people, or 26%, of the cluster. This is followed by Other Industrial Machinery Manufacturing (NAICS 333249), employing about 140 people, or 24% of the cluster's total jobs.
- The entire cluster has 17 payrolled business locations, mostly evenly dispersed among the 12 subsectors. Fabricated Structural Metal Manufacturing and All Other Miscellaneous Fabricated Metal Product Manufacturing reported having three business locations each, the highest of all industries.
- Nine of the top 10 occupations have shown job growth over the past five years. Cumulatively, the top 10 occupations added nearly 30 jobs over the past five years; this trend is projected to continue with positive growth over the next five years as well. Software Developers, Systems Software has the highest number of jobs, employing 40 people in 2017. This occupation has also shown the most substantial job growth over the past five years, gaining 11 jobs, for a 38% increase.

- The shift toward advanced manufacturing techniques and products has changed the overall landscape of the manufacturing industry. Advanced manufacturing is highly automated, networked, and specialized. Through these industry shifts, companies no longer operate entire supply chains, conduct all research and development in-house, or contract with firms only in their own region. The incidence of collaboration within and across supply chains is on the rise, as companies enlist each other's expertise to stay on the cutting edge.
- Over the past several decades, the industry has shed jobs, however, even as the industry was cutting jobs, manufacturing output and productivity were increasing dramatically, representing new investments in automation technology and skilled workers. Recently, the rate of job loss has begun to decrease and the manufacturing sector is projected to add jobs over the next several years. In regions across the country, gains in the manufacturing sector have been an important part of economic recovery.
- *Strengths:* Total cluster growth over the next five years will outpace that of all industries within Prince William County; with cluster growth projected at 18% compared to 10% across all industries.
- *Challenges:* Relatively small cluster in terms of size and density and lack of sites zoned for manufacturing and ready for development.

Recommendations

Focus only on this sector as it relates to or overlaps with other targeted clusters and in particular:

- Information and Communications Technology
- Federal Government Contracting, and
- Life Sciences.

Outside of those cross-over opportunities it is too small and contains too many challenges as a good fit as a primary target for Prince William County. Identify advanced manufacturing firms to target that overlap with the county's strengths and assets.

The focus of efforts should be on these synergies and crossovers and more specifically manufacturing that is:

- High value, non-commodity;
- Requires extensive IT networks, security and applications;
- Fits with the manufacturing emerging from the County's Life Sciences Cluster related to medical and diagnostics devices and biological materials;
- Utilizing Dulles and/or the Inland Port; and
- Align workforce needs and support programs for training through the Community College.



Federal Government Contracting

- In total, the industry cluster was comprised of 8,188 jobs in 2017; this is a 21% increase from nearly 6,800 jobs in 2012. Continuing with this trend, the industry is projected to grow by an additional 1,200 jobs in the coming five years, an additional 15% increase. Of all industries within the cluster, the most substantial gain in number of jobs is projected to occur in Administrative Management and General Management Consulting Services (NAICS 541611); and Other Scientific and Technical Consulting Services (NAICS 541690), projected to add an additional 288, and 336 jobs, respectively, through 2022.
- The cluster accounted for 981 payrolled business locations in 2017. Computer Systems Design Services employing the highest number of people also had the highest number of business locations at nearly 300, or 30% of cluster businesses. Administrative Management and General Management Consulting Services and Custom Computer Programming Services are the two next largest industries in terms of payrolled business, collectively accounting for 277 business, or 28% of all cluster businesses.
- Twenty-three of the top 25 occupations have shown job growth over the past five years. Cumulatively, the top 25 occupations added 1,063 jobs over the past five years. Management Analysts (Business and Financial Operations Occupations, SOC 13) has the highest number of jobs by far, employing nearly 940 people in 2017. This occupation has also shown the most substantial job growth over the past five years, gaining over 300 jobs, a 48% increase.
- The region is home to both the Fort Belvoir Army installation as well as Marine Corps Base Quantico, both being critical assets for the region and in the Federal Government Contracting Cluster.
 - Marine Core Base Quantico is located on the boarder of Prince William County and Stafford County and has just under 54,500 acres of range and training space. The base is home to over 25,860 jobs in 22 agencies. In addition to the Department of Defense, the FBI, DEA, DOS, Homeland Security, Capital Police, Secret Service, and ICE all train there.
 - Fort Belvoir, located in neighboring Fairfax County, contains over 100 federal agencies including military components and various other federal organizations. In addition, it has a population of over 100,000 military personnel and civilian employees; this is a considerable resource in terms of government organizations and workforce.
- In 2017, total contract award funding was nearly \$4.6 billion for various companies within Prince William County. Lockheed Martin Corporation received the highest amount of contract award funding at over \$1.1 billion in 2017. Additionally, US Foods, Inc. received the highest number of contract awards at 1,960.
- Neighboring counties are taking a targeted approach to marketing to defense contractors that has resulted in a loss of cluster jobs in recent years for Prince William County. Stafford's successful strategy is contrasted with Prince William's limited resources and investment focused on this cluster. One tactic that Prince William County can take is to ensure that residents are training to meet the needs of the cluster to ensure it remains strong regionally.
- *Strengths:* Large set of sectors with high employment and relatively high wages. Close proximity to large regional contractors, DC regional cluster, as well as the presence of Quantico and Fort Belvoir Army

installation. This is correlated with other strengths in other industry sectors including ICT (including cybersecurity), management services and consulting, as well as logistics.

- *Challenges:* Uncertainty of future contracts, diversification into non-government market and competition with nearby counties all pose threats to the cluster. Limited real estate (existing buildings or developable land) that is attractive to the base or contractors, especially compared to neighboring counties. GSA policy that directs new facilities to metro stops which limits Prince William County's ability to capture most of the new buildings. Creates a limit on only being able to serve agencies that need a higher level of security or buffer.

Federal Government Contracting Cluster Best Practices

With assets like Quantico MCB in the county and proximity to Belvoir and the DC metro area, it makes sense for Prince William County to try to attract and retain federal government contracting cluster businesses. The following are examples of how other organizations have done that.

- The Defense Alliance, based in St. Paul, Minnesota, is a business network that supports small-business owners in their attempts to win federal Department of Defense contracts. First established in 2004, the network aims to connect high-tech entrepreneurs with major defense contractors, like General Dynamics and Honeywell. The Defense Alliance receives funds from the Small Business Association and uses the money to proactively look for high-tech energy entrepreneurs and then help those entrepreneurs connect with other clusters outside the region. As an independent network, the Defense Alliance works with business owners from 24 states and meets quarterly to provide training around winning contracts and working with the federal government. They host meetings all over the country, including in Washington D.C. and this may present an opportunity to connect Prince William County with this organization to strengthen their skills.⁵
- The state of Michigan has also made a targeted investment in the defense cluster with the hope of leveraging its 7 military facilities and focusing on specific growth areas, including aerospace, advanced manufacturing, and autonomous systems. The initiative is called the Protect and Grow strategic plan and was created by the Michigan Defense Center. The strategy includes a range of recommendations including investing state resources, focusing on workforce and training opportunities, increasing brand awareness for the area in relation to Department of Defense and state-sponsored renewable energy solutions, measure and analyze impacts of the industry. The Michigan Defense website is full of information about how and why defense contractors should choose Michigan, creating a strong first opinion for companies looking for possible locations.⁶
- The Institute for Veterans and Military Families (IVMF) at Syracuse University in upstate New York is "higher education's first interdisciplinary academic institute, singularly focused on advancing the lives of the nation's military veterans and their families". Combining Syracuse University's ability to teach, train, and inform and leveraging that to help veterans with STEM skills to start an enterprise or find a job. IVMF says more than 100,000 people have leveraged their free programs and that it has led to STEM start-ups like

⁵ Source: "A Defense Cluster Grows in Minnesota" <https://www.entrepreneur.com/article/224862>

⁶ Source: "Michigan Unveils Plan to Expand Defense Industry". <https://www.defensecommunities.org/blog/active-base-issues/michigan-unveils-plan-to-expand-defense-industry/>

Street Smarts VR, which use virtual reality to provide high-quality training to first responders. The IVMF supports the veterans through business planning, networking and relationship building, and access to capital.⁷

Recommendations

- Create an inventory of federal government contractors in Prince William County. Focus attraction efforts on synergies with the clusters of ICT and Life Sciences, leveraging the County's strengths in cybersecurity, network development and administration, security, and compliance.
- Create an inventory of parcels for development between and near Quantico and Fort Belvoir and integrate into county's economic development website highlighting opportunities specific to Federal Government Contracting. Develop a process for assembling and/or controlling larger parcels. This will require identifying potential funding sources for purchasing options on parcels, working with planning and development to research land use regulations, and eliciting developer interest. Look to Michigan for examples on how to leverage military opportunities.
- Work with small business and entrepreneur support partners to recruit military retirees into small business and entrepreneur networks to start and grow or help start and grow companies. Identify partner organizations like Defense Alliance and IVMF to provide training and business support services.



Healthcare

- It is important to note that since healthcare and social service are not primarily "traded sectors", meaning producing exportable goods beyond the region, we analyze them here not because of their potential as business attraction targets but so we can better understand their potential for supporting life sciences and ICT clusters and for their importance for workforce development.

- In total, the cluster accounted for 10,730 jobs in 2017. Of those jobs, the 6-digit industries that contributed the largest number of employees include Offices of Physicians (except Mental Health Specialists) (NAICS 621111), employing nearly 1,800 people, 16%, of the cluster. This is closely followed by

Home Health Care Services (NAICS 621610), employing over 1,700 people, 16% of the cluster.

- In total, the cluster accounted for 1,300 payrolled business locations in 2017; the most of all clusters. Services for the Elderly and Persons with Disabilities employing nearly 800 people, had the highest number of business locations at nearly 700.
- All of the top 25 occupations have shown job growth over the past five years. Cumulatively the top 25 occupations added 1,776 jobs over the past five years. Looking forward over the next five years, the

⁷ Source: "Vetpreneurship Program Helps Launch Next-Gen Veteran Startups". <https://www.military.com/veteran-jobs/career-advice/military-transition/institute-veterans-and-military-families-offers-entrepreneurship-programs-vets-and-spouses.html>

trend of occupational growth within the Healthcare Cluster is projected to continue. This comes as no surprise due to the aging population and growing need for healthcare and related services.

- The overall demographic shift to an aging population will continue to increase demand for many of the industries and occupations within the Healthcare Cluster. Additionally, government legislation, namely the Patient Protection and Affordable Care Act, fostering growth for many industries in cluster, including doctors and other patient care-related services.
- As unique trends in healthcare continue to emerge it is important to view the sector in a holistic way. In particular, considering economic opportunities within the context of workforce development, community health and wellness, and business development. Partnerships with health care service providers, companies, education and workforce, small business and entrepreneurship entities, health and wellness organizations will be critical in advancing the Healthcare Cluster. Additionally, this sector supports growth in two other key targeted clusters in Prince William: Life Science and ICT. They are connected in many aspects including R&D, piloting and commercial launching of products in the marketplace, and a growing professional workforce.
- Regionally, there has been a trend toward entrepreneurship in the healthcare sector. Training and support programs exist within the region to promote entrepreneurial activity. This has been supported by companies such as Inova Personalized Health Accelerator; providing intensive, customized program on the campus of the Inova Center for Personalized Health (ICPH) in Fairfax County, VA.
- As unique trends in health care continue to emerge it is important to view the sector in a holistic way. In particular, considering economic opportunities within the context of workforce development, community health and wellness, and business development. Partnerships with health care service providers, companies, education and workforce, small business and entrepreneurship entities, health and wellness organizations will be critical in advancing the industry. This sector supports growth in two other key targeted clusters in Prince William: Life Science and ICT. They are connected in many aspects including R&D, piloting and commercial launching of R&D into commercialization, and workforce.
- *Strengths:* Overall growth of the cluster and synergies with IT and Life Sciences are the two strength opportunities related to a strong health care system. Beyond those two, it is also critical to have a good health care system for overall economic development as many companies and their employees consider that as an indicator of quality of life when looking to relocate.
- *Challenges:* Lack of workforce to meet the needs of the growing industry and the housing and transportation to support the workforce are two challenges impacting the health care system.

Healthcare Cluster Best Practices

- TechSpring in Springfield Massachusetts connects the Bay State Health system with entrepreneurs and innovation in healthcare and life sciences. TechSpring's model is to "guide collaboration between healthcare professionals and product innovators through all stages: Inquiry, discovery, strategy, and team selection; Iterative testing, learning, pivoting, and refining; Navigating and nailing the 14 layers of compliance instances; and, Identifying and capturing value."

Recommendations

- Meet with major Prince William health care providers and explore interest in programs and services that connect Prince William IT and life science entrepreneurs with the providers for healthtech innovation and commercialization. This can be an extension to efforts currently underway at the Science Accelerator and could follow the example of TechSpring in Springfield, Massachusetts. It should be

noted that this recommendation is not meant for Prince William County to do or finance alone. It would require collaborative funding or even majority funding from partners including the healthcare providers who would benefit by integrating innovation into their system.

- Work with community colleges and universities to refine and promote career pathways that lead to jobs at local health care providers to ensure they have access to the workforce necessary to continue to be successful. Start with training programs that align with areas of critical need such as surgical assistants, nurses, and a variety of health technicians and look to locate training facilities in areas where there are job opportunities, such as Woodbridge, and continue to build out the strengths of the area's health care system. Inventory current healthcare related training programs and facilities in the region.
- Support the growth, expansion, and viability of health care providers through development/permitting process support, and workforce development support. Promote the health care system as a quality of life strength when working on business recruitment and attraction efforts. Access to high quality medical services is a priority for many and could help the county in pursuing other targeted industries.
- The previously identified subsectors of hospitals and inpatient facilities, medical networks, ambulatory surgical centers, sports and preventive medicine practices, other large specialty practices, and a cross section of healthcare and R&D are all still applicable. Additionally, with the strength of the IT sector, there are opportunities for the area to focus on developing health related data analysis capability, also known as HealthTech. For companies that use large amounts of data they often locate close to data centers to limit the latency, presenting an opportunity for Prince William County. Growing the innovation and workforce capacity within Prince William will be crucial to expanding HealthTech opportunities.



Information and Communications Technology

- In total, the industry cluster was comprised of just under 4,000 jobs in 2017; this is a 4% decrease from about 4,100 jobs in 2012. Despite historical decline, the industry is projected to grow by 145 jobs in the coming five years, a 4% increase. Overall, the ICT cluster accounts for just about 3% of all 2017 jobs in the county. Of all industries within the ICT cluster, the most substantial gain in number of jobs are projected to occur in Computer Systems Design Services (NAICS 541512) and Computer Facilities Management Services (NAICS 541513), projected to add an additional 120 and 80 jobs, respectively.
- In total, the cluster accounted for 565 payrolled business locations in 2017. Computer Systems Design Services accounted for nearly 300 business locations or 53% of all cluster businesses. This is followed by Custom Computer Programming Services accounting for an additional 115 business or 20% of all cluster businesses. There is high number of payrolled business locations (565) relative to the low number of industries within the cluster (13).
- Of the top 25 occupations, only seven, or 28%, have shown job growth over the past five years; with the most growth in Web Developers occupations which added nine jobs over the past five years. Conversely, the most notable job losses were in Computer Programmers and Telecommunications Line Installers and Repairers, shedding 27 and 20 jobs, respectively.

- Nationally, there has been a steady increase in use of cloud-based computing, big data analytics, and mobile based platforms across many different industries. This is particularly helpful for fostering growth and success of the Information and Communications Technology Cluster, because many industries and occupations within the cluster will experience consistent national growth over the next five years. Overall, the Information Technology Consulting industry in the US is projected to grow at an annualized rate of 2.9%, swelling in size to over \$471 billion by 2022. Employment growth is also projected to increase at an annual rate of 2.8%, employing about 2.5 million people.
- Another national industry that will benefit from the increased use of technology by both consumers and businesses is the Operating Systems and Productivity Software Publishing industry. Within this industry, revenues are highly correlated to the number of computers sold. Increased use of the internet, steady corporate profits, and rising disposable incomes has had a positive effect on the industry over the past five years, with revenue growth of 4.7% in 2017. Revenue increases are projected to continue over the next five years at an annual rate of 2.5%, with the industry growing to nearly \$70 billion by 2022.
- Prince William County and Loudoun County together constitute the largest data center market (by square footage) in North America with over 11 million square feet. Additionally, Prince William County's new Data Center Opportunity Zone has been integral in spreading awareness to prospective companies; this zone consists of "pre-certified" sites available with the necessary infrastructure to accommodate their projects. The State also offers tax credits for data centers that has helped to support the growth in Prince William County.
- *Strengths:* This cluster plays an important role in the overall economy, more specifically it is integral to Life Sciences, Healthcare, and Federal Government Contracting; high education levels and workforce education strengths in this sector, from K-12 as well as in higher education including community college level. Data center demand continues to be strong and the region continues to be known for this. Emerging strengths within serious gaming and cybersecurity align with GMU.
- *Challenges:* Strong competition in region in Loudoun and Fairfax, including high level competition for talent. Emerging resident opposition groups that are against the installation of additional transmission power lines.

ICT Cluster Best Practices

- San Antonio, Texas is a best practice case in a focus on cyber for economic growth and leveraging the military. They have been working to build strong connections between existing businesses and the local air force installation military installation along with programs for start-ups, training and education⁸.

Recommendations

- Continue planning for data center growth and identify areas and sites for location of new facilities. Review zoning and small area plans for appropriate sites and needed infrastructure. Commission an economic and fiscal impact study to measure and report on the fiscal benefit of data center investment.
- Continue a focus on opportunities and partnerships related to serious gaming. Pursue branding of the gaming industry in Prince William County. Continue attraction efforts around not only gaming companies, but also the companies and industries utilizing gaming services - notably training and education companies, federal contractors, companies in security and safety, and health/medicine. As the gaming assets progress

⁸ CYBERSECURITY AS AN ENGINE FOR GROWTH, New America, September 2017, https://www.newamerica.org/documents/1991/FINAL_Clusters.pdf

and are serving more startups and entrepreneurs, work with partners to accelerate companies to growth stages and locate growing companies in Prince William County.

- Continue marketing and advocating for the efforts of the Virginia Serious Game Institute (VSGI) to increase awareness and opportunities for entrepreneurs, investors, and to plan for and provide sites and facilities for those companies looking for co-working space as well as those growing out of the start-up phase.
- Inventory existing assets in the region related to ICT and cross-sector opportunities. Continue to focus on attraction on cyber companies and talent including existing targets as well as emerging opportunities related to the Internet of Things (IoT) in manufacturing sectors; and networking, data, and bio-security in life sciences and healthcare.
- Focus on companies at the cross sections of IT and other Prince William County targets including life sciences, advanced manufacturing, logistics, and federal contracting. Look to regions like San Antonio for ways to focus on cyber for economic growth. With military base presence and high levels of federal contracting such an approach would be a good fit for Prince William County.



Life Sciences

- In total, the industry cluster was comprised of just over 1,600 jobs in 2017; this is a 31% increase from about 1,200 jobs in 2012. Continuing with the trend of historical growth, the industry is projected to grow by an additional 250 jobs in the coming five years, a 16% increase. Of all the industries within the cluster, the most substantial gain in number of jobs is projected to occur in Other Scientific and Technical Consulting Services (NAICS 541690), projected to add an additional 336 jobs.
- Other Scientific and Technical Consulting Services (NAICS 541690), is the industry within the cluster with the highest number of jobs and the most substantial projected growth. It also has the highest number of cluster business locations at 62 or 58% and is the highest contributor to Gross Regional Product (GRP), adding over \$101 million, or 50%, of total cluster GRP.
- Twenty-two of the top 25 occupations, or 88%, have shown job growth over the past five years. Cumulatively, the 25 occupations added nearly 300 jobs over the past five years from 2012 to 2017.
- Many organizations operating within the Life Sciences cluster rely on government funding to undertake operations, including cutting edge research. National Institute of Health funding data, reported by the US Department of Health & Human Services, within Virginia's 11th Congressional District, encompassing the majority of Prince William County. In 2017 Life Science organizations received the highest number of awards, 54, and second-most total funding was awarded, nearly \$40.7 million; this is behind 2013 where \$48.7 million was awarded. Since the award funding high in 2013, and subsequent drop in 2014 to \$19.2 million, each year there has been an increase in total funding awarded.
- Nationally, the Biotechnology industry, a significant driver of growth in the Life Sciences Cluster, generated \$111.2 billion in annual revenue in 2015, with growth projected for the coming five years, at an annualized rate of 3.4%. The success of the industry is tied to several factors including: access to research & development funding, consolidation within the industry, overall health care landscape and the population's aging demographics.

- Another driving force in the Life Sciences Cluster is the national healthcare services and healthcare legislation. Legislative changes to the US health care system were passed through the Affordable Care Act and shifts in the healthcare industry continue to affect biotechnology and other life science-related fields, particularly due to the fact that 50% of biotechnology's revenue is derived from sales of health care products.
- *Strengths:* Diverse international region with international professionals, large metropolitan area, and access to multiple international airports facilitate healthy connections with international firms and research. Synergies exist between GMU R&D and Prince Williams Innovation Park and Accelerator. Additionally, Prince William County has a talent pipeline with highly educated workforce, strong higher education assets with STEM concentration/strengths.
- *Challenges:* Nearby successful cluster in Maryland, historically due to earlier investments, proximity to NHI, FDA, and other federal labs, poses competition. Research within the Life Sciences Cluster is heavily reliant on George Mason University. There is a lack of multiple research anchors.

Life Sciences Cluster Best Practices

- Regions that are strong in life sciences typically have strong relationships and synergies among life sciences, healthcare, and social services. Together they support R&D, innovation, entrepreneurship, commercialization, attraction, and workforce development. Examples of best practices that build on these synergies include The Cleveland Health-Tech Corridor in Ohio with strong connections between the Cleveland Clinic, University Hospital, Case Western Reserve University, Jump Start Cleveland, Bio Enterprise, and Midtown Cleveland; and TechSpring in Springfield Massachusetts which connects Bay State Health system with entrepreneurs and innovation in healthcare and life sciences.
- An example of a region creating a targeted accelerator around a certain industry is Fintech71, Columbus Ohio's Fintech Acceleration Program Fintech71 combines acceleration with integration of the region's existing legacy finance companies to help make start-ups stick in the region.
- Examples of integration of industries include in Minneapolis/St Paul and Pittsburgh where life sciences have integrated with IT to create biostatistics/bio-informatics clusters. Prince William County has strong IT assets in talent, data centers, and innovation (serious gaming, cyber, and more) which can provide leverage when integrated with its life sciences assets (R&D, Accelerator, Innovation Park, proteomics, personalized medicine) to grow its relatively small life sciences cluster.

Recommendations

- Continue to work to integrate the work of the region's hospitals into life science opportunities for R&D and commercialization. Serve as facilitator and convener to keep key partners at the table for growing the cluster.
- Collaborate with George Mason University for creation and use of additional lab space for commercial opportunities. Coordinate as necessary with developers who are working regionally on similar projects and pursue public/private partnerships.
- Enhance programming at the Science Accelerator: Provide more focused and intense programming at the Science Accelerator to support and sustain the growth of companies at locations within Prince William County. Work with partners to develop accelerator programming that provides intensive 3-6 month "boot camp style" program for selected companies in specific targets, such as proteomics and

personalized medicine. During this process work to strengthen awareness and opportunities for partnerships among the chosen companies, exciting companies, GMU, and the hospitals. Consider a program like Fintech71, Columbus Ohio's Fintech Acceleration Program. It should be noted however that such efforts would require funding beyond what could be provided by Prince William County and would require support from industry, university, and the state as partners as in the Columbus example.

- Continue to support the life sciences industry association in the county. Work to market and increase involvement by life sciences and healthcare entrepreneurs and organizations through promotion and events.
- Within business attraction efforts, market the R&D assets, talent availability, education and training opportunities, and the County's' leading IT infrastructure including availability of data centers. IT and life sciences have become fully integrated and to grow the life sciences sector requires strong IT assets including infrastructure, innovation, and workforce.



Logistics

- In total, the cluster accounted for 5,470 jobs in 2017. The 6-digit industries that contributed the largest number of employees include General Line Grocery Merchant Wholesalers (NAICS 424410), employing 729 people, 13% of the cluster.
- In total, the cluster accounted for 441 payrolled business locations in 2017. Wholesale Trade Agents and Brokers employing just under 150 people and had the highest number of business locations at 56; this is followed by General Freight Trucking, Local employing about 320 people over 39 business locations.
- Twenty-three of the top 25 occupations have shown job growth over the past five years. Cumulatively the 25 occupations added over 520 jobs from 2012 to 2017. Over the next five years, the top 25 occupations are projected to add over 420 jobs, collectively. The occupation projected to add the highest number of jobs is Heavy and Tractor-Trailer Truck Drivers, adding 85 jobs, an 8% increase.
- In 2017 there were nearly four million jobs in the US within Transportation and Logistics industries, representing 2.3% of total US employment. This sector has experienced significant growth in the past ten years as the country has emerged from the recession. Increases in manufacturing and consumer products spending have contributed to an increase in demand for trucking and warehousing. Both are projected to continue to see growth in the US as growth continues in manufacturing, retail spending, e-commerce, and global trade.
- The Logistics Cluster is in a period of major innovation as new technologies are being employed that help increase reliability and help providers exceed consumer expectations. Growth in e-fulfillment has meant there is increased demand for logistics related infrastructure and real estate to serve the last mile that would fit well in Prince William County.
- *Strengths:* Proximity to Dulles International Airport, access to major highways and less congestion compared to elsewhere in the region, proximity to major markets, overall industry growth potential (especially last mile opportunities) are all positive attributes and trends that are driving strength of the Logistics Cluster in Prince William County.

- *Challenges:* Low unemployment rate and high commute times make it challenging to find workers, limited availability of existing industrial buildings, and uncertainty around international trade are all challenges to growing the industry in Prince William County.

Logistics Cluster Best Practices

As with other industry clusters, any approach for business attraction begins with a knowledge of the assets already in place and then building upon this to create critical mass. The following are two examples of communities working to attract logistics related businesses.

- The Kansas City region has long been known as a rail and trucking crossroads, but had not developed a comprehensive economic development approach to freight until the 1990's and the advent of NAFTA. Regional stakeholders then recognized that there was a greater need to coordinate development strategies and logistical activities within the metropolitan area. The growing quantity of freight being handled, the variety of origins and destinations, the lack of land in proximity to rail terminals in the central area were all factors inciting a more regional perspective about transport and logistics activities. KC Smartport (started in 2001) is a non-profit organization created by the Greater Kansas City Chamber of Commerce, the Kansas City Area Development Council, and the Mid-America Regional Council. The Smartport was established both to help coordinate the operational activities of the area and also to be the organization with preliminary responsibility for marketing to and responding to inquiries from logistics-based interests as they considered investing in the region.
- Columbus 2020 – the regional organization responsible for promoting Columbus, Ohio's economic growth – also saw logistics as a prime advantage. By their connections to the Heartland and National Gateway corridors, the region had excellent rail access to the Atlantic deepwater ports of Wilmington, Norfolk, and Baltimore. By explicitly teaming with the ports and their economic development agencies, the Columbus region was able to position itself as providing a logistics solution to any company looking to establish itself in North America, with the ability to either import or export on a global scale and with access to a broad talent base as well as a dense consumer population base.

Recommendations

- Create an inventory of potential development/redevelopment sites and apply for funding through the Virginia Business Ready Sites Program. Continue to get applicable sites updated on the State site registry to increase likelihood of consideration.
- Establish career pathways and training programs to fill supply gap for the Logistics Cluster, particularly in the eastern part of the county where there are many jobs in this field. Work with industry to identify the most in demand occupations and training requirements and identify opportunities for partnerships to fund training. Work with high school guidance counselors to reframe the conversation around Logistics as a career choice and identify opportunities for students who may be a good fit. Identify challenges to filling positions including transportation needs for workers from outside of the county, awareness of available positions, and connections with neighboring school districts.
- Incorporate transportation assets and proximity to markets into all county business attraction efforts to build the case for why Prince William County is a good location for all industries. Look to the Columbus 2020 best practice of teaming with major logistics infrastructure partners for mutual benefit.
- Attract logistics companies that are looking for a regional and affordable "last mile" solution. With proximity to major markets, access to transportation infrastructure, and available land for development/redevelopment, Prince William is well positioned to attract logistics companies that serve many different retailers, or a major retailer. Consider infill development opportunities for smaller

distributors serving the “same day delivery” market and continue. Finalize Zoning Text Amendment to update zoning classifications for e-commerce distribution facilities.

- Support innovation in the Logistics Cluster and the leveraging of existing IT resources to create new technologies that improve customer service, productivity, and reliability. Establish relevant career pathways that cross both sectors and help the region lead the charge innovative techniques around technology and transportation.

Additional Recommendations

Business Attraction Issues

- Increase personal outreach to keep the county first in the minds of potential investors and site selectors. Representatives for Prince William County should continue such activity and make a larger investment in public relations and branding directed at specific audiences, versus broad sectors. Demonstrate to potential businesses a detailed ecosystem of companies that are in or could connect with its target industries.
- Request additional resources for expanding the existing BRE efforts to grow annual business visitation and allow for greater information gathering and target industry analysis. Continue to build and invest in the existing CRM so that with time it becomes a robust business and industry intelligence system that informs pertinent DED staff and departments. Consider the need for additional staffing, additional staff engagement training and/or outsourcing initial business engagement for preliminary data gathering freeing up existing staff to focus on the most critical issues. Pursue a tiered approach to outreach, with focus on high-growth businesses being the highest priority. Identify what the high-growth businesses need to sustain their momentum and remain in Prince William County. Look to the Minneapolis-St. Paul Regional Economic Development Partnership, Greater Oklahoma City Chamber of Commerce and the Charlotte Regional Partnership for advanced best practices in turning BR&E information into business and industry intelligence and predictive analytics.
- Enhance the small business and entrepreneurship ecosystem by bringing the coworking space online, identifying and coordinating with additional small business assistance partners, and fully utilizing the new small business manager.

Development Issues

- Increasing capacity to support redevelopment of the I-95/Route 1 Corridor and implementation of the Small Area Plans will be vital to enhancing opportunities for residents and businesses throughout the county. This strategy should include increasing real estate related economic development capacity, continued county investment in infrastructure, review and possible modification of land use regulations, identifying opportunities for land assembly, and most importantly the offering of financial incentive tools. This long-term strategy will require that the County DED be provided the resources needed to add a staff person experienced in land assembly and real estate redevelopment. This individual would also act as liaison with Development Services and the Planning Department to provide ongoing guidance and support for the Small Area Plan implementation and to ensure these geographies can better meet the needs of the County’s targeted industry businesses.
- Even though the county economic development office has adequately articulated the vision, purpose and long-term objectives of Innovation Park, there continues to be a lack of understanding by the development community. Additional effort may be needed to regularly explain and promote the longer-term role for the Innovation Park and GMU’s Sci-tech Campus and expectations related to the County’s

future economy. The County may want to share the success of other similar successful innovation development efforts undertaken around the country, as well as consider an ROI analysis that accounts for its anticipated investment and the likely economic impact Innovation Park will have well into the future (20+ years). Creating ways to document, promote, and implement the county's vision for the future of Innovation Park will help developers understand its longer-term purpose and the role they can play.

- Develop a tax base analysis model that measures the fiscal implications of residential and commercial development to provide a clearer understanding of the economic and fiscal implications of a 35% commercial land use goal. Understanding the fiscal implications of land use policy will help decision makers and the public make more informed decisions. Look to neighboring communities to better understand what is a desired average in the region and consider land use policies that will result in meeting the county's fiscal goals.
- As previously referenced, the County's goal of improved public fiscal conditions and desire for a greater commercial tax base is challenged by market and financial feasibility conditions which favor greater residential development demand. Developers were clear that under current market conditions they have struggled with commercial and mixed-use development project proposals. Consideration should be given to the reduction or elimination of proffer requirements where mixed-use development would support the targeted industries and/or the type of development desired within the small area plans.
- Consideration should be given for providing financial incentives that would allow for a reasonable return on the completion of priority development projects that meet the County's commercial, mixed use and/or other planning area objectives. Outline all available incentives in an easy to understand format that provides developers with predictability and clarity.
- Review area plan zoning and encourage changes as appropriate to allow for M1 and M2 development (industrial/commercial space) within targeted corridors to meet the growing demand. Continue to offer fast tracked projects to make it streamlined and predictable for developers.
- County development and real estate market demand will be driven by the ability for the county to attract and retain companies that are expanding. The County should continue to work closely with companies to understand their needs (space, financial, technical assistance, workforce, etc.) and ensure they are being met so that they can remain in Prince William County.
- The county's targeted industry clusters all have different real estate requirements, so any recommendations should consider the ability for the industries to fit into existing or potential market space.

Small Area Plans

- **Dale City:** Finalize the plan for Board consideration. Consider rezoning to increase the amount of commercially zoned property to accommodate Information Communications Technology and Healthcare cluster companies.
- **Innovation Park:** Finalize the plan for Board consideration. Pursue development of the ICT and Life Sciences cluster in Innovation Park.
- **North Woodbridge:** Finalize the plan for Board consideration. Consider rezoning to increase the amount of commercially zoned property to be more attractive to Federal Government Contracting, Information Communications Technology, and Healthcare cluster companies.
- **Parkway Employment Center:** Finalize the plan for Board consideration. Make improvements to arterial roads to support trucking.

- [Route 29](#): Finalize the plan for Board consideration. Consider rezoning to increase the amount of commercial zoning available for Federal Government Contracting, ICT, and Life Sciences cluster companies.
- [Independent Hill](#): Consider rezoning to increase the amount of commercially zoned property to attract Information Communications Technology cluster companies. Review opportunity to extend natural gas service to the SAP to serve Advanced Manufacturing cluster companies.
- [Triangle](#): Consider rezoning to increase the amount of industrially zoned property to attract Advanced Manufacturing.
- [Yorkshire](#): Review opportunity to extend natural gas service to the SAP to serve Advanced Manufacturing cluster companies.
- [Fairgrounds/New Dominion](#): Pursue companies related to the ICT cluster.

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