RESONANCE

City of Charlottesville

Economic Development Strategic Plan 2024-2028 - Technical Appendices

Table of Contents

Executive Summary

Ranked as one of the best places to live in Virginia, Charlottesville has something for everyone. Located only two hours from Washington D.C., and home to the world-class University of Virginia, Charlottesville offers a healthy economy, high innovation potential, and an assortment of recreational opportunities. Charlottesville's tourism and business assets help to attract talent, visitors, and investors from across the globe.

Charlottesville has a robust diverse economy driven by a wide array of industries from bioscience and life sciences to defense and security. The City provides a fertile environment for growth and expansion, offering a vibrant business climate with a highly qualified and engaged workforce. The University of Virginia bolsters the region by encouraging high levels of education along with several entrepreneurial and innovation-centered programs. Also, through the pipeline of emerging technologies from educational institutions, strength in STEM occupations, and a strong focus on innovation and tech industries, the City of Charlottesville has the foundation necessary for long-term economic growth and success.

Now is the time for Charlottesville to adopt a modern economic development strategy that harnesses the City's assets and prioritizes resources to achieve productive and sustainable growth.

A detailed Benchmarking Analysis that compares Charlottesville to 12 peers has allowed us to identify the strengths/competitive advantages, weaknesses/challenges, opportunities and constraints of the City's future economic prosperity.

Key insights from the Benchmarking Analysis:

- Charlottesville is a young city with a growing population. The City is home to more than 50,000 residents, and the median age is almost six years younger than the national average.
- Charlottesville is well-educated. Anchored by the University of Virginia, the City's share of residents with a Bachelor's degree is 72% higher than the national average.
- Charlottesville has the fundamentals of a healthy economy. The City has an $11 billion economy, a high labor force participation rate, a low unemployment rate, and steady job growth.
- Charlottesville has the ingredients for a strong innovation economy. The share of professional establishments, STEM occupations, and creative class occupations are all higher than the national average.
- Charlottesville has relatively high gender equity. The labor force participation rate for men and women is almost equal. The gender earnings gap and the share of women-owned businesses also rank favorably compared to the national average.

- **Equity gaps are present in the City**. There are gaps in earnings, poverty, and educational attainment between White and BIPOC populations. This presents an opportunity to enhance inclusion in the City's economic development planning.
- **Charlottesville offers many quality of life amenities**. The City is a tourism hub with many experiences and activities. Walkability is high throughout the area.

A Target Sector Cluster Analysis has also been conducted for Charlottesville to summarize the City's industry clusters (strengths, both emerging and retracting). The analysis employed customized industry definitions to precisely measure Charlottesville's target cluster concentrations and to ensure they can guide future business development efforts. This analysis is the essential foundation for supporting all future business attraction, expansion efforts, foreign-direct investment, and incentives, and helps to shape a narrative that resonates with new enterprises, site-selectors and talent.

Our target cluster analysis also assesses traded clusters from comprehensive lens of competitiveness, equity, and resilience, as opposed to an evaluation that relies solely on an economic growth focus.

Six target industries were assessed for Charlottesville's Economic Development Strategy:

1. The **Bioscience and Life Sciences** cluster is the strongest overall in Charlottesville and is closely linked to Charlottesville's Healthcare cluster, ranking first in both competitiveness and equity. It contributes the most to the local economy with a GRP of $373 million, and benefits from a resilient industry base. At 7%, it has the lowest share of jobs at risk of automation.
2. The **Information Technology** cluster is the strongest in terms of resilience; the cluster is well educated with the highest share of employees with a Bachelor's degree (62%). This is Charlottesville's fastest growing cluster and offers the highest average earnings per job.
3. The **Business and Financial Services** cluster is one of the fastest growing clusters and is projected to grow the most over the next five years. The local impact is the strength of this cluster, as it has the highest share of BIPOC employees (38%) and satisfies most of its supply chain requirements in-region (70%).
4. Charlottesville's largest cluster is **Tourism**, with 4,300 workers. Although it has the highest share of female employment (54%), overall employment has decreased in the last five years, and the cluster offers the lowest average earnings.
5. **Defense and Security** is the smallest but most competitive cluster. It has the highest overall location quotient among Charlottesville's clusters (2.91). It is well educated and highly productive.
6. The **Clean Technology and Renewable Energy** cluster is the second largest in terms of employment (3,100 workers) and provides significant opportunities for lesser educated workers.

In addition, our team performed a Career Pathway Analysis that can guide future workforce development work in Charlottesville by upskilling workers and connecting them with higher paying jobs. Given the diverse make-up of Charlottesville and the strong focus on developing an inclusive economic development strategy, this analysis focused on occupations with a high share of BIPOC (Black, Indigenous, and People of Color) employment and that offer career pathways that serve Charlottesville's target industry clusters.

Through the Career Pathway Analysis, we have identified majority BIPOC occupations in the Transportation, Healthcare, and Tourism sectors (occupations with more than 50% BIPOC employment) and offered career pathway ladders that result in increases in earnings for those workers. We have complemented that work by identifying skill, training, and educational needs to make the transitions for the first- and second-level jobs.

Our team performed a review of the real estate market in the City across all commercial property types - Office, Industrial, and Retail. The goal of this exercise was to ensure demographic trends and projections (i.e. Demand) are balanced with real estate market performance and inventory (i.e. Supply) so the City can take necessary regulatory and policy measures to support the growth and/or evolution of critical real estate in commercial nodes.

Key insights from the Real Estate Market Assessment:

- Charlottesville's office vacancy rate has remained high following impacts of the COVID-19 pandemic and the growth of remote work. Office vacancy rates are projected to stabilize at 7.5-8% by 2028, a decline of 1.5% from its peak pandemic rates.
- To maintain a healthy vacancy rate in the office market, Charlottesville will need to manage and maintain its existing inventory over the next decade. Projected growth in office-occupying jobs will generate demand for 7.9 million SF of office space in the next ten years – nearly 700,000 SF access supply.
- Charlottesville is a small and expensive industrial market. With a limited inventory of 2.1 million SF, the City's average lease rates are projected to increase 46% from pre-pandemic levels with Flex Spaces primarily driving this rent increase.
- To maintain the existing industrial spaces in the market, the City should capture demand from specialized manufacturing and wholesale trade of medical and pharmaceutical products – ancillary industrial uses to the bioscience and life science economic clusters.
- Downtown Charlottesville is competing for consumer demand in a competitive regional market. Compared with 1.7 million SF of retail space in Downtown, the Route 29 corridor is more than two times the size of downtown with over 3.6 million SF of retail across various destination malls anchored by well-known brands.

- **There are opportunities for the City to grow its supply of retail strategically in existing clusters such as Downtown, or in neighborhoods where resident population growth is anticipated.** However, differentiation from the growing inventory along Route 29 will be critical to success. This includes diversifying retail concepts and brands located along commercial corridors, as well as embracing community-oriented service offerings in ground floor retail spaces such as 'medtail'.

Our team also performed targeted outreach to key stakeholders to gather input on strategic priorities, as well as to develop a broad sense of plan ownership, collaboration, and create advocates for the plan's goals. Discussions addressed an array of issues: growing an entrepreneurial ecosystem, promoting the city's quality of place, engaging local anchor institutions to drive development, positioning Charlottesville as a place ideal for young professionals and more.

From these discussions we've learned about Charlottesville's people and culture, placemaking initiatives and challenges, the community desire for change and social equity, its location advantage, and its small business ecosystem. We've also heard about housing challenges, workforce development needs, and the need to promote equity and inclusion.

We have also conducted a community and business survey. The survey was answered by 280 respondents - mostly residents - and gathered their opinion around living and working in the city, to be able to identify key opportunities for improvement and growth.

Appendix A: Community Competitive Assessment

This chapter synthesizes the economic trends impacting the City of Charlottesville, Virginia. It provides a current snapshot of community and economic conditions in the City that provide direction regarding strategic actions. These data points can serve as a point of reference to gauge the City's performance, outline the City's competitive advantages or weaknesses, and give premise to the approaches and recommendations in the economic development strategy.

For context and comparison, this analysis compares Charlottesville to 12 American communities, whose size, demographics, and economics are like the City or that offer policies and best practices that the community can look to:

Peer Communities
1. Ann Arbor city, Michigan
2. Asheville city, North Carolina
3. Athens-Clarke County unified government, Georgia
4. Bend city, Oregon
5. Blacksburg town, Virginia
6. Boulder city, Colorado
7. Burlington city, Vermont
8. Durham city, North Carolina
9. Frederick city, Maryland
10. Greenville city, South Carolina
11. Lynchburg city, Virginia
12. Roanoke city, Virginia

The analysis also includes benchmarking Charlottesville against the Commonwealth and national averages for some key selected metrics. Over 75 metrics were collected for Charlottesville and the benchmarking communities. The metrics fall into the following six categories: People and Diversity, Talent, Economic Vitality, Innovation, Equity, and Quality of Place.

Methodology

The methodology for the benchmarking analysis revolves around the use of three main fundamental tools: the calculation of shares, growth rates, and National Location Quotients.

Shares/ratios

Help us view the figures as part of the whole and creates a common basis for comparison between benchmark communities.

Growth rates

Allow us to assess the change in a certain value over time. By definition, they express the recession or expansion of a particular variable. In all cases, a five-year time span is chosen.

National Location Quotients

Allow us to assess the concentration or dominance of a certain community characteristic (e.g., share of millennial population, share of immigrants, etc.) or industry competitiveness. The National Location Quotients use the US national value as a benchmark. In this sense, a value higher than one demonstrates a concentration/specialization relative to the US norm, while a value lower than one indicates that the characteristic is under-represented in Charlottesville.

The assessment also provides comparisons to the Commonwealth averages when appropriate. Benchmarks and metrics were selected in partnership with the City Staff.

Data sources

For purposes of this project, most of the data referenced in this chapter was sourced from the American Community Survey, Emsi Lightcast, and Esri. The data sources are indicated at the bottom right-hand corner of the charts.

Emsi serves as an economic data analytics advisor to leaders in economic development organizations, higher education, business, and community, by gathering and integrating economic, labor market, demographic, education, profile, and job posting data from dozens of government and private-sector sources, creating a comprehensive and current dataset that includes both published data and detailed estimates.

Esri is the global market leader in geographic information system (GIS) software, location intelligence, and mapping, supporting customers with geographic science and geospatial analytics.

KEY INSIGHTS

Charlottesville is a young city with a growing population.
The City of Charlottesville is home to nearly 50,000 residents, making it the 20th largest city in Virginia. The area is emerging, with 3% growth over the past five years and a median age of 32 is almost six years younger than the Commonwealth average.

Charlottesville is well-educated.
Anchored by the University of Virginia, the 25th ranked University in the nation, the City's share of residents with a Bachelor's degree is 58%. That value is 43% higher than the Commonwealth average and 72% higher than the national average.

Charlottesville has the fundamentals of a healthy economy.
The City has an $11 billion economy, 5th highest among peer communities. It benefits from an engaged workforce, with a high labor force participation rate (65%) and a low unemployment rate (4%). This indicates healthy growth, economic resilience, and a strong ability to attract talent.

Charlottesville has the ingredients for a strong innovation economy.
The share of professional establishments (14%) ranks 5th among peers. With STEM occupations growing 8% and creative class occupations growing 6%, the share of employment in both areas is higher than the national average.

Charlottesville has relatively high gender equity.
The labor force participation rate for men and women is roughly equal. The gender earnings gap ($8,000) and the share of women-owned businesses (19%) also rank favorably compared to the national average.

Equity gaps are present in the City.
There are significant gaps in earnings, poverty, educational attainment, and homeownership between White and BIPOC populations. Charlottesville consistently ranks 10th or below among peers in these categories. This presents an opportunity to enhance inclusion in the City's economic development planning.

Charlottesville offers many quality of life amenities.
The City is a tourism hub with many experiences and activities. Walkability is high throughout the area with viable alternative commuting options and over 3,000 miles of biking trails.

PEOPLE AND DIVERSITY

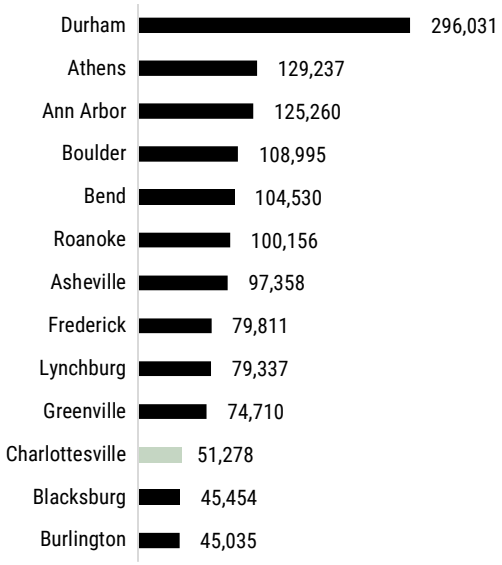
A region's demographic diversity creates stronger innovation and global linkages, which in turn creates more resilience and adaptability. It enables the community to be stronger and to compete on a larger scale in the global economy, as people from different backgrounds bring language skills, new ways of thinking, innovative ideas, and creative solutions.

Charlottesville, a young community with a strong talent pool, has experienced steady population growth in the last five years. The following outlines the key takeaways from the analysis of Charlottesville's population and demographics:

Steady population growth

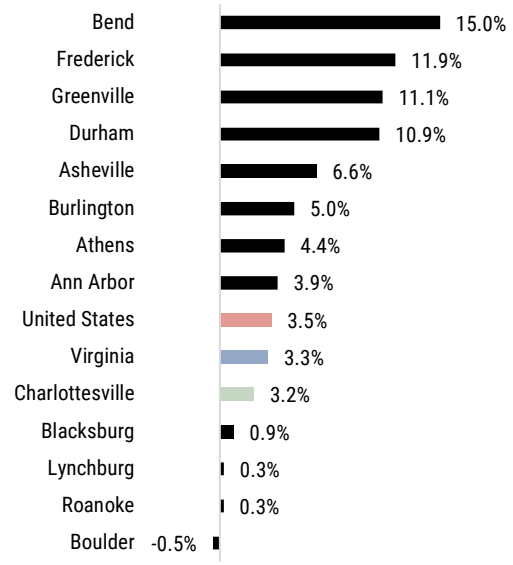
The City of Charlottesville, home to over 50,000 people, grew by 3% in the last five years, a rate on pace with the Commonwealth and national averages.

Chart 1.1 Population Size



Source: American Community Survey, 2021

Chart 1.2 Population Growth Rate

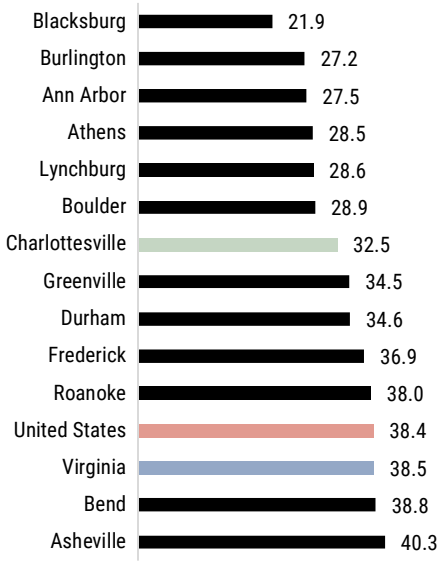


Source: American Community Survey, 2016 & 2021.

Population skews younger than peers

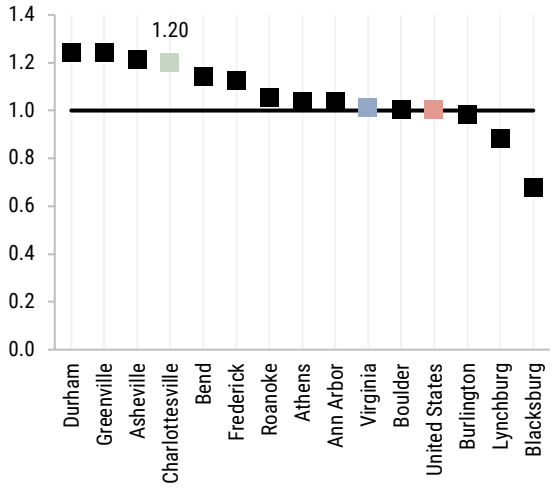
With a median age of 32.5 years, Charlottesville's population is six years younger than the Commonwealth and national averages. At 32%, the share of people aged 25-44 is 20% higher than the national average.

Chart 1.3 Median Age



Source: American Community Survey, 2021

Chart 1.4 Location Quotient of Prime Talent Pool

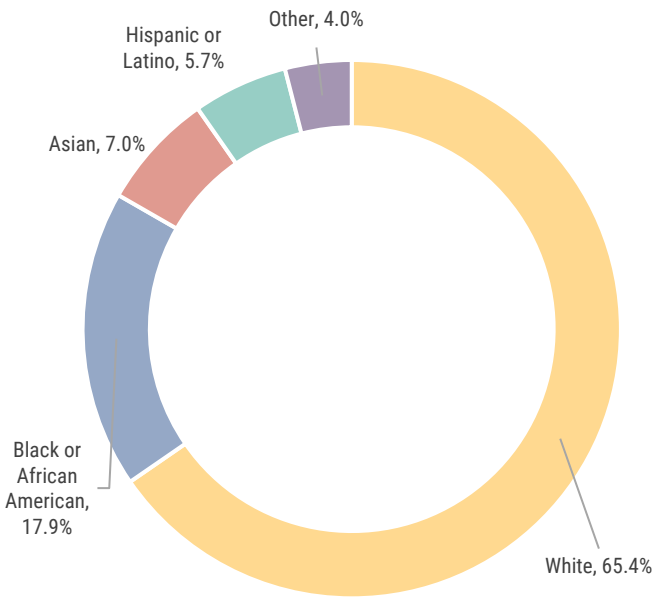


Source: American Community Survey, 2021.

Diverse community

Charlottesville has a diverse population, more than three in 10 residents are People of Color.

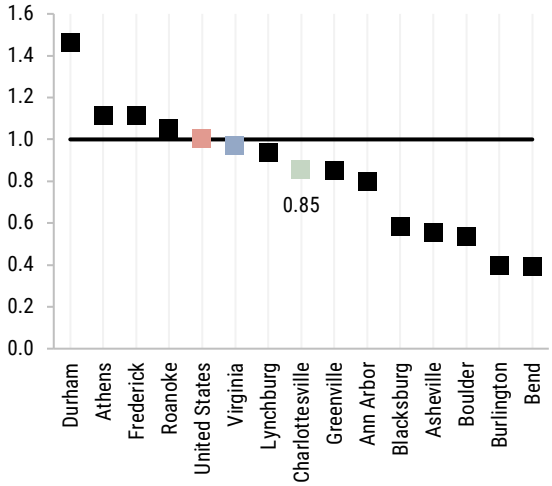
Chart 1.5 Share of Population by Race



Source: American Community Survey, 2021

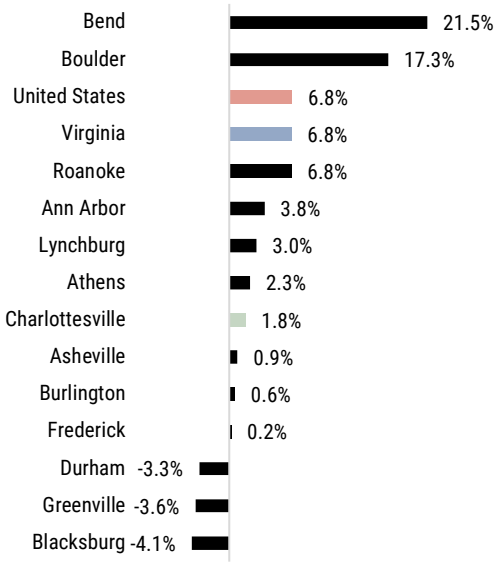
At 35%, the share of BIPOC residents in Charlottesville is 15% lower than the national average. The BIPOC population has grown by 2% in the past five years, a rate that is roughly half of the overall population growth, and three times slower than the Commonwealth and national BIPOC population growth.

Chart 1.6 Location Quotient of BIPOC population



Source: American Community Survey, 2021

Chart 1.7 Growth Rate of BIPOC population



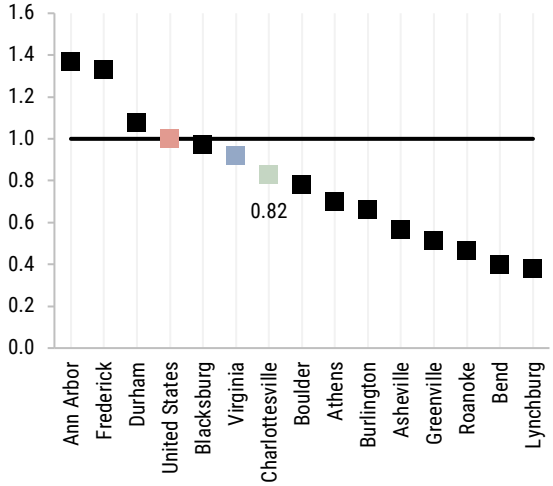
Source: American Community Survey, 2016 & 2021

Decrease in foreign-born population

More than 11% of Charlottesville residents are foreign-born, a share that is 18% lower than the national average. The foreign-born population in Charlottesville has decreased by 8% in the last five years. Although this falls behind the Commonwealth and national averages, which have both experienced growth, many of Charlottesville's peer communities also have a declining foreign-born population.

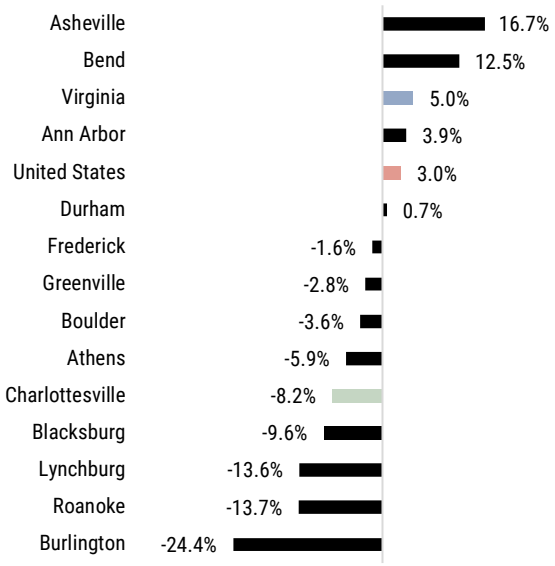
Immigration-fueled diversity promotes economic growth, where a richer pool of expertise and experiences can create organizational synergies, leading to better outcomes and nurturing technological ideas, new ideas, and a greater variety of goods and services as it relates to economic provisions.[1] In this sense, Charlottesville has the opportunity to position itself ahead of its peers for immigration attraction and economic growth.

Chart 1.8 Location Quotient of Foreign-Born Population



Source: American Community Survey, 2021

Chart 1.9 Growth Rate of Foreign-Born Population



Source: American Community Survey, 2016 & 2021

[1] Source: Bove, V. (2016, November 16). Diversity and economic development. VOX, CEPR Policy Portal.

TALENT

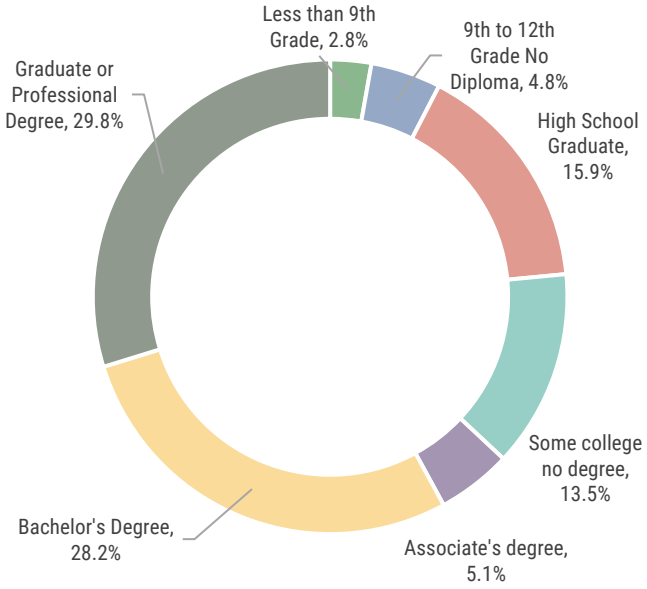
Talent is an economy's most precious resource, and economies grow when they develop and deploy their people in ways that maximize their productive potential. This section describes the quality and type of the existing workforce in Charlottesville, which is an important factor for business retention and growth.

The University of Virginia gives Charlottesville a strong talent pool, educational attainment is 72% higher than the national average. It's no surprise that the share of employment in creative class occupations (29%), has continued to grow over the past five years. The following are key takeaways about Charlottesville's various talent metrics:

Educational attainment in Charlottesville

More than half (58%) of residents (25 years and over) in Charlottesville have a Bachelor's degree or higher. Tertiary education is an important determinant of economic growth; it not only leads to higher individual income, but also is a precondition for greater productivity and long-term economic growth. Human capital is at the heart of an innovative and prosperous community.[2]

Chart 1.10 Educational Attainment in Charlottesville

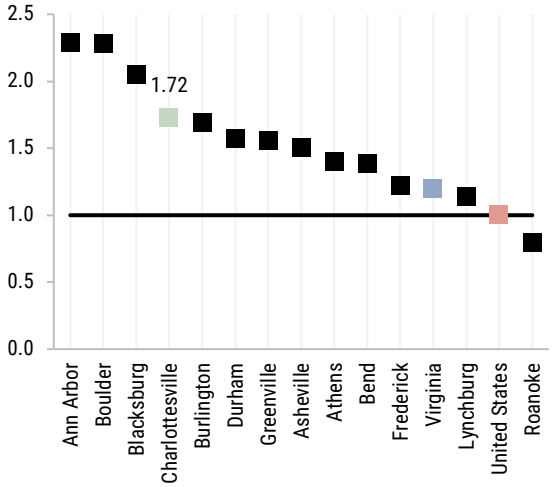


Source: American Community Survey, 2021

[2] Source: Review education policies - Education GPS - OECD. (2021). OECD.

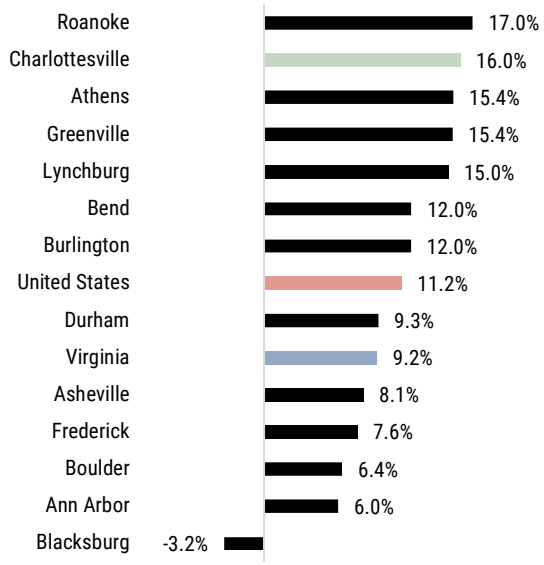
Charlottesville's share of residents is with a Bachelor's degree or higher is 72% higher than the national average. Despite already high levels of educational attainment, Charlottesville's growth rate of residents with a Bachelor's degree or higher remains high. At 16% growth, the City ranks second among peer communities.

Chart 1.11 Location Quotient of Population with a Bachelor's Degree or Higher



Source: American Community Survey, 2021

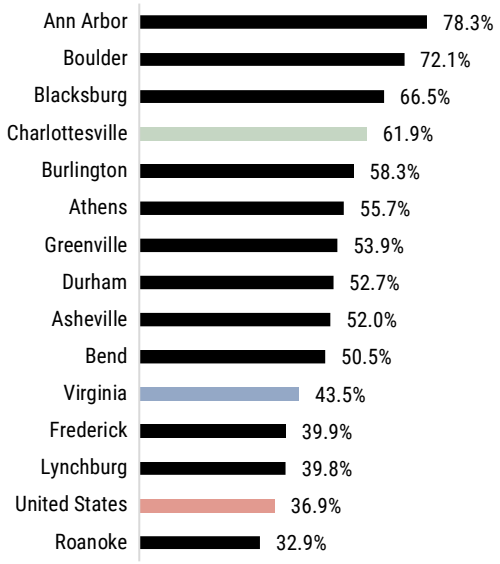
Chart 1.12 Growth Rate of Population with a Bachelor's Degree or Higher



Source: American Community Survey, 2021

The City's high education level is bolstered by the in-migration of people with a Bachelor's degree or higher. Charlottesville's share (62%) is 42% higher than the Commonwealth and 68% higher than the national averages.

Chart 1.13 Share of Migrants with a Bachelor's Degree or Above



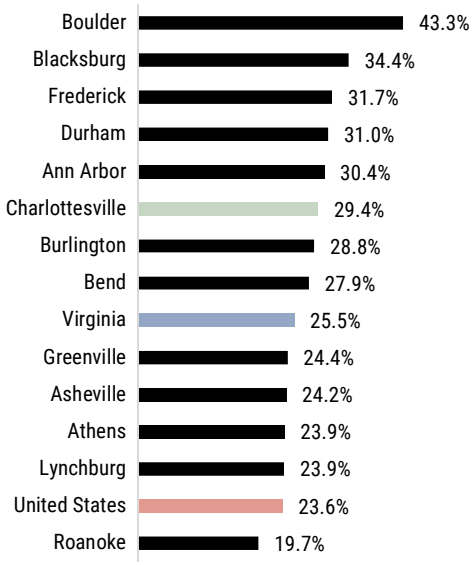
Source: American Community Survey, 2021

Creative class occupations in Charlottesville

Roughly 29% of Charlottesville employees are employed in knowledge-based or "Creative Class" occupations. It is believed that the Creative Class brings economic growth to its community through new ideas, technological progress, and the most dynamic companies.[3]

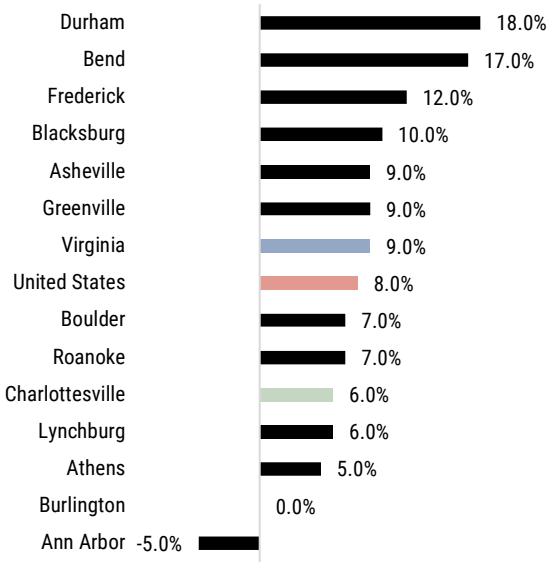
Charlottesville's share of employment in the creative class is 15% higher than the Commonwealth and 25% higher than the national averages. The City's strong creative class grew steadily over the past five years, at a rate of 6%.

Chart 1.14 Share of Employment in Creative Class Occupations



Source: Lightcast™, 2022

Chart 1.15 Growth Rate of Employment in Creative Class Occupations



Source: Lightcast™, 2017 & 2022

[3] Source: Florida, R. (2014, July 17). Economic Development Quarterly : The Creative Class and Economic Development. Creative Class Group.

ECONOMIC VITALITY

Economic vitality showcases the strength and efficiency of a region's economy. With favorable metrics, a region can expect continued economic growth and prosperity. Most importantly, a dynamic economy is more resilient and better able to handle economic shocks.

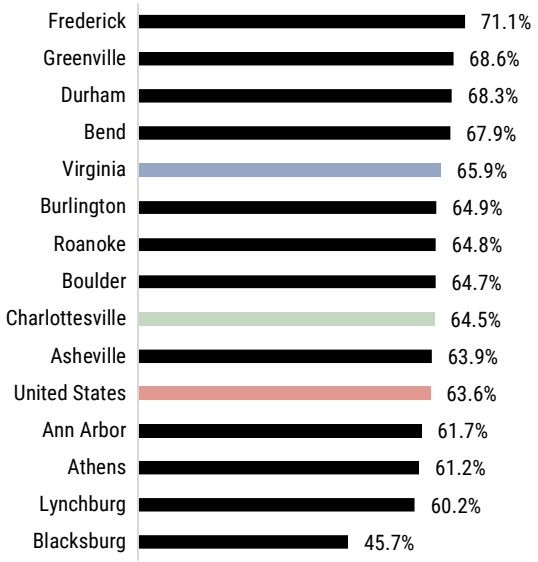
Charlottesville is fueled by an engaged workforce, a strong concentration of businesses, and steady job growth. A healthy economy, as well as growing median earnings, sets the stage for further growth in the City. A detailed analysis of Charlottesville's economic vitality is presented below:

Engaged workforce

The labor force participation rate is an important gauge of the health and potential output of the economy. As the economy expands, more individuals will be encouraged to enter the labor force – a measure including both employed persons and the unemployed who are actively seeking employment.

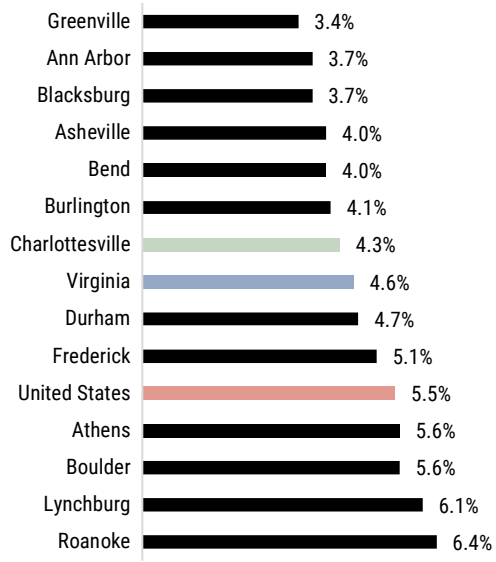
Charlottesville's labor force participation rate is on par with the Commonwealth and national averages – almost 65% of residents are part of the workforce. The City's unemployment is 22% lower than the national average.

Chart 1.16 Labor Force Participation Rate



Source: American Community Survey, 2021

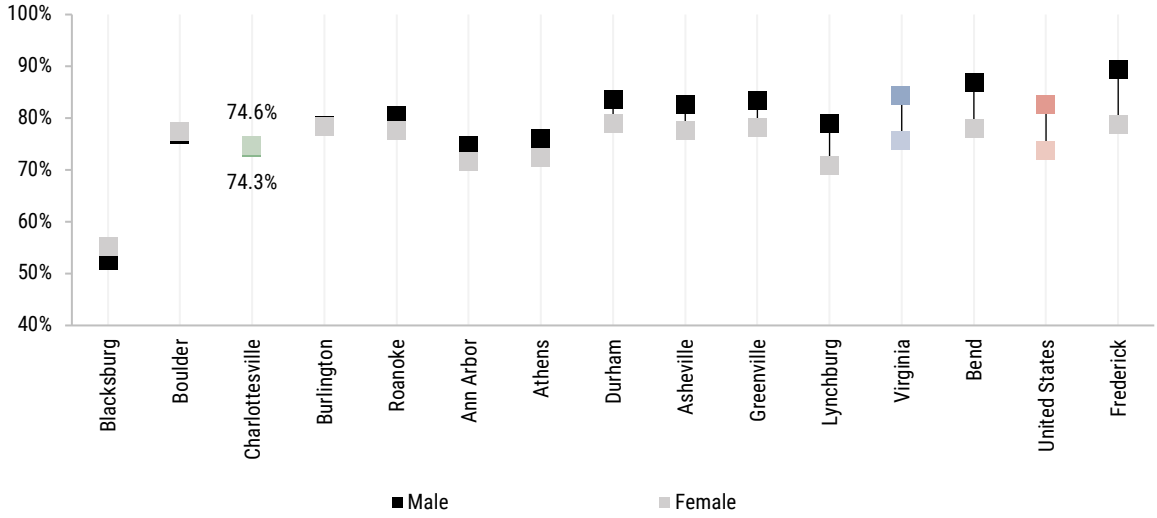
Chart 1.17 Unemployment Rate



Source: American Community Survey, 2021

When evaluating the labor force participation rate by gender, no significant gap is revealed. The labor force participation rate for men and women in Charlottesville is about even, ranking third among peer communities. This indicates relatively high gender equity in workforce involvement.

Chart 1.18 Labor Force Participation Rate by Gender

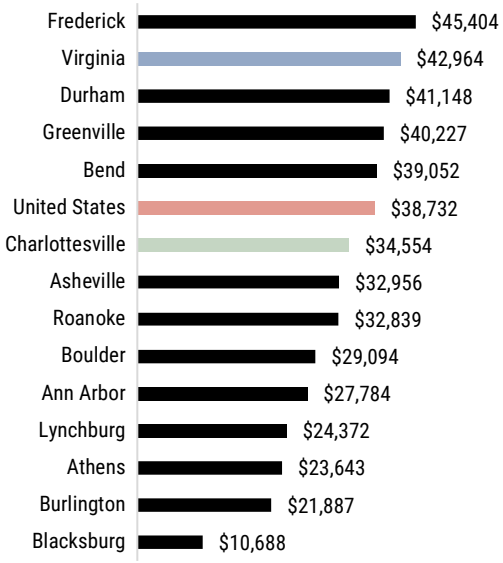


Source: American Community Survey, 2021

Positive earnings growth

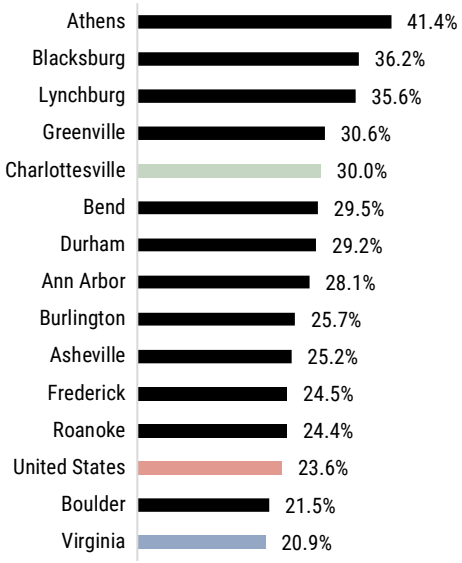
Median earnings are becoming more competitive in Charlottesville. The City's earnings growth rate of 30% is 44% higher than the Commonwealth average and 27% higher than the national average.

Chart 1.19 Median Earnings



Source: American Community Survey, 2021

Chart 1.20 Growth in Median Earnings

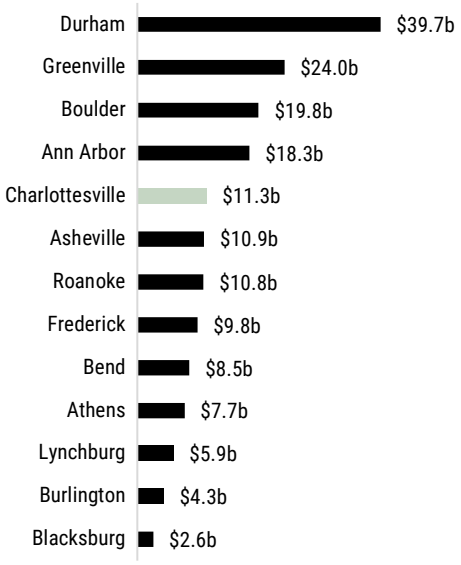


Source: American Community Survey, 2016 & 2021

Moderate values for GRP and Productivity

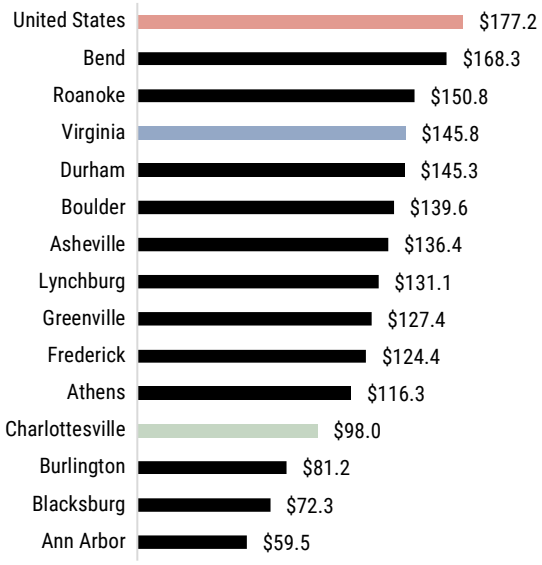
With a Gross Regional Product of $11 billion, Charlottesville's economy is similar in size to Asheville and Roanoke. Productivity is moderate throughout Charlottesville, with an added value per worker of $98.

Chart 1.21 Gross Regional Product



Source: Lightcast™, 2022

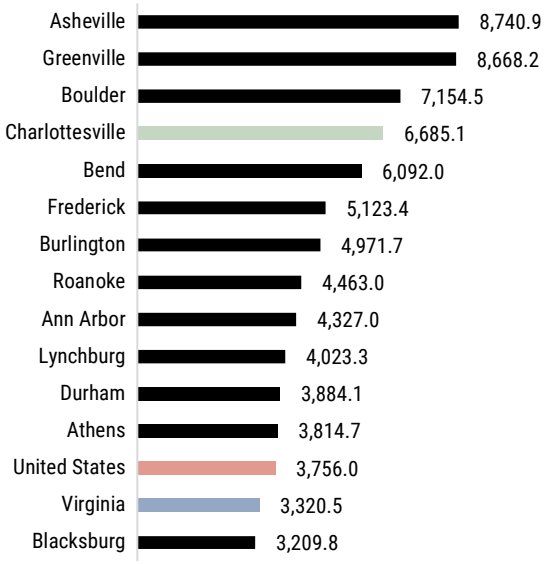
Chart 1.22 Added Value per Worker



Source: ESRI Business Analyst, 2022

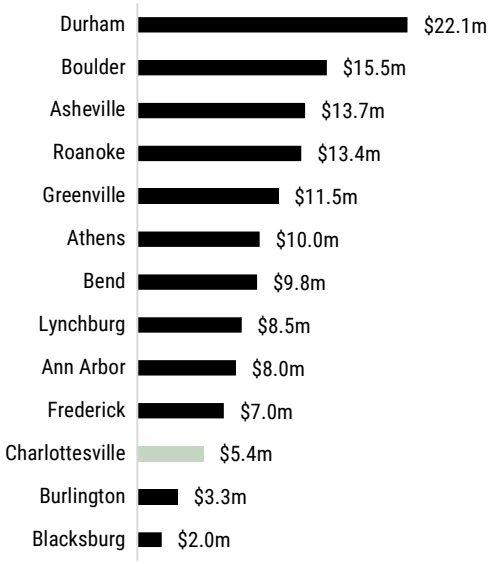
Charlottesville has a large share of businesses, ranking 4th among peer communities for businesses per 100,000 residents. Those businesses combine to contribute over $5 million in sales.

Chart 1.23 Businesses per 100,000 residents



Source: ESRI Business Analyst, 2022

Chart 1.24 Sales Value of All Businesses

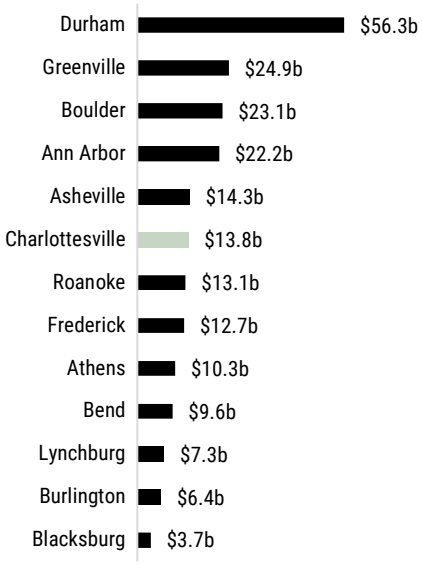


Source: ESRI Business Analyst, 2022

Strong export economy

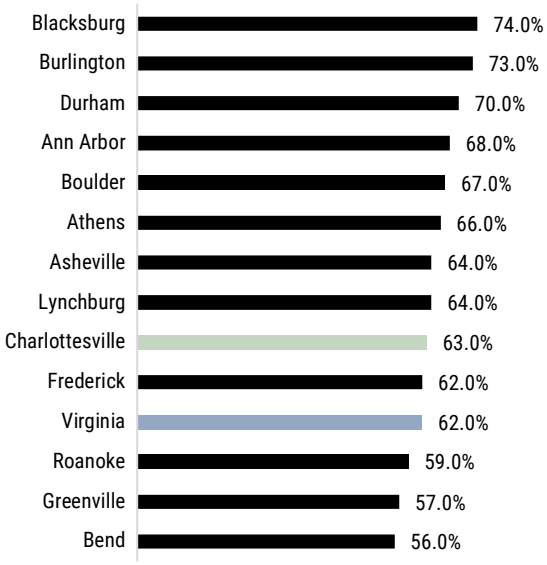
Charlottesville ranks 6th for the value of its exports, its value of $14 billion is on par with many of the peer communities. It's share of exports (63%) is similar to the Commonwealth average. Through higher exports, communities can take advantage of the U.S. reputation of high-quality goods, expand the customer base, and bring money into the local community.[4]

Chart 1.25 Value of Exports



Source: Lightcast™, 2022

Chart 1.26 Share of Exports



Source: Lightcast™, 2022

[4] Why Export? International Trade Administration. United States of America Department of Commerce.

INNOVATION

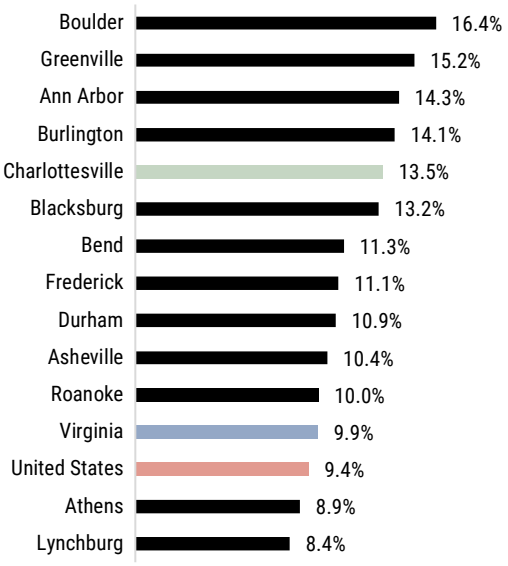
One of the major benefits of innovation is its contribution to economic growth. In this section, we have chosen metrics that are closely linked to innovation, technology, and education; the sectors that drive productivity forward.

Charlottesville is a leader in innovation with a growing share of STEM occupations, a strong supporting infrastructure, and the highly-ranked University of Virginia. The strength of this ecosystem to produce new ideas and companies in Charlottesville is presented in the analysis below:

Establishments in the professional services sector

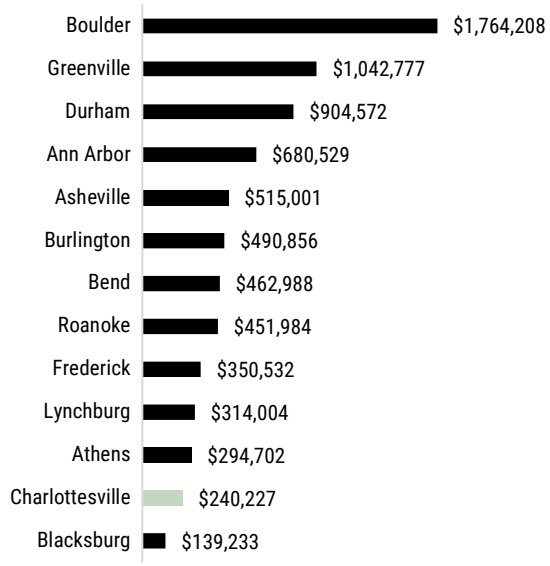
Professional Service establishments make up over 13% of businesses in Charlottesville, generating $240,000 in revenue.

Chart 1.27 Share of Establishments in the Professional Services Sector



Source: ESRI Business Analyst, 2022

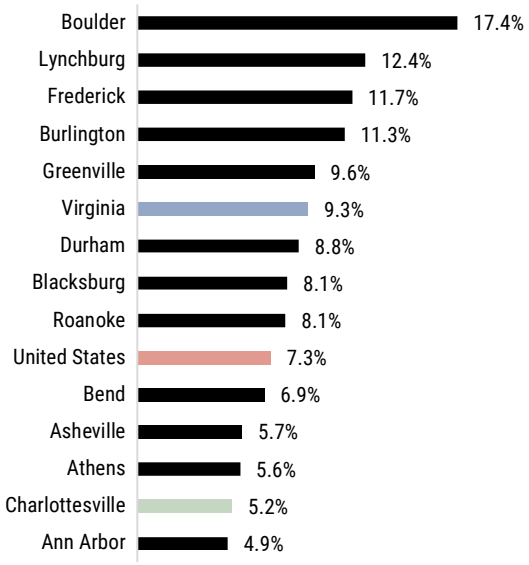
Chart 1.28 Revenues from Establishments in the Professional Services Sector



Source: ESRI Business Analyst, 2022

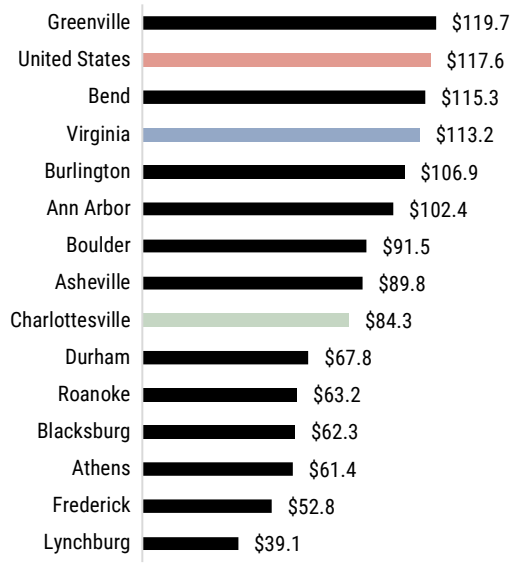
Just over 5% of Charlottesville's residents are employed in professional services – a share that is 45% lower than the Commonwealth average and 29% lower than the national average. The added value of a worker in professional services is stronger in Charlottesville, with a value of $84 ranking 7th among peer communities.

Chart 1.29 Share of Employment in Professional Services



Source: ESRI Business Analyst, 2022

Chart 1.30 Value Added of Worker in Professional Services



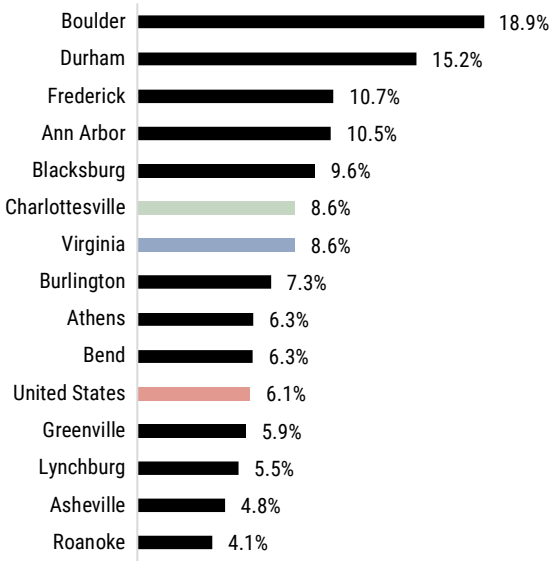
Source: ESRI Business Analyst, 2022

Employment in STEM Occupations

Making up 9% of the workforce, Charlottesville's share of employment in STEM occupations is on par with the Commonwealth average and 41% higher than the national average. This strong base of Charlottesville's innovation economy has grown by 8% in the past five years, indicating steady improvements.

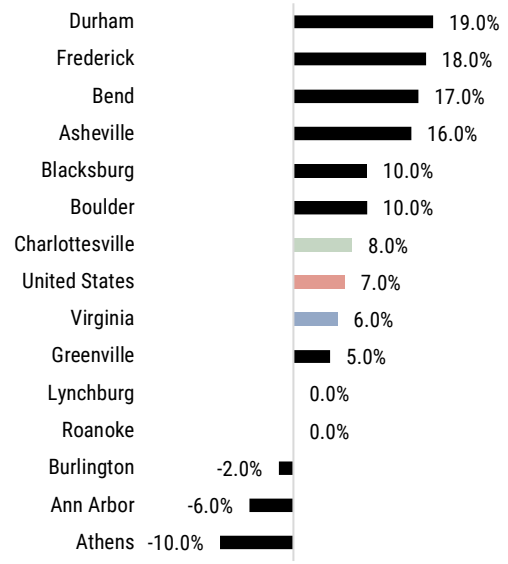
STEM occupations are advantageous not only to workers, with higher median wages, but also to a region in general. Areas with higher levels of STEM occupations tend to have higher levels of job growth, employment rates, and exports; all key factors of economic growth and vitality.[5]

Chart 1.31 Share of Employment in STEM Occupations



Source: Lightcast™, 2022

Chart 1.32 Growth Rate of Employment in STEM Occupations



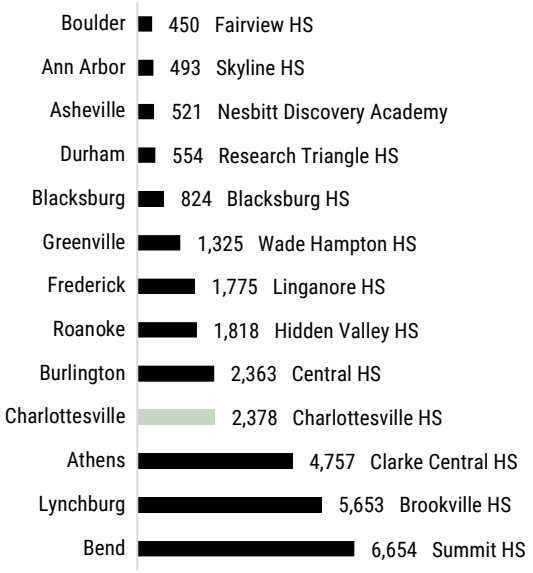
Source: Lightcast™, 2017 & 2022

[5] Rothwell, J. (2013, June). The Hidden STEM Economy. Brookings.

Quality education infrastructure

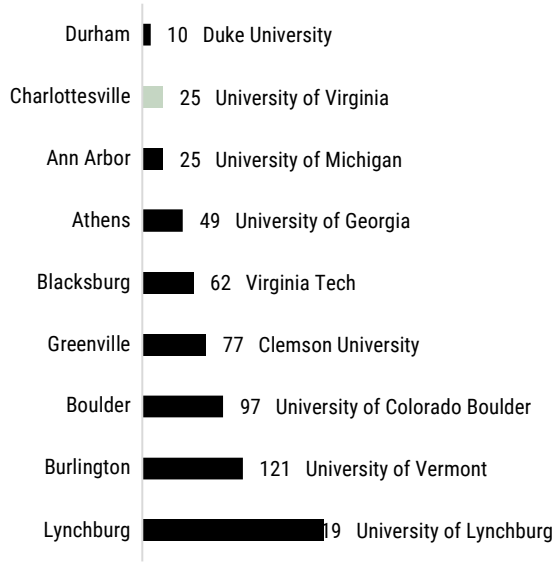
Charlottesville's Classical Academy High School ranks 2,378th nationally and 10th among the peers. The University of Virginia ranks 25th nationally and 2nd among peers. Strong education institutions increase talent in Charlottesville by attracting families to the region and by strengthening the local education base.

Chart 1.33 Ranking of Best High School



Source: US News, 2023

Chart 1.34 Ranking of Best University



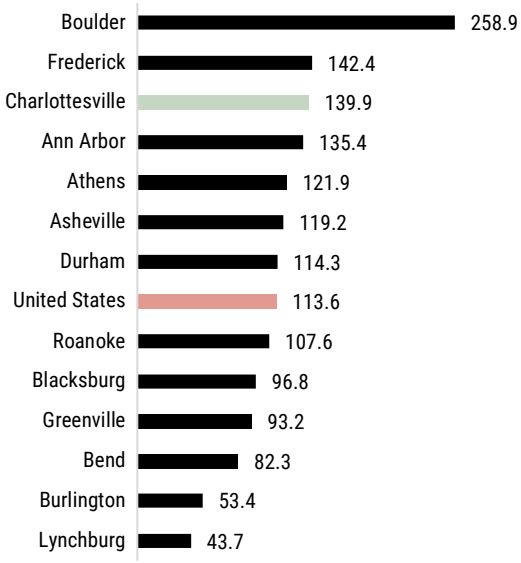
Source: US News, 2023

Reliable Internet Infrastructure

A reliable internet connection is no longer a 'nice to have' but a necessity. Whether it's for working, studying, or accessing services, the internet keeps activities alive – and the COVID 19 pandemic has further highlighted the importance of a fast and reliable internet connection. Reliance on the internet is not going to change now that the crisis has passed, rather it will continue to be an important part of our personal and professional lives.[6]

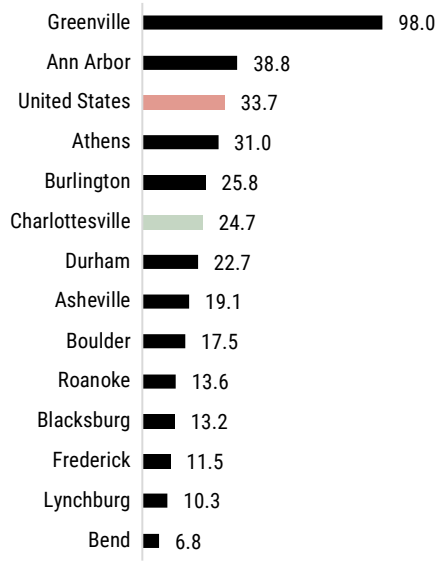
Charlottesville has the third fastest download speed among the benchmarks. It ranks fifth for upload speed.

Chart 1.35 Average Download Speed (Mbps)



Source: TestMy.net, 2023

Chart 1.36 Average Upload Speed (Mbps)



Source: TestMy.net, 2023

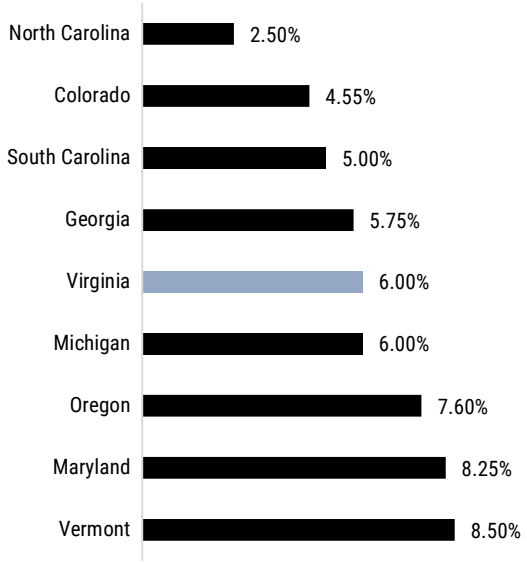
[6] Source: Wheeler, T. (2022, March 9). 5 steps to get the internet to all Americans. Brookings

Pro-Business Tax Climate

The literature suggests that tax cuts have positive effects on economic growth, and studies have shown that marginal tax cuts on individual income are correlated with increases in GDP and declines in unemployment[7]. A 2018 study looking at 250 state corporate tax changes from 1970 to 2010 has found tax increases have been uniformly harmful throughout the study period, while a 1% cut in statutory corporate tax rate leads to a 0.2% increase in employment and a 0.3% increase in wages.[8]

Virginia has a 6% corporate income tax rate, among the lowest in the country.

Chart 1.37 State Corporate Tax Rate



Source: Tax Foundation, 2023

[7] Source: Gale, William G. & Samwick, Andrew A. (2014). Effects of Income Tax Changes on Economic Growth. Economic Studies at Brookings.

[8] Source: Ljungqvist, A., & Smolyansky, M. (2018). To cut or not to cut? On the impact of corporate taxes on Employment and Income. National Bureau of Economic Research.

EQUITY

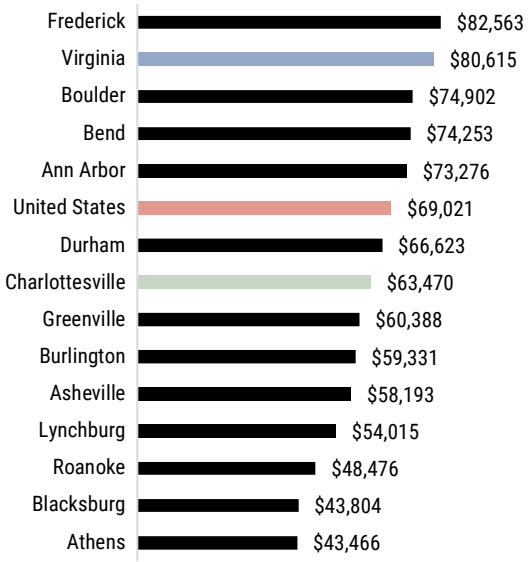
Equity evaluates who benefits from growth within a community. Research has found that greater economic equity enables more people to engage at a higher level and add value in ways that help the economy perform better overall.[9]

Although Charlottesville a strong economy with growing earnings and high educational attainment, equity issues are present. Gaps between White and BIPOC residents exist in income, poverty, education, and home ownership. These challenges present an opportunity for inclusive economic development. A closer look at equity in Charlottesville is presented in the analysis below:

High median household income and growth rates

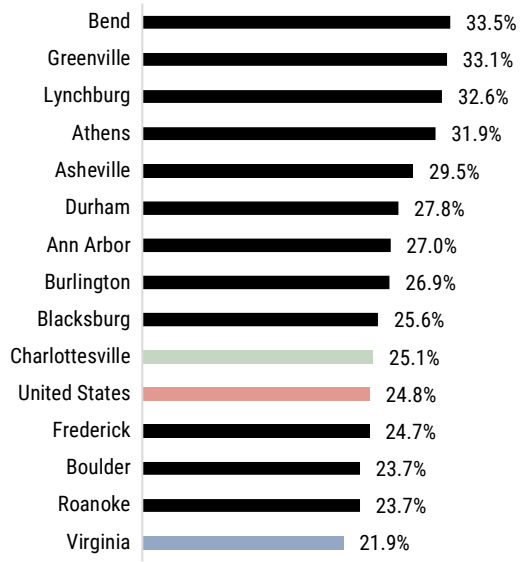
Median household income in Charlottesville is $63,470. Although income is 22% smaller than the Commonwealth average and 9% smaller than the national average, the City's 25% income growth is higher than both.

Chart 1.38 Median Household Income



Source: American Community Survey, 2021

Chart 1.39 Growth Rate in Median Household Income

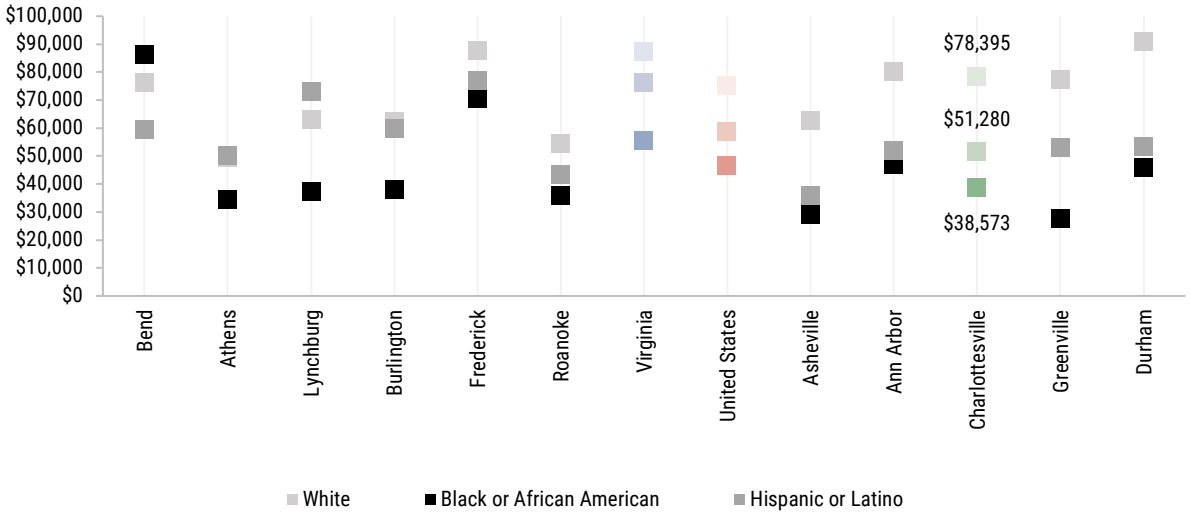


Source: American Community Survey, 2016 & 2021

[9] Source: Morgan, Jonathan (2016). Equity and Economic Development: What's the Connection? University of North Carolina School of Government.

The median income for a White household in Charlottesville is more than double that of a Black household. The overall income gap ranks 9th among peers. An equitable distribution of income by race enhances Charlottesville's potential for economic growth.

Chart 1.40 Median Income, by Race



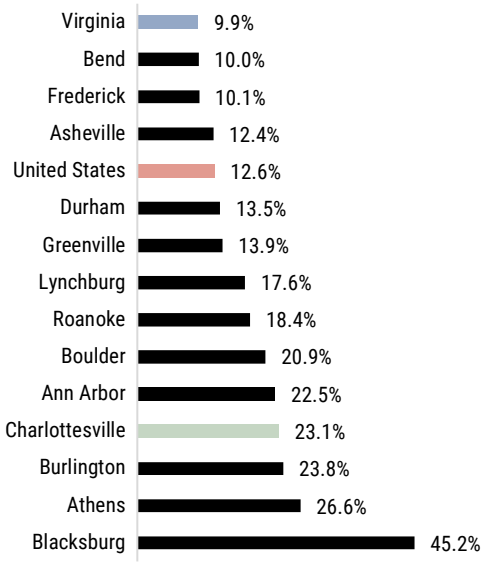
Source: American Community Survey, 2021
Note: Boulder and Blacksburg are missing because data is unavailable

Poverty rates in Charlottesville

Approximately 23% of Charlottesville's residents live below the poverty line, a rate that is more than double the Commonwealth and national averages. The decrease in poverty rate over the past five years (11%) has been less than most peer cities.

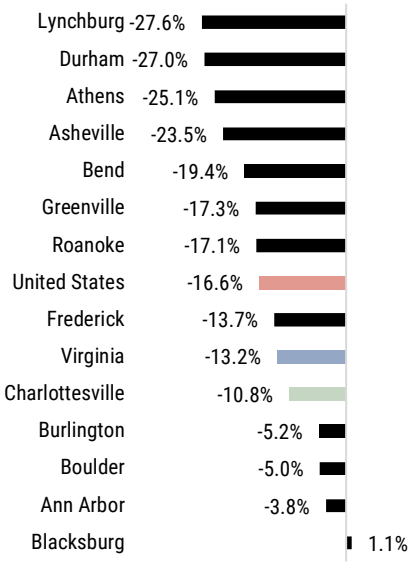
A low poverty rate signifies equitable economic growth that affects all members of society and creates a sustainable basis for economic development.

Chart 1.41 Percentage of Residents Below Poverty Level



Source: American Community Survey, 2021

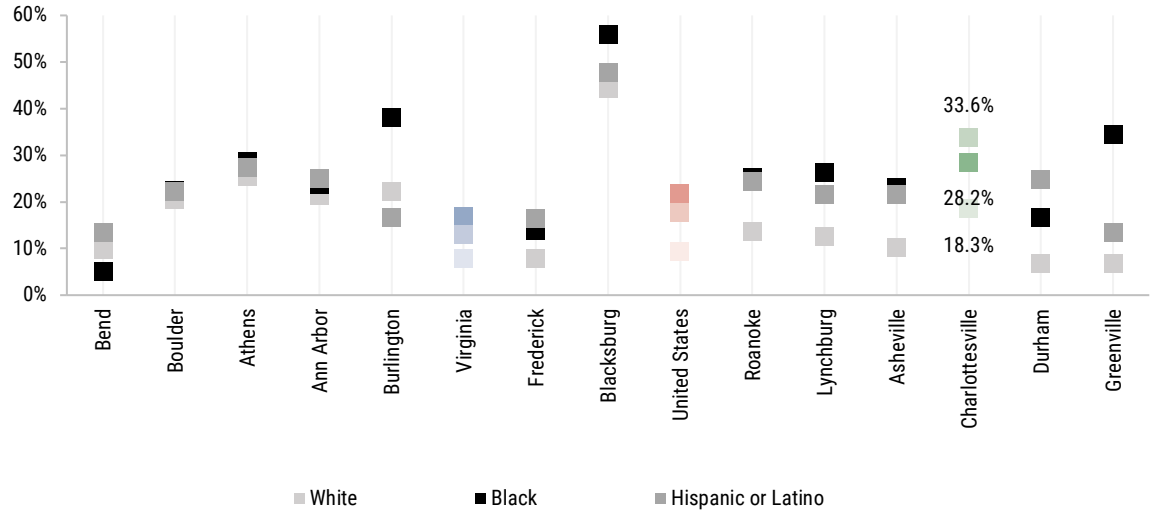
Chart 1.42 Change in Percentage of Residents Below Poverty Level



Source: American Community Survey, 2016 & 2021

In Charlottesville, 30% of Black residents live in poverty, a share that is 18% for the White population. The overall poverty gap ranks 11th among peer communities.

Chart 1.43 Poverty Rate by Race



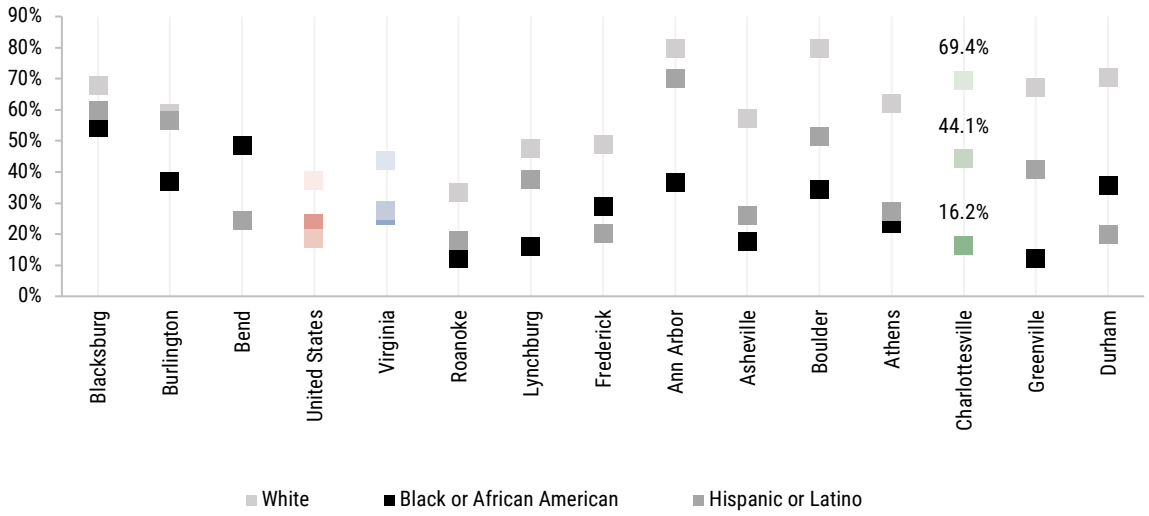
Source: American Community Survey, 2021

Educational Attainment

The difference in educational attainment levels between White and BIPOC residents in Charlottesville is 535, ranking 11th among peers.

Equitable educational attainment is essential as it allows individuals to access higher paying jobs, and it allows regions to build a strong, talented, and efficient workforce.

Chart 1.44 Share of Bachelor's Degree or Higher, by Race

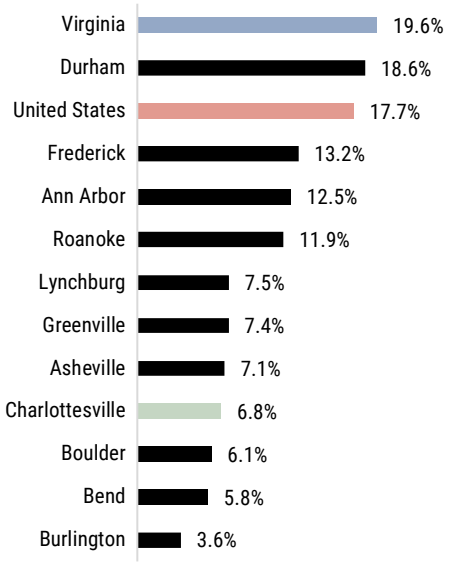


Source: American Community Survey, 2021

Business Ownership

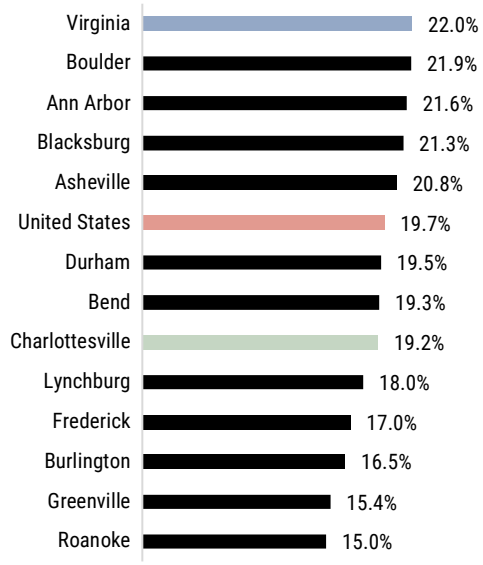
Less than 10% of Charlottesville businesses are owned by People of Color, a share that is roughly 65% lower than the Commonwealth and national averages. Charlottesville's share of women owned business, compares more favorably with the national average and is only 13% lower than the Commonwealth average.

Chart 1.45 Share of BIPOC-Owned Businesses



Source: Annual Business Survey, 2017
Note: Athens and Blacksburg are missing because data is unavailable

Chart 1.46 Share of Women-Owned Businesses



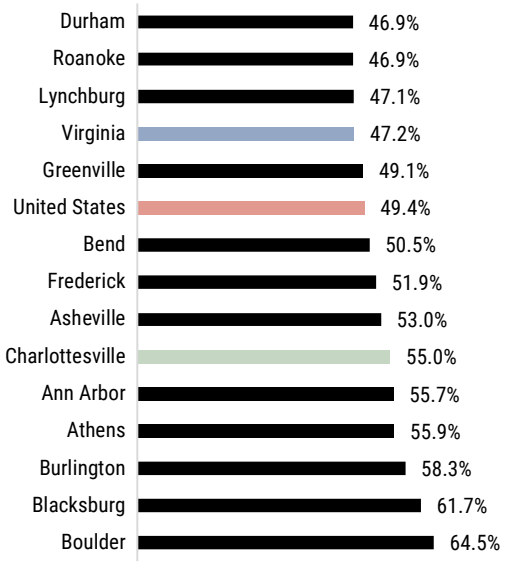
Source: Annual Business Survey, 2017
Note: Athens and Blacksburg are missing because data is unavailable

Housing

"Home-burdened" is a term used to describe households paying more than 30% of their incomes toward housing expenses. The 30.0% threshold is based off American housing policy and is a standard that is used in government and policy making.[10] This measure aims to identify households that spend a disproportionate share of their income on housing, which is a reflection that they may not have enough left to spend on other necessary items.

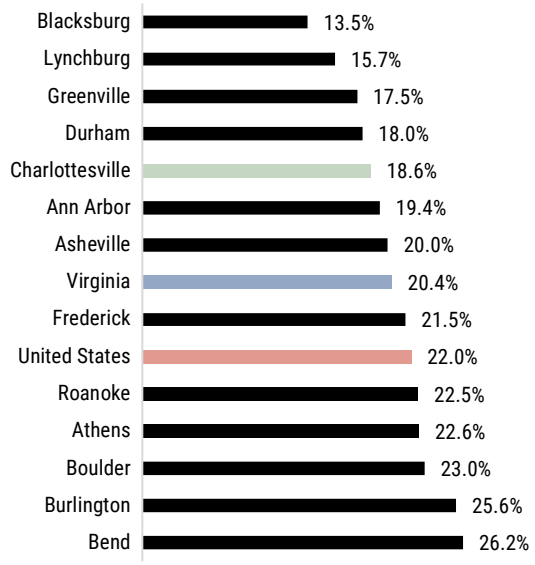
In Charlottesville, 55% of renters are rent-burdened, a rate that is 17% higher than the Commonwealth average and 11% higher than the national average. Owning a home is much more advantageous – less than 20% of homeowners are home-burdened based on their monthly housing cost.

Chart 1.47 Rent-Burdened Households



Source: American Community Survey, 2021

Chart 1.48 Home-burdened Households

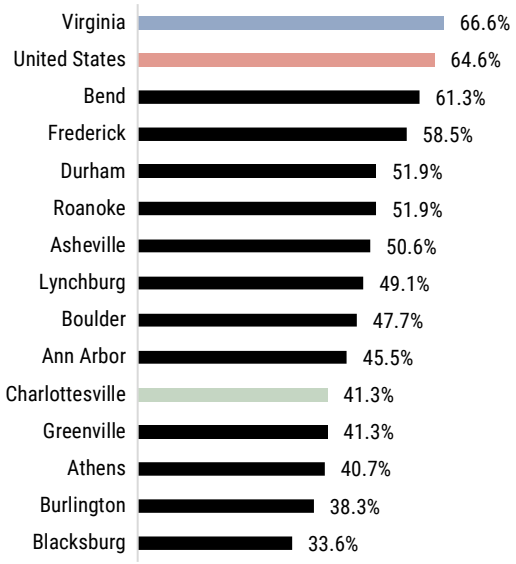


Source: American Community Survey, 2021

[10] Source: Turner, Alec (2021). A Place to Call Home, At What Cost? An Empirical Model of Cost-Burdened Housing in the U.S. at the Metropolitan Unit of Analysis. Bryant University.

Charlottesville's relatively low home ownership rate is roughly 37% lower than the Commonwealth and national averages, indicating an opportunity to emphasize housing as a way to reduce rent-burden.

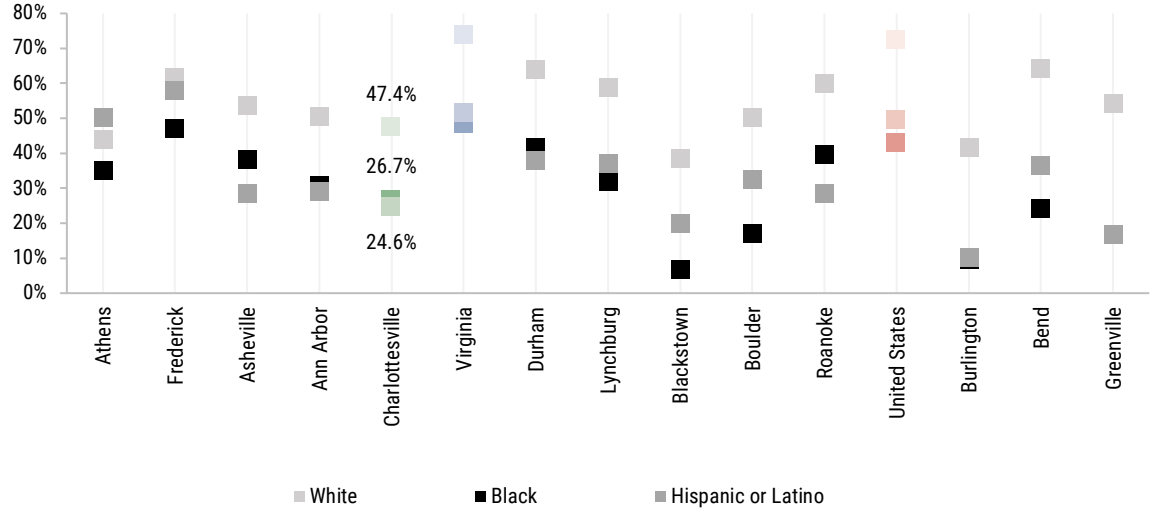
Chart 1.49 Home Ownership Rate



Source: American Community Survey, 2021

BIPOC residents are particularly affected by low home ownership. White residents have a 20% larger share of homeownership than BIPOC residents.

Chart 1.50 Home Ownership Rate by Race

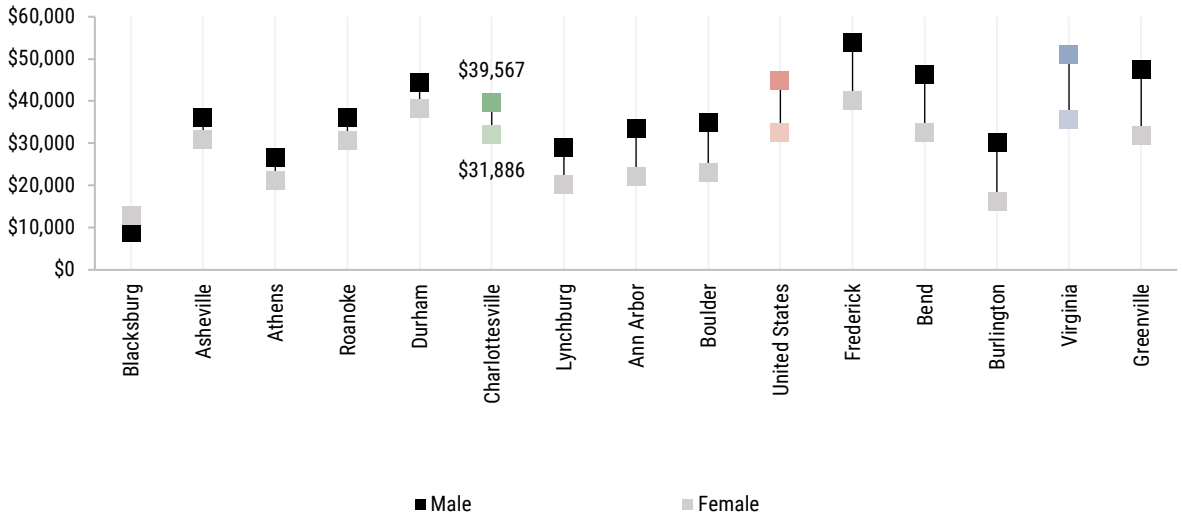


Source: American Community Survey, 2021

Income inequality

Men in Charlottesville earn – on average – $8,000 more than women, a gap that is 38% lower than the national average.

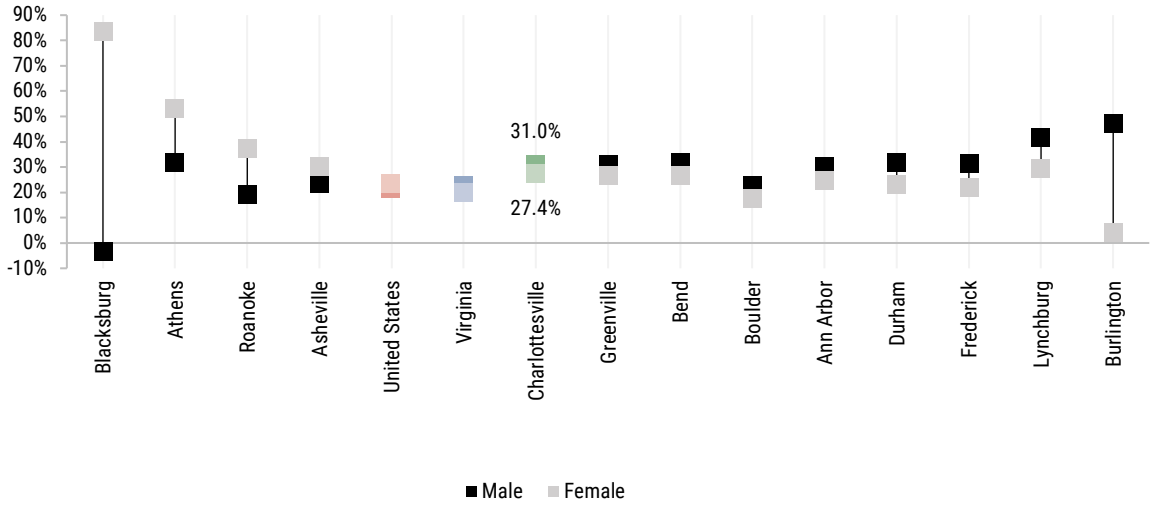
Chart 1.51 Earnings, by Gender



Source: American Community Survey, 2021

Charlottesville's growth in earnings from 2016 to 2021 was almost 4% larger for males than females, ranking fifth among peer communities.

Chart 1.52 Growth in Earnings, by Gender



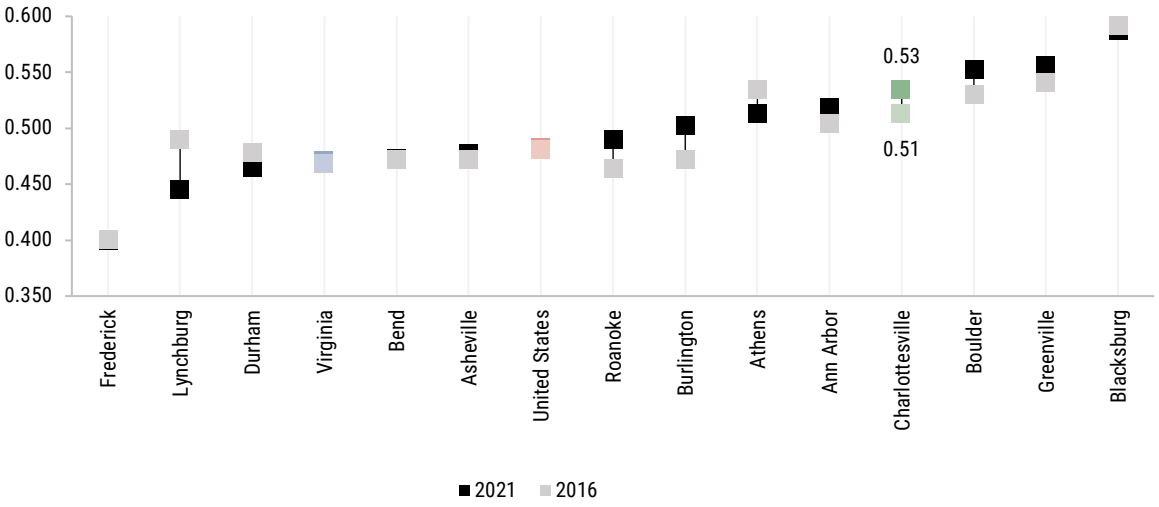
Source: American Community Survey, 2016 & 2021

Income inequality

The Gini index is a measure of the distribution of income across a population.[11] A higher Gini index indicates greater inequality, with high-income individuals receiving much larger percentages of the total income of the population.

The Gini index of income inequality is 0.53 in Charlottesville, ranking 10th among peer communities, and has increased 4% over the past five years.

Chart 1.53 Gini Index of Income Inequality



Source: American Community Survey, 2016 & 2021

[11] Source: Farris, Frank A. (2017). The Gini Index and Measures of Inequality. The American Mathematical Monthly.

QUALITY OF PLACE

Quality of place is an important factor in attracting and retaining talent, population growth and resilience, and attracting new business and investment. It is also an important factor in driving tourism, a significant economic development tool that increases employment and incomes.

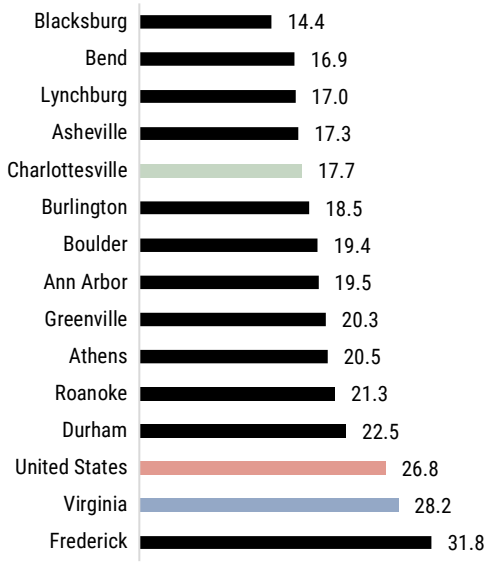
Charlottesville's high walkability and roaring tourism economy are the strength of the City's quality of place. A closer look at the quality of place in Charlottesville is presented in the analysis below:

Commute time

Commuting is linked to lower life satisfaction as it leads to less time spent on other activities, mainly as it relates to physical activity.[12]

Ranking as one of the shortest among peers, Charlottesville's commute time (18 minutes) is roughly 10 minutes shorter than the Commonwealth and national averages, saving residents nearly two hours per week.

Chart 1.54 Median Commute Time (Minutes)



Source: American Community Survey, 2021

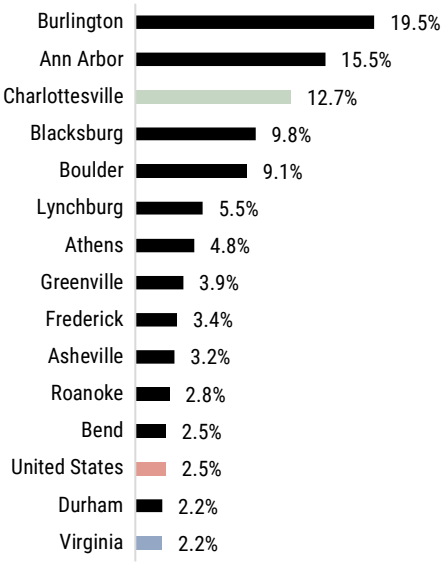
[12] Source: Hilbrecht, M. (2014, November 20). Crunched for time? Commuting linked to lower life satisfaction. World Leisure Journal..

High walkability and bikeability in Charlottesville

Walkability is a significant predictor of perceived quality of place in a community; there's a positive relationship between pedestrian-friendly spaces and population well-being.[13]

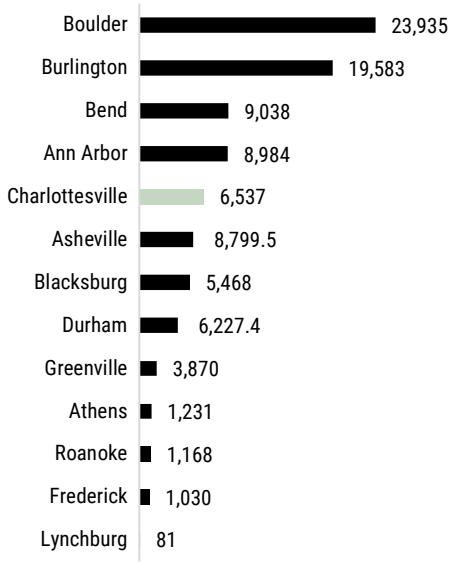
Almost 13% of residents walk or bike to work, indicating Charlottesville's commitment to walkability and alternative transportation. The City is supported by a robust network of cycling paths, ranking fifth among peer communities with over 3,000 miles of cycling paths.

Chart 1.55 Percentage of Residents Walking or Biking to Work



Source: American Community Survey, 2021

Chart 1.56 Miles of Cycling Paths per 100,000 Residents



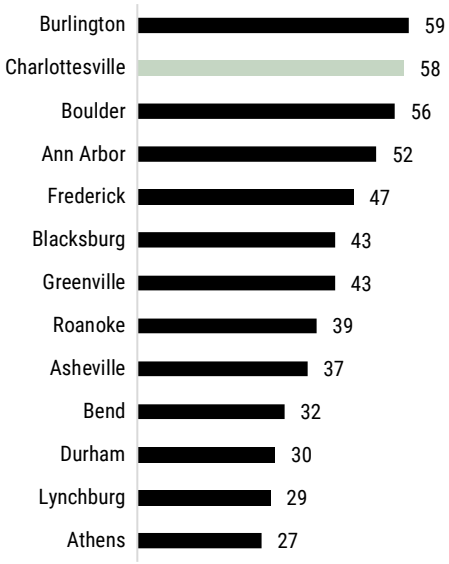
Source: Bikemap.net, 2023

[13] Source: Juszkiewicz, M. and T. Besta (2013, June 13). Is Easy Access Related to Better Life? Walkability and Overlapping of Personal and Communal Identity as Predictors of Quality of Life. National Library of Medicine.

Walk Score measures the walkability of any address using a patented system. For each address, Walk Score analyzes hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Bike Score measures whether an area is good for biking. For a given location, a Bike Score is calculated by measuring bike infrastructure (lanes, trails, etc.), hills, destinations and road connectivity, and the number of bike commuters.

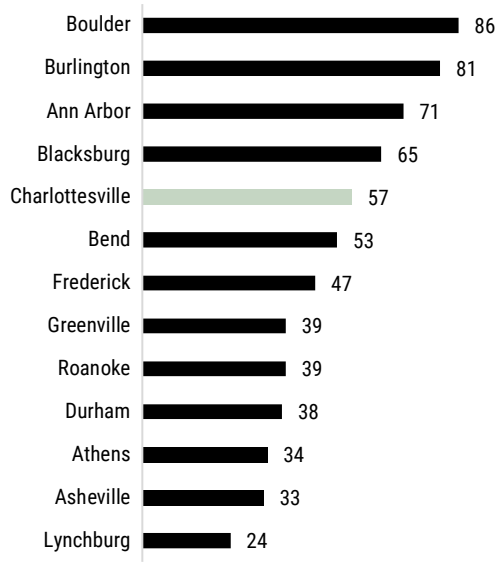
Charlottesville ranks relatively well for walkability and bikeability, with an average walk score of 58 and an average bike score of 57.

Chart 1.57 Walk Score



Source: Walk Score, 2023

Chart 1.58 Bike Score

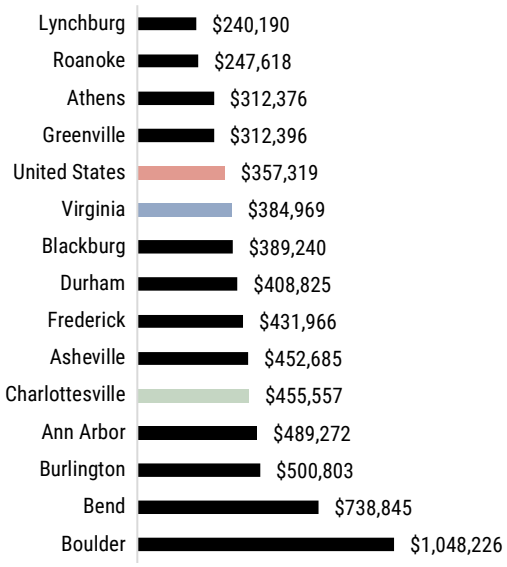


Source: Walk Score, 2023

Housing Costs

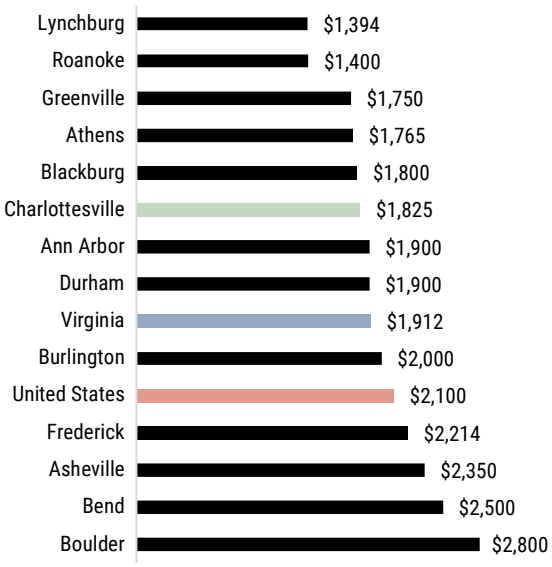
The median house price in Charlottesville is $456,000, and the median rent for a 2-bedroom apartment is $1,825. While home prices are much higher than the Commonwealth and national averages, rent prices are more favorable. The median rent in Charlottesville is 5% lower than the Commonwealth average and 13% lower than the national average.

Chart 1.59 Typical Home Value



Source: Zillow, 2023

Chart 1.60 Median Rent



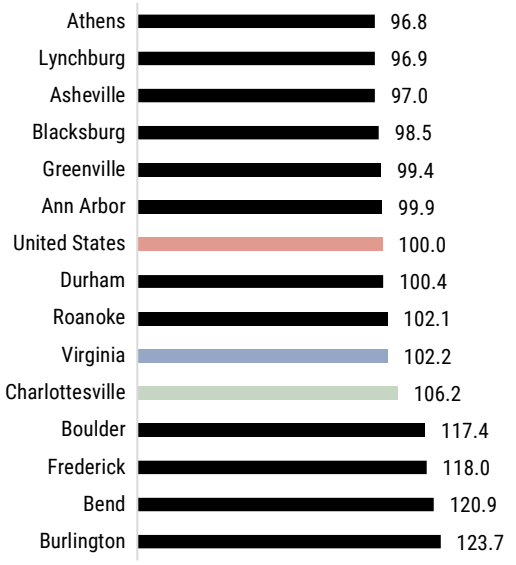
Source: Zillow, 2023

Cost of Living

The Cost of Living Index is used to compare the costs of basic needs across regions. The six major categories used to calculate this index are grocery items, housing, utilities, transportation, health care, and miscellaneous goods and services.[14]

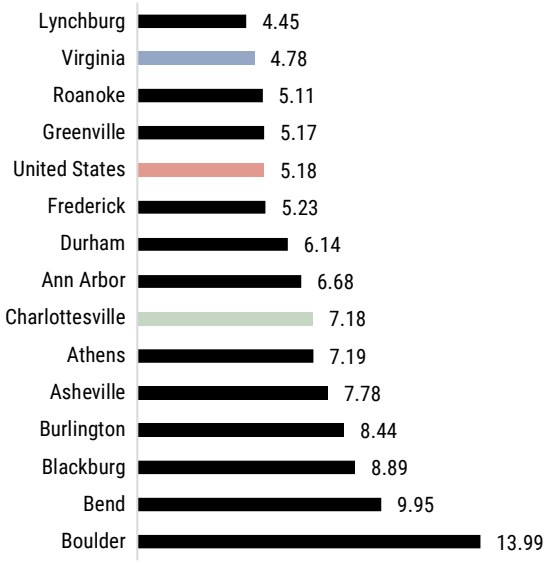
Charlottesville is a relatively expensive place to live. Its Cost of Living index is 4% higher than the Commonwealth average and 6% higher than the national average. This is also reflected in Charlottesville's home value to income ratio, which shows that average home prices are seven times higher than median incomes. Although this ranks favorably among peers, it is 50% higher than the Commonwealth average and 39% higher than the national average.

Chart 1.61 Cost of Living Index



Source: Lightcast™, 2022

Chart 1.62 Home Value to Income Ratio



Source: American Community Survey, 2021
Zillow, 2023

[14] Source: "Cost of Living Index (COLI)." Lightcast™. https://kb.emsidata.com/glossary/cost-of-living-index/

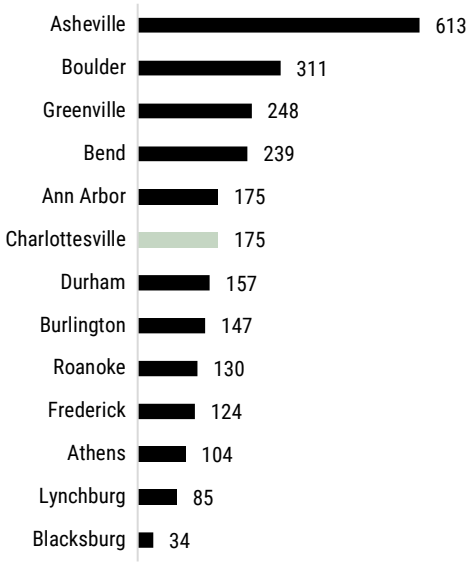
Tourism Amenities

This sub-section shows data that was mined from TripAdvisor to count the number of search results, hashtags, and quality experiences/establishments in the different experiential categories (e.g., outdoor activities, nightlife, dining, etc.…). To integrate a "quality" element in these counts, we only include TripAdvisor experiences with a star rating of 4 or more.

The vibrancy of a place raises its desirability; attracting and retaining residents and companies, adding revenue, and boosting recognition and reputation. Resonance research shows a strong positive correlation between region promotion and economic development metrics such as number of jobs, number of businesses, and GDP.

Charlottesville ranks 6th for number of TripAdvisor experiences.

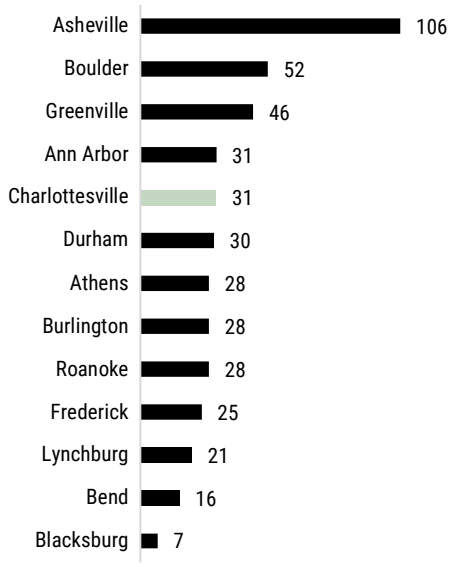
Chart 1.63 TripAdvisor Experiences



Source: TripAdvisor, 2023

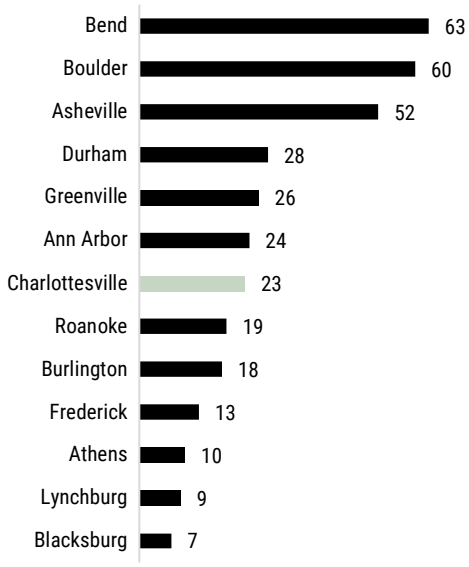
Among peer communities, Charlottesville ranks 5th for the number of arts and culture activities and 7th for the number of nature and outdoor activities.

Chart 1.64 Number of Arts and Culture Activities



Source: TripAdvisor, 2023

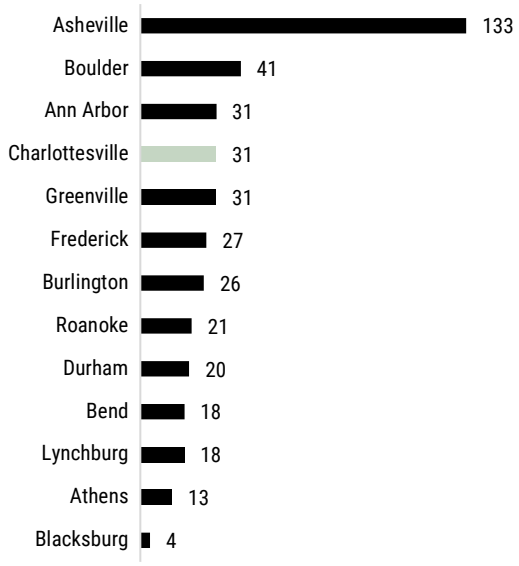
Chart 1.65 Number of Nature and Outdoor Activities



Source: TripAdvisor, 2023

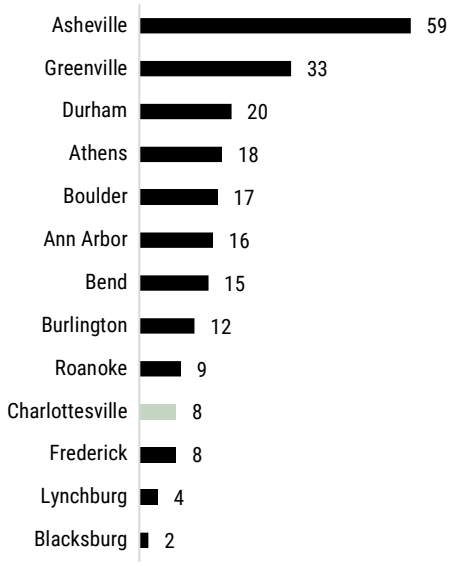
Charlottesville ranks 4th and 10th for number of shopping and nightlife experiences, respectively.

Chart 1.66 Number of Shopping Experiences



Source: TripAdvisor, 2023

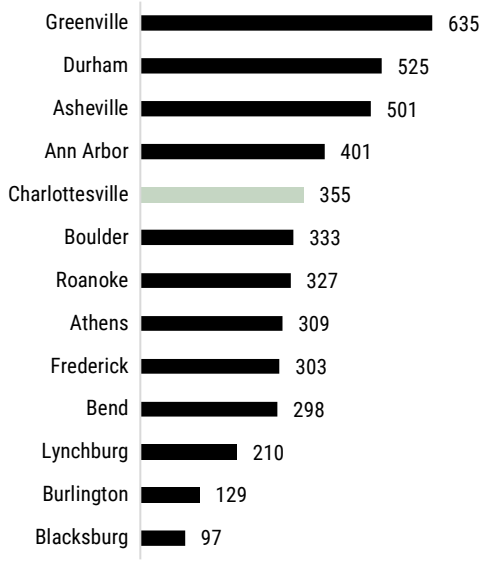
Chart 1.67 Number of Nightlife Experiences



Source: TripAdvisor, 2023

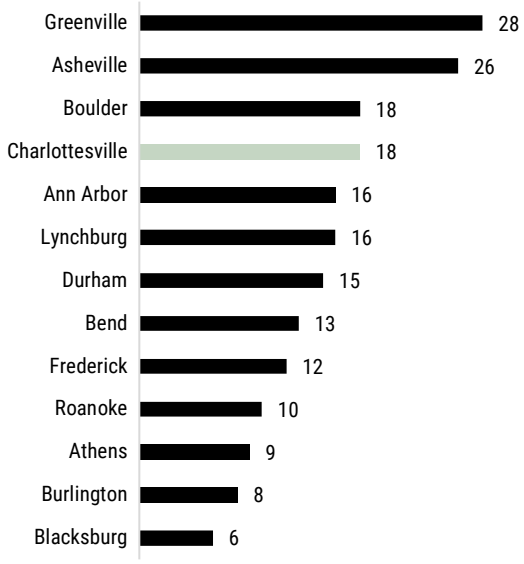
Charlottesville ranks 5th for number of restaurants and 4th for family-friendly activities.

Chart 1.68 Number of Restaurants



Source: TripAdvisor, 2023

Chart 1.69 Number of Family-Friendly Activities



Source: TripAdvisor, 2023

Appendix B: Target Cluster Analysis

The term "industry cluster" refers to a group of similar and related traded sector businesses in a defined geographic area. Businesses in the same cluster tend to share common markets, technologies, and skill sets, and are often connected through buyer-seller relationships.[15] For this reason, industry clusters tend to be highly specific. This allows a community to identify the cluster's unique workforce and supply chain needs, while promoting the cluster more effectively.

On the most basic level, industry clusters promote two functions: collaboration and competition. Due to their shared resources and markets, businesses in the same industry cluster can collaborate to solve issues within their own industry or throughout the broader community, including infrastructure needs and regulations such as incentives or zoning. Industry clusters also help to distinguish a community from nearby areas, define its role in the regional or national landscape, and encourage the development of new business opportunities. At the same time, these clusters encourage competition among related businesses, thereby promoting innovation.

By highlighting a specific group of like-minded businesses, regions can better communicate their competitive strengths to outside talent and firms.

CLUSTER FRAMEWORK

Methodology

Our target cluster analysis assesses traded clusters from a comprehensive lens of competitiveness, equity, and resilience, as opposed to an evaluation that relies solely on an economic growth focus. Given this view, we make the distinction between strong clusters, which are clusters that possess economic viability, and priority clusters, which are clusters that have a strong economic foundation, are equitable, and are resilient in times of shocks.

It also focuses on traded (as opposed to local) clusters since they tend to have higher wages and higher levels of innovation, in addition to being more resilient and durable.

In addition, the industry cluster analysis presented here applies both qualitative and quantitative methods to arrive at an accurate and comprehensive understanding of each of the clusters.

[15] Source: Porter, M. E. (1998). Clusters and the New Economics of Competition. Harvard Business Review. https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition

The qualitative segment of this analysis took the form of focusing on legacy clusters that were recommended by the City of Charlottesville staff and were part of previous economic development efforts, as well as the emerging clusters based on their work in the field.

In terms of quantitative analysis, several indicators were calculated:

- Location Quotients; in order to bring into perspective the presence of industry activities compared with the total economic activities in an area, location quotients (LQs) are the most commonly employed method. The LQ compares the concentration of an industry in one place to the national average. This indicator was calculated for employment size within the overall cluster.
- Total Employment; determines the size of the workforce tied to the industry.
- New jobs created in the last 5 years; indicates opportunity and whether the cluster is growing or retracting.
- Projected job growth in the next 5 years; indicates the continued growth and strength of the cluster.
- Difference between Charlottesville and Virginia growth; compares the City and Commonwealth growth rates to determine whether there is a local competitive advantage relative to regional peers.
- Total Gross Regional Product (GRP); measures the monetary value of all final goods and services produced in the region.
- GRP per worker; measures productivity by quantifying the worker's contribution to the total regional output.
- Share of exported sales; indicating their strength of bringing funds to Charlottesville.
- Average earnings per job; measures compensation in a certain industry.
- Share of employees by gender and ethnicity; indicates diversity in a certain industry and barriers to entry.
- Share of employees by educational attainment; indicates the quality and adaptability of the workforce.
- Share of jobs at risk of automation; measures the risk of an occupation for automation based on the task involved.
- Number of industries in a cluster; indicates whether the cluster is dependent on a small number of industries.
- Supply chain requirements satisfied in region; indicates the resilience of the industry – industries with higher supply chain requirements satisfied in region are less likely to be exposed to volatility.
- Retirement risk; displays the share of workers age 55 or older in the industry.

Clusters

The analysis started by identifying six industry clusters for Charlottesville:

1. Bioscience and Life Sciences
2. Information Technology
3. Business and Financial Services
4. Defense and Security
5. Tourism
6. Clean Technology and Renewable Energy

Data sources

This industry cluster analysis employs data from Economic Modeling Specialists, INTL (EMSI) Lightcast. EMSI serves as an economic data analytics advisor to leaders in economic development organizations, higher education, business, and community, by gathering and integrating economic, labor market, demographic, education, profile, and job posting data from dozens of government and private-sector sources, creating a comprehensive and current dataset that includes both published data and detailed estimates.

This chapter is composed of four sections: the first three sections assess Charlottesville's six industry clusters based on competitiveness, equity, and resilience; and the fourth section presents the profiles for each of the six clusters.

COMPETITIVENESS

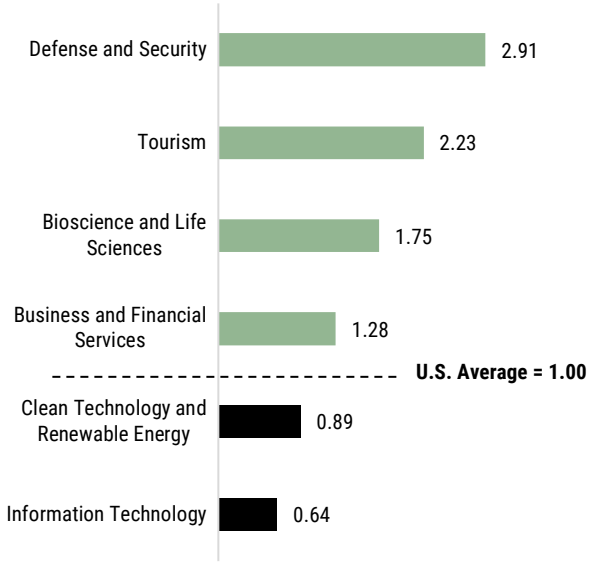
Competitiveness allows regions to achieve economic growth. It rests on the region's ability to be productive, which relies not only on the region's proximity to inputs, but more importantly on its ability to employ sophisticated methods, use advanced technology, and offer unique goods and services that set it apart from peers.[16]

Cluster Specialization

Location quotients quantify the competitive advantage of a cluster in a specific community, allowing decision makers to identify a community's unique specialization.[17] A cluster is considered an economic strength when the proportion of regional employment in a cluster exceeds the national average (i.e., higher than 1.00).

Charlottesville is most competitive in Defense and Security and Tourism; the employment share in these clusters is 2.9 and 2.2 times the employment on the national level. Charlottesville's Bioscience and Life Sciences and Business and Financial Services clusters are competitive as well.

Chart 2.1 Overall Cluster Location Quotient, 2022



[16] Source: Porter, M. E. (1998). Clusters and the New Economics of Competition. Harvard Business Review. https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition

[17] Source: Isserman, Andrew M (2007). The Location Quotient Approach to Estimating Regional Economic Impacts. Journal of the American Institute of Planners.

Note: Green shading in this section represents competitive clusters (LQ > 1.25).

Cluster Employment

Charlottesville's largest cluster is Tourism followed by Clean Technology and Renewable Energy, and Bioscience and Life Sciences. The Information Technology cluster has experienced the largest growth over the past five years, increasing employment by 26%.

Chart 2.2 Total Cluster Employment, 2022

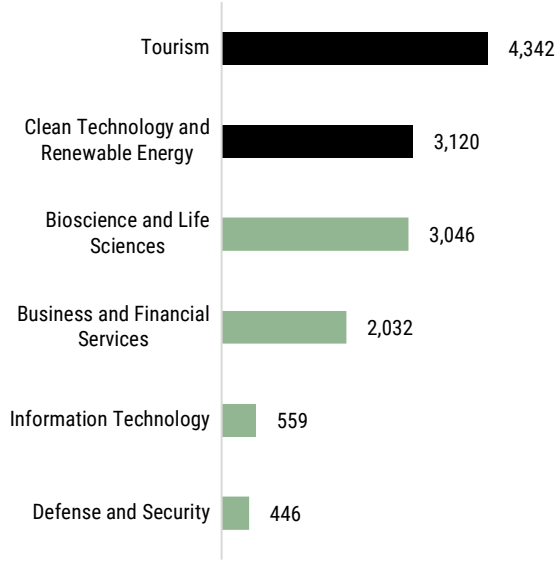
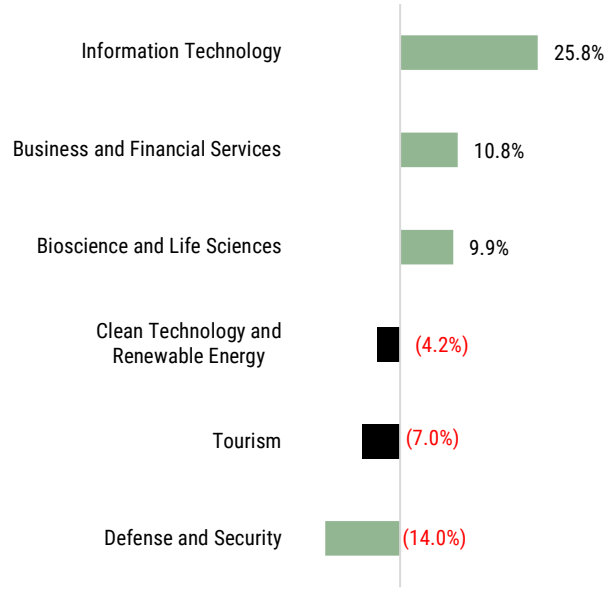


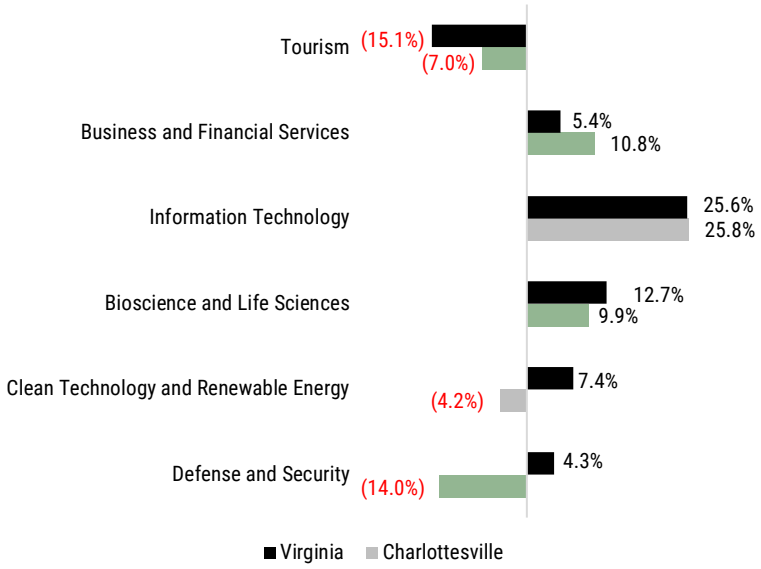
Chart 2.3 Five-Year Job Growth, 2017-2022



Five-Year Employment Growth

Despite employment decline throughout the Commonwealth, the Tourism cluster in Charlottesville remains competitive, with a five-year job change that is declining at half the rate as the Commonwealth average. The Business and Financial Services and Information Technology clusters in Charlottesville also have higher growth rates than the Virginia average.

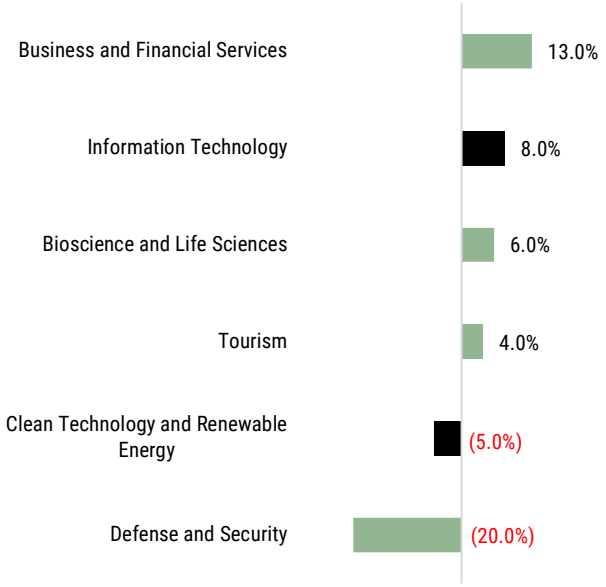
Chart 2.4 Five-Year Job Growth, 2017-2022



Forecasted Job Growth

The Business and Financial Services is projected to be the fastest growing in Charlottesville, increasing employment by 13% by 2027. The Information Technology cluster, growing rapidly from 2017-2022, is projected to maintain steady growth. Bioscience and Life Sciences and Tourism, two of Charlottesville's largest clusters, will continue to be some of the most important.

Chart 2.5 Forecasted Job Growth, 2022-2027



Gross Regional Product (GRP)

Charlottesville's most productive cluster in terms of total GRP is Bioscience and Life Sciences, generating $373 million in 2022, and its most productive cluster by GRP per worker is Information Technology generating more than $320,000 per worker in 2022.

Chart 2.6 Total GRP, 2022 (millions)

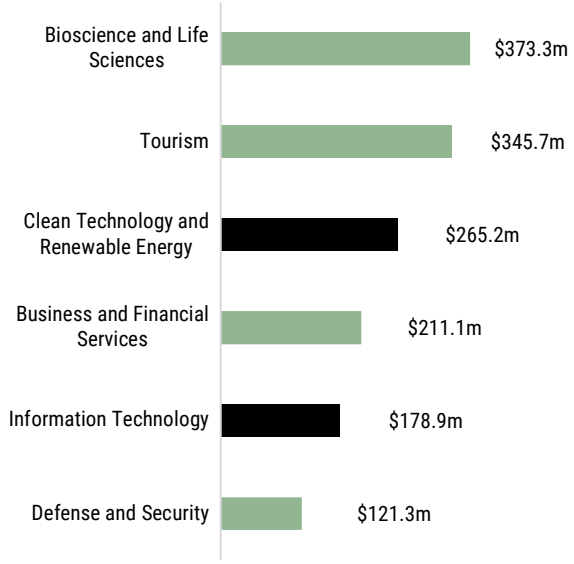
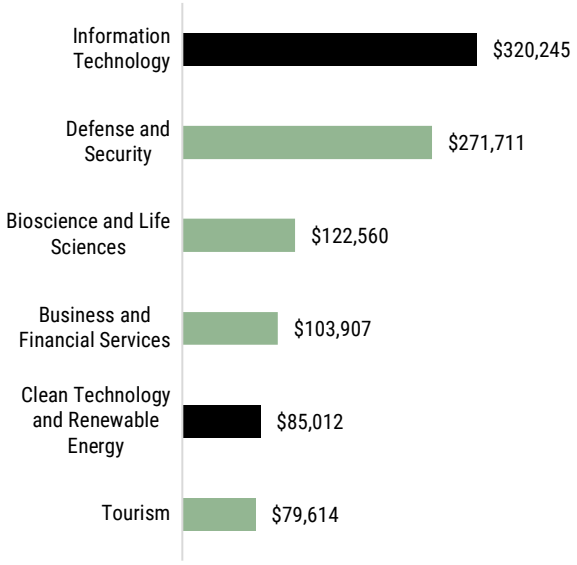


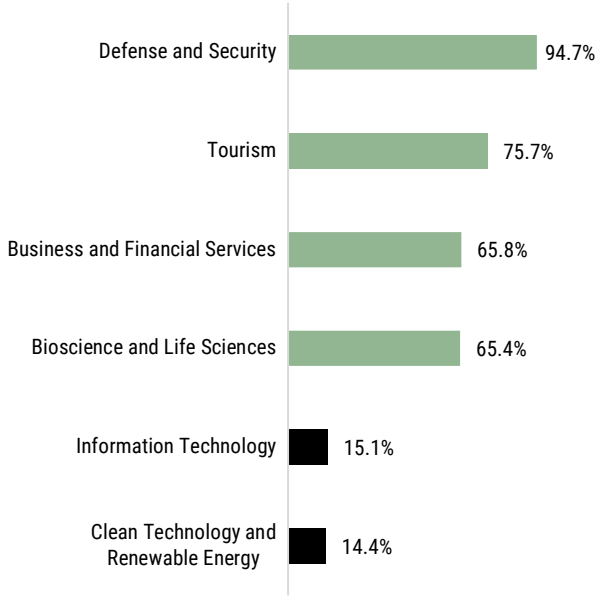
Chart 2.7 GRP Per Worker, 2022



Exports

Defense and Security had the largest share of exported sales at 95%, indicating its strength at bringing funds into Charlottesville.

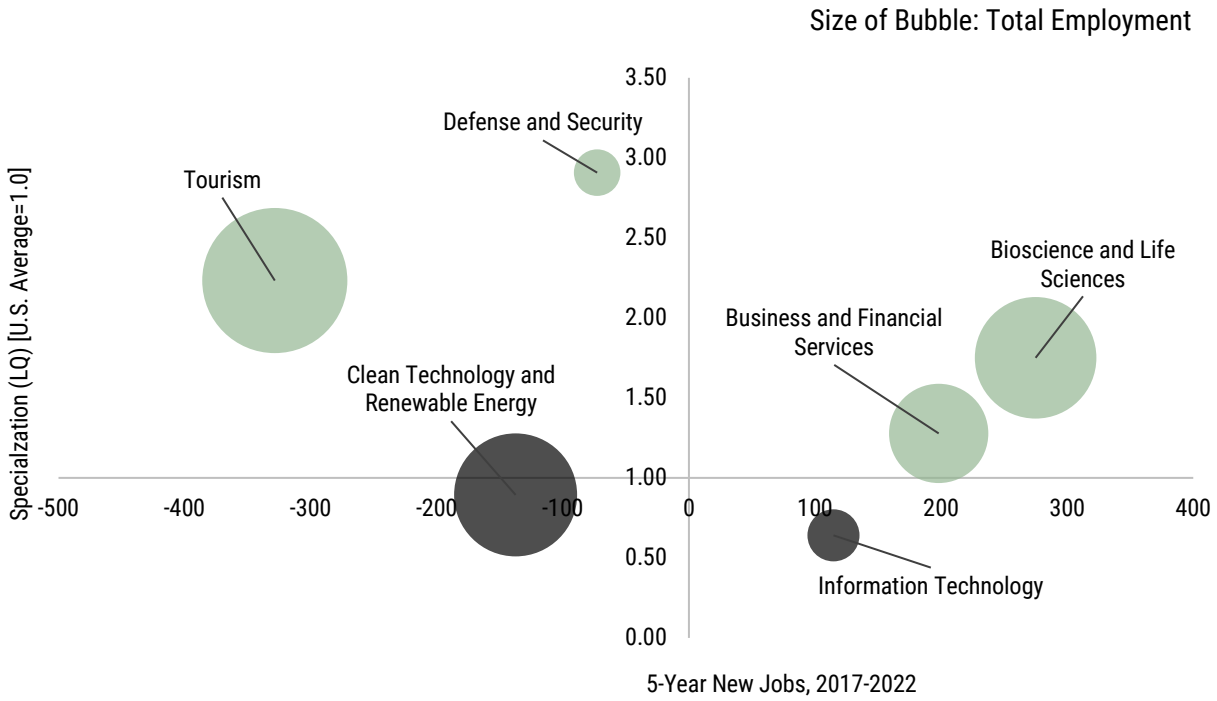
Chart 2.8 Share of Exported Sales, 2022



Employment and Job Creation

The Bioscience and Life Sciences cluster created the largest number of new jobs (275) over the last five years, growing by 10%. Business and Financial Services experienced similar growth, with an 11% increase corresponding to 198 jobs created. Tourism, Charlottesville's largest cluster, experienced job loss over the past five years (328), but is projected to rebound over the next five years.

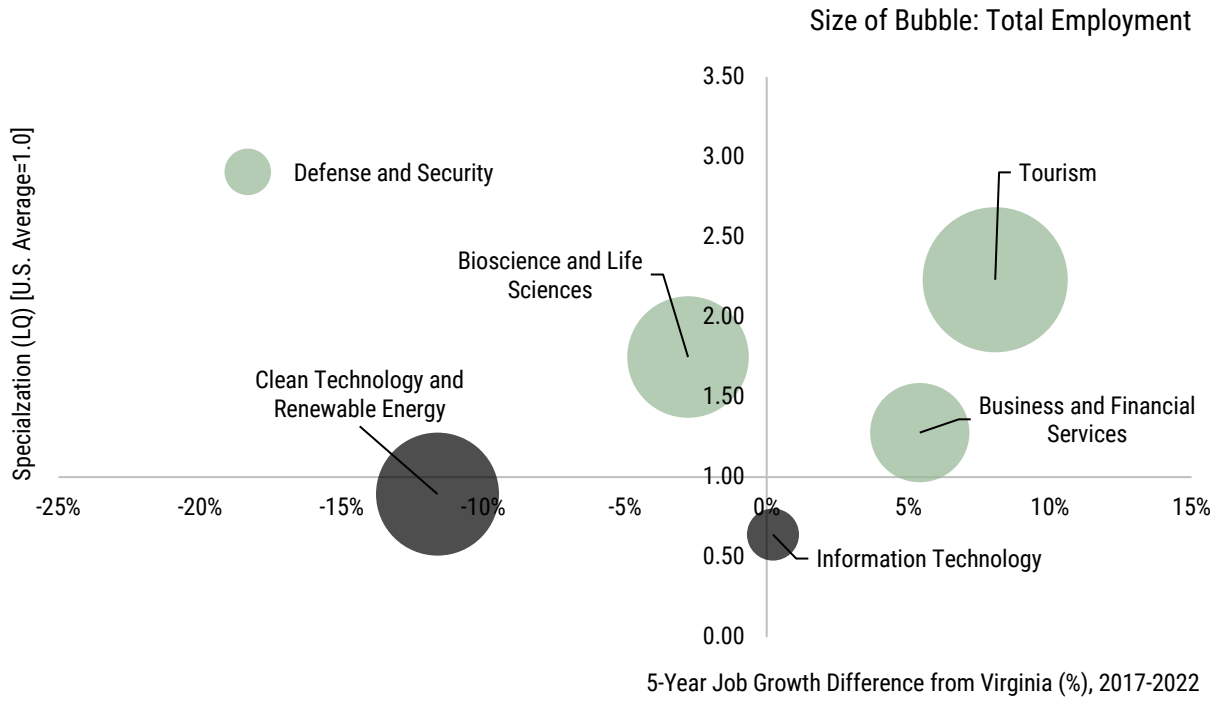
Chart 2.9 Employment and Job Creation, 2017-2022



Employment and Job Growth

Tourism is the top cluster in terms of growth – compared to the Commonwealth of Virginia – in the last five years. Despite the cluster losing some jobs, the decline was not as strong as that for the Commonwealth. Charlottesville's Business and Financial Services and Information Technology clusters also grew faster than the Commonwealth average.

Chart 2.10 Employment and Job Growth, 2017-2022

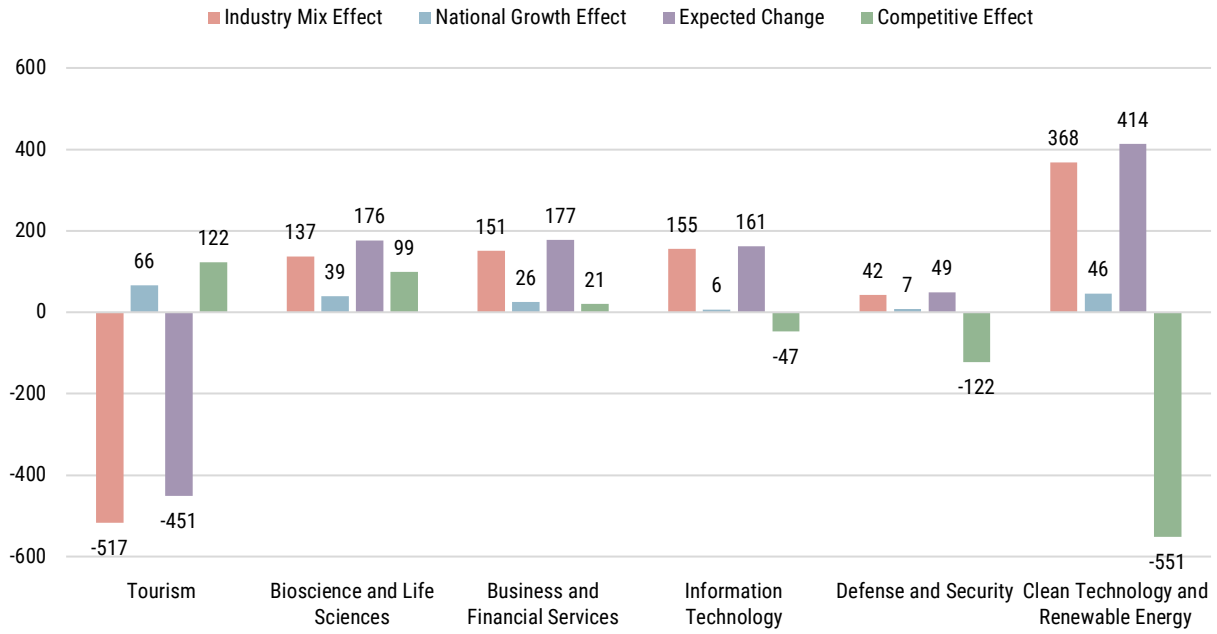


Shift-Share Analysis

A shift-share analysis highlights which industries in the region are experiencing growth as a result of a unique competitive advantage in the region, rather than a national or an industry factor that is affecting the entire nation.

The shift-share analysis for Charlottesville shows that the Tourism cluster was able to prevent further losses due to a unique competitive advantage in the region. Growth in the Bioscience and Life Sciences and Business and Financial Services clusters is lower than the expected growth because of this cluster's performance nationally.

Chart 2.11 Shift-Share Analysis, Top Competitive Clusters



Competitiveness Summary

Charlottesville is most competitive in Bioscience and Life Sciences, followed by Tourism and Information Technology. The Bioscience and Life Sciences cluster is the third largest employer in Charlottesville with over 3,000 employees. It contributes the most to the local economy, with the largest total GRP, and has grown the third fastest in the past five years.

The Tourism cluster is Charlottesville's largest, with over 4,000 employees. It has the second highest overall LQ among Charlottesville's clusters, and has the second highest GRP at $346 million.

Finally, the Information Technology cluster has experienced the most growth over the past five years, growing by 26%. With the highest GRP per worker ($320,000) and the highest forecasted growth over the next five years (13%), this is one of Charlottesville's top emerging clusters.

Table 2.1 Competitiveness Summary Table

	Overall Cluster LQ (2022)	Total Employment (2022)	5-Year Job Growth (2017-2022)	5-Year Commonwealth Job Growth (2017-2022)	Forecasted Growth (2022-2027)	Total GRP (2022)	GRP per Worker (2022)	Percent Exported Sales (2022)
Bioscience and Life Sciences	1.75	3,046	9.9%	12.7%	6.0%	$373,300,000	$122,560	65.4%
Tourism	2.23	4,342	-7.0%	-15.1%	4.0%	$345,700,000	$79,614	75.7%
Information Technology	0.64	559	25.8%	25.6%	8.0%	$178,900,000	$320,245	15.1%
Business and Financial Services	1.28	2,032	10.8%	5.4%	13.0%	$211,100,000	$103,907	65.8%
Defense and Security	2.91	446	-14.0%	4.3%	-20.0%	$121,300,000	$271,711	94.7%
Clean Technology and Renewable Energy	0.89	3,120	-4.2%	7.4%	-5.0%	$265,200,000	$85,012	14.4%

Table 2.2 Competitiveness Mapping Table

Overall Cluster LQ (2022)	Total Employment (2022)	5-Year Job Growth (2017-2022)	5-Year Common-wealth Job Growth (2022-2027)	Forecasted Growth (2022-2027)	Total GRP (2022)	GRP per worker (2022)	2022 % Exported Sales
Defense and Security	Tourism	Information Technology	Information Technology	Business and Financial Services	Bioscience and Life Sciences	Information Technology	Defense and Security
Tourism	Clean Technology and Renewable Energy	Business and Financial Services	Bioscience and Life Sciences	Information Technology	Tourism	Defense and Security	Tourism
Bioscience and Life Sciences	Bioscience and Life Sciences	Bioscience and Life Sciences	Clean Technology and Renewable Energy	Bioscience and Life Sciences	Clean Technology and Renewable Energy	Bioscience and Life Sciences	Business and Financial Services
Business and Financial Services	Business and Financial Services	Clean Technology and Renewable Energy	Business and Financial Services	Tourism	Business and Financial Services	Business and Financial Services	Bioscience and Life Sciences
Clean Technology and Renewable Energy	Information Technology	Tourism	Defense and Security	Clean Technology and Renewable Energy	Information Technology	Clean Technology and Renewable Energy	Information Technology
Information Technology	Defense and Security	Defense and Security	Tourism	Defense and Security	Defense and Security	Tourism	Clean Technology and Renewable Energy

EQUITY

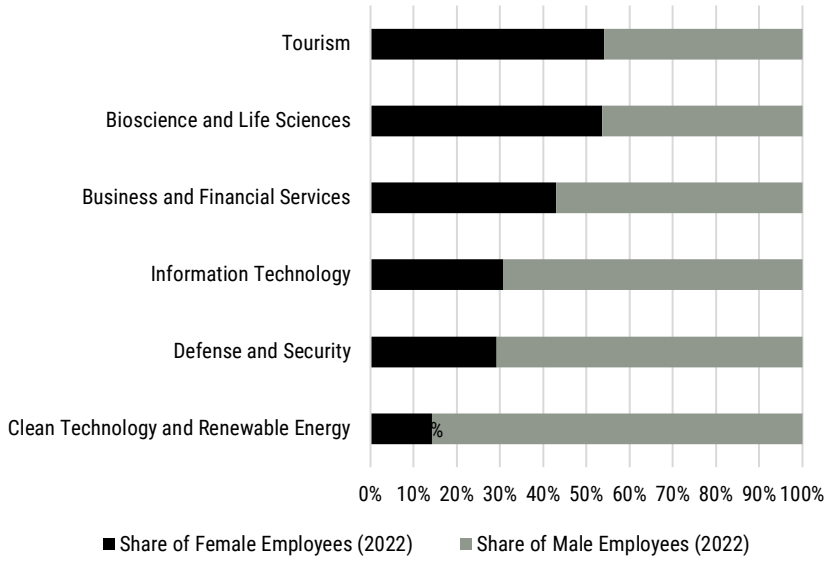
Equity refers to the inclusion of all members of a society in a fair and just manner, in which they can all participate and reach their full potential. This requires eliminating barriers and providing people with the optimal opportunity to thrive.

Focusing on equity in an economic development strategy allows a region to unlock the full potential of its economy by expanding opportunities for low-income and BIPOC groups. Through public action and investment, emphasizing equity fosters quality jobs and increases entrepreneurship, ownership, and wealth. These are essential to creating a strong and competitive community.[18]

Employment by Gender

The Tourism and Bioscience and Life Sciences clusters have the largest share of female employees, where more than half of employees are women. Clean Technology and Renewable Energy, on the other hand, is a male dominated cluster.

Chart 2.12 Share of Employees by Gender, 2022

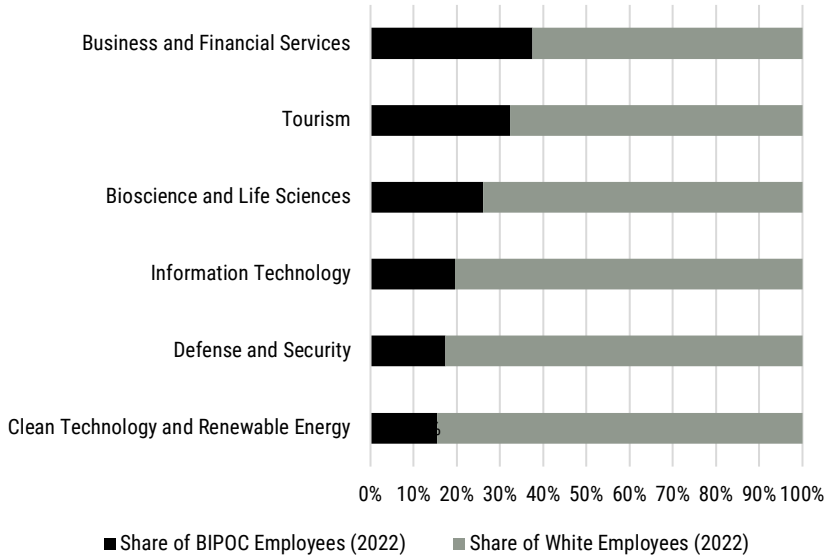


[18] Source: PolicyLink. (2017). Advancing Equitable Economic Development in Milwaukee: Policy and Practice.

Employment by Ethnicity

Examining by race, almost 35% of Charlottesville residents are People of Color. BIPOC employment is on par with population levels for the Business and Financial Services and Tourism clusters.

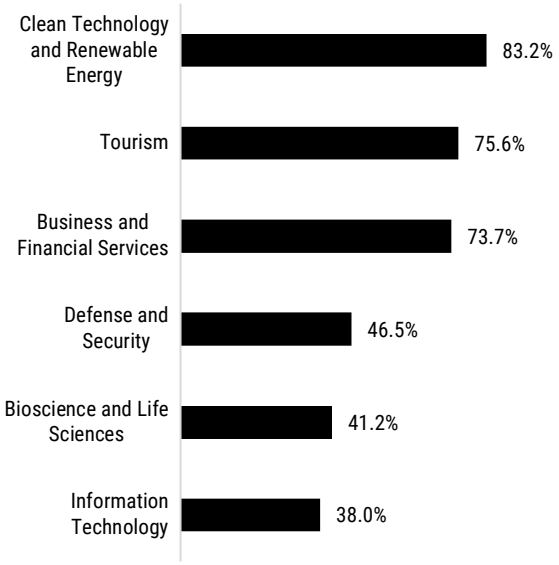
Chart 2.13 Share of Employees by Race, 2022



Employment of Lesser Educated Labor

The Information Technology and Bioscience and Life Sciences clusters are the most educated clusters in Charlottesville, with only four in 10 employees having less than a Bachelor's degree. In the Clean Technology and Renewable Energy cluster, 83% of employees have less than a Bachelor's degree.

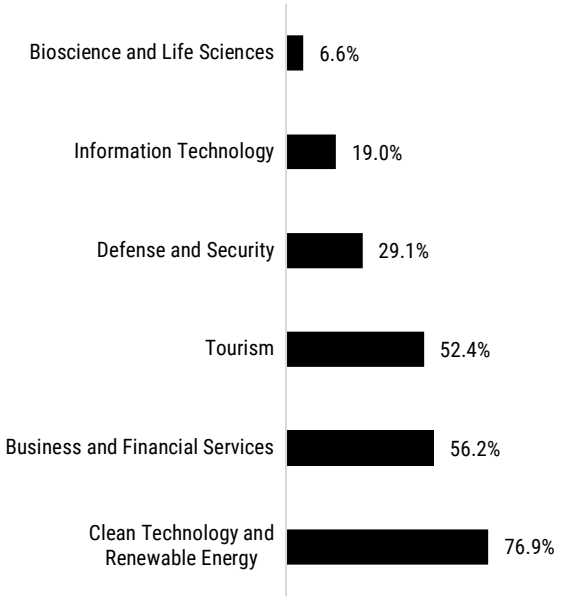
Chart 2.14 Share of Employees with less than a Bachelor's Degree, 2022



Risk of Automation

The Clean Technology and Renewable Energy cluster has the highest share of jobs at risk of automation at 77%. On the other hand, two of the more talented clusters, Bioscience and Life Sciences and Information Technology, have the lowest share of jobs at risk of automation.

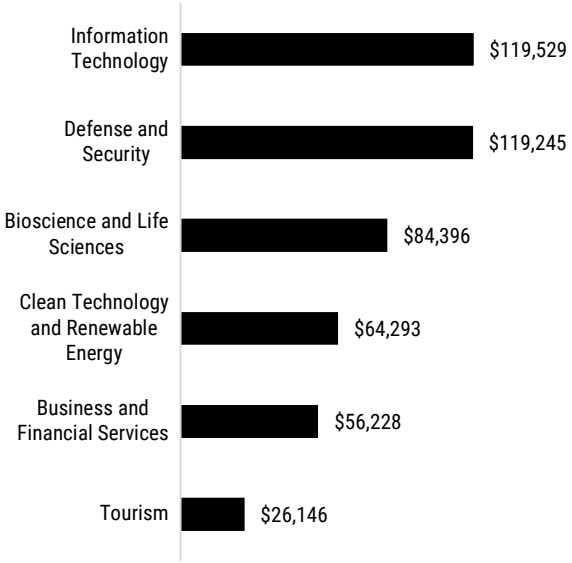
Chart 2.15 Share of Jobs at Risk of Automation (Index > 100), 2022



Earnings

Information Technology and Defense and Security are the clusters in Charlottesville with the highest average earnings per job ($120,000). Charlottesville's Tourism cluster has the lowest average earnings despite its large size and GRP.

Chart 2.16 Average Earnings per Job, 2022



Equity Summary

Charlottesville's most equitable cluster is Bioscience and Life Sciences, followed by Business and Financial Services and Tourism. These clusters are characterized by low barriers of entry for women and People of Color.

The Bioscience and Life Sciences cluster has high levels of female and BIPOC employment. The lowest share of jobs at risk for automation (6%) bolsters the equity of the cluster.

Business and Financial Services has the highest share of BIPOC employees (38%) and the third highest share of female employees (43%). The educational barrier of entry is relatively low for this cluster, with 74% of employees having less than a Bachelor's degree.

Finally, Tourism has the largest share of female employees at 54%. Despite the favorable equity rankings throughout the cluster, increasing the average earnings per job ($26,000), could spur further equity improvements.

Table 2.3 Equity Summary Table

	Share of Female Employees (2022)	Share of Non-White Employees (2022)	Share of Talent with less than a Bachelor's degree (2022)	Share of Jobs at Risk for Automation (Index > 100) (2022)*	Avg. Earnings Per Job (2022)
Bioscience and Life Sciences	53.6%	26.1%	41.2%	6.6%	$84,396
Business and Financial Services	43.0%	37.5%	73.7%	56.2%	$56,228
Tourism	54.0%	32.4%	75.6%	52.4%	$26,146
Information Technology	30.7%	19.5%	38.0%	19.0%	$119,529
Defense and Security	29.1%	17.4%	46.5%	29.1%	$119,245
Clean Technology and Renewable Energy	14.2%	15.4%	83.2%	76.9%	$64,293

Table 2.4 Equity Mapping Table

Share of Female Employees (2022)	Share of Non-White Employees (2022)	Share of Talent with less than a Bachelor's degree (2022)	Share of Jobs at Risk for Automation (Index > 100) (2022)*	Avg. Earnings Per Job (2022)
Tourism	Business and Financial Services	Clean Technology and Renewable Energy	Bioscience and Life Sciences	Information Technology
Bioscience and Life Sciences	Tourism	Tourism	Information Technology	Defense and Security
Business and Financial Services	Bioscience and Life Sciences	Business and Financial Services	Defense and Security	Bioscience and Life Sciences
Information Technology	Information Technology	Defense and Security	Tourism	Clean Technology and Renewable Energy
Defense and Security	Defense and Security	Bioscience and Life Sciences	Business and Financial Services	Business and Financial Services
Clean Technology and Renewable Energy	Clean Technology and Renewable Energy	Information Technology	Clean Technology and Renewable Energy	Tourism

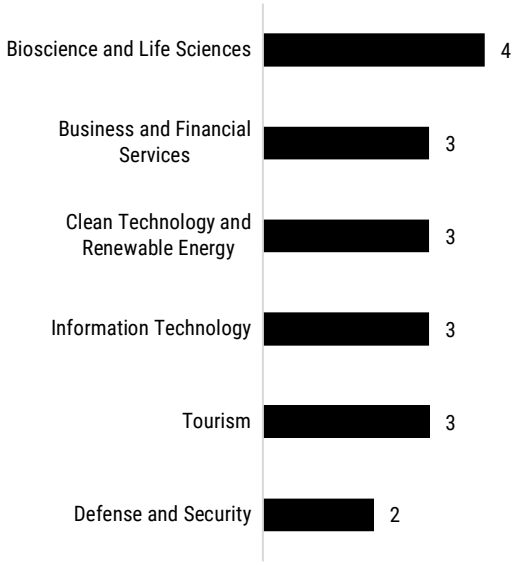
RESILIENCE

The health of the economy is dependent on the region's ability to prevent, withstand, and quickly recover from major disruptions to its economic base. Establishing economic resilience in a local or regional economy requires the ability to anticipate risk, evaluate how that risk can impact key economic assets, and build a responsive capacity. Therefore, focusing on strong and sustainable industry clusters as part of the region's economic development strategy is important in achieving economic resiliency.[19]

Industries in Cluster

The Bioscience and Life Sciences cluster has the highest number of industries; a diversified industry base makes for a strong cluster.

Chart 2.17 Number of Industries in Cluster (3-Digit NAICS), 2022

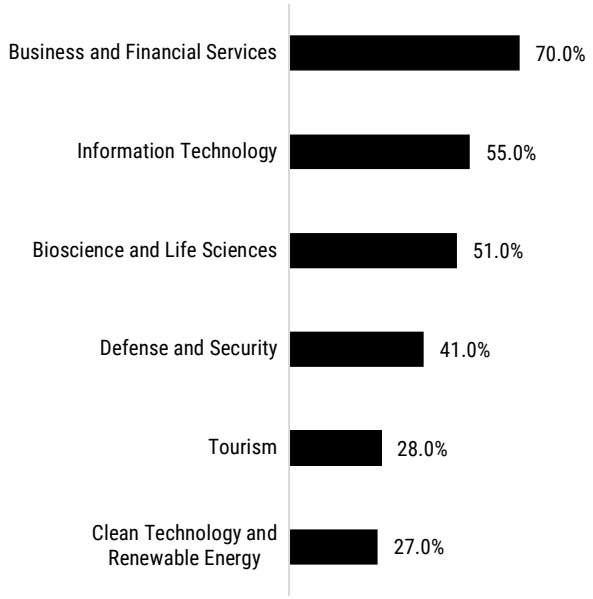


[19] Comprehensive Economic Development Strategy (CEDS) Content Guidelines: Recommendations for Creating an Impactful CEDS | U.S. Economic Development Administration. (n.d.). Www.eda.gov. https://www.eda.gov/ceds/content/economic-resilience.htm

Supply Chain Requirements

The Business and Financial Services cluster had 70% of its supply chain requirements satisfied in-region, top among Charlottesville's clusters. Focusing on local supply gives clusters greater control over their products, particularly in times of challenge, and contributes to the local economy.

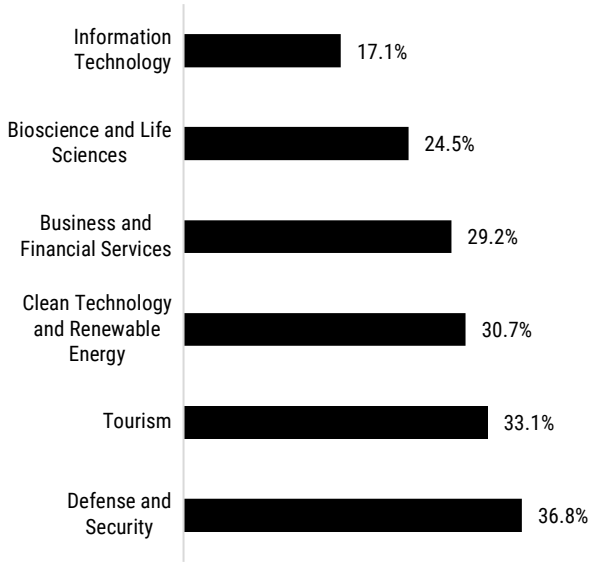
Chart 2.18 Share of Supply Chain Requirements Satisfied In-Region, 2022



Retirement Risk

Charlottesville's Defense and Security and Tourism clusters have the highest retirement risk among all the clusters, with 37% and 33% of workers over 55 years of age, respectively.

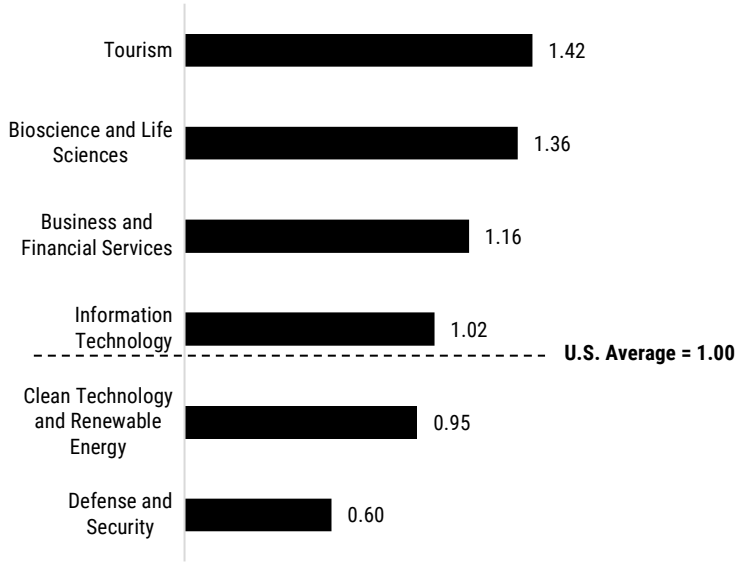
Chart 2.19 Share of Employees Over 55 Years of Age, 2022



Key Occupations

Charlottesville has an occupational competitive advantage in four of its industry clusters: Tourism, Bioscience and Life Sciences, Business and Financial Services, and Information Technology. An occupational competitive advantage indicates the robustness of the workforce compared to the national average.

Chart 2.20 Key Occupations Location Quotient, 2022



Educational Attainment

The Information Technology cluster has the largest share of employees with a Bachelor's degree. It is one of the most educated clusters in Charlottesville along with Defense and Security. The Bioscience and Life Sciences cluster has the largest share of employees with a graduate degree (10%), and the third largest share of employees with a Bachelor's degree (49%).

Chart 2.21 Share of Employees with a Bachelor's Degree, 2022

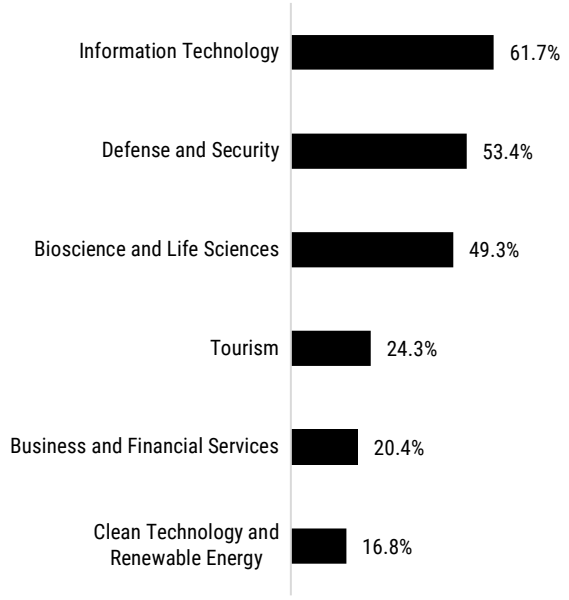
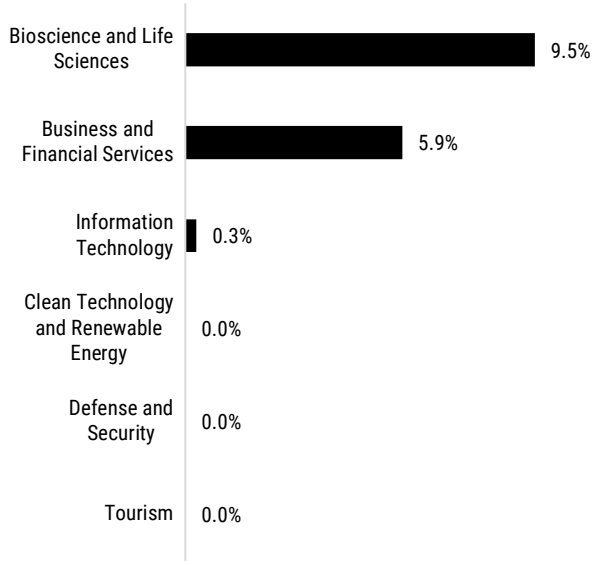


Chart 2.22 Share of Employees with a Graduate Degree, 2022



On the other hand, Clean Technology and Renewable Energy is the cluster with the highest share of employees with a high school diploma only.

Chart 2.23 Share of Employees with an Associate Degree or Certificate, 2022

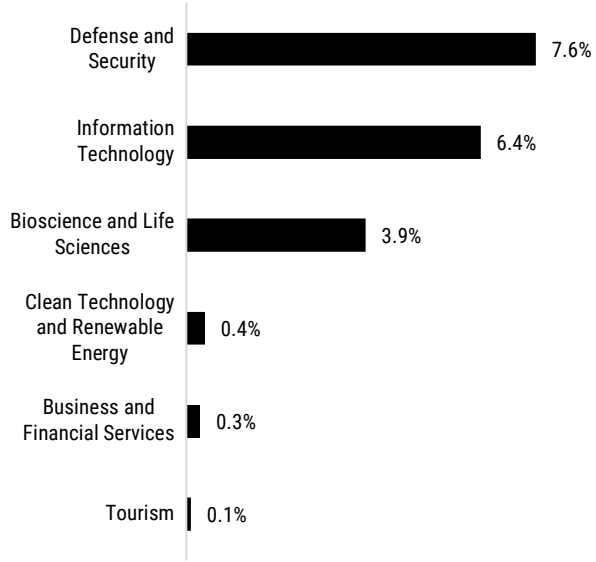
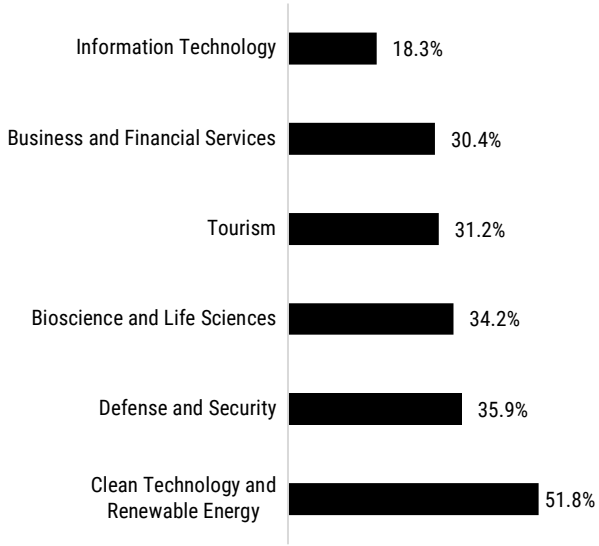


Chart 2.24 Share of Employees with a High School Diploma, 2022



Resilience Summary

Charlottesville's most resilient cluster is Information Technology, followed by Bioscience and Life Sciences and Business and Financial Services. These clusters are characterized by robust industries and a young, educated workforce.

The Information Technology cluster is well educated, with the highest share of employees with a Bachelor's degree (62%), and the lowest share of employees with a high school diploma only (18%). With 17% of workers aged 55 years or older, the cluster has the lowest retirement risk in Charlottesville.

Similar to the Information Technology cluster, the high education levels in the Bioscience and Life Sciences cluster bolsters its resilience. The cluster has the highest share of employees with a graduate degree (10%), paired with its almost 50% of employees with a Bachelor's degree. It is comprised of four different industries, giving it the most robust industry base.

Charlottesville's Business and Financial Services cluster is one of the region's strongest with a 1.36 LQ in key occupations. It has a low retirement risk (29%), and has the highest share of supply chain requirements satisfied in-region (70%).

Table 2.5 Resilience Summary Table

	Number of Industries (3-digit) (2022)	Percent supply chain requirements satisfied in-region (2022)	Share of workers aged 55+ (2022)	Key Occupations LQ (2022)	Graduate Degree Employees (2022)	Bachelor Degree Employees (2022)	Associates Degree or Certificate (2022)	High School Diploma (2022)
Information Technology	3	55.0%	17.1%	1.02	0.3%	61.7%	6.4%	18.3%
Bioscience and Life Sciences	4	51.0%	24.5%	1.36	9.5%	49.3%	3.9%	34.2%
Business and Financial Services	3	70.0%	29.2%	1.16	5.9%	20.4%	0.3%	30.4%
Defense and Security	2	41.0%	36.8%	0.60	0.0%	53.4%	7.6%	35.9%
Tourism	3	28.0%	33.1%	1.42	0.0%	24.3%	0.1%	31.2%
Clean Technology and Renewable Energy	3	27.0%	30.7%	0.95	0.0%	16.8%	0.4%	51.8%

Table 2.6 Resilience Mapping Table

Number of Industries (3-digit) (2022)	Supply chain requirements satisfied in-region (%) (2022)	Share of workers aged 55+ (%) (2022)*	Key Occupations LQ (2022)	Graduate Degree Employees (%) (2022)*	Bachelor Degree Employees (%) (2022)*	Associates Degree or Certificate (%) (2022)*	High School Diploma (%) (2022)*
Bioscience and Life Sciences	Business and Financial Services	Information Technology	Tourism	Bioscience and Life Sciences	Information Technology	Defense and Security	Information Technology
Business and Financial Services	Information Technology	Bioscience and Life Sciences	Bioscience and Life Sciences	Business and Financial Services	Defense and Security	Information Technology	Business and Financial Services
Clean Technology and Renewable Energy	Bioscience and Life Sciences	Business and Financial Services	Business and Financial Services	Information Technology	Bioscience and Life Sciences	Bioscience and Life Sciences	Tourism
Information Technology	Defense and Security	Clean Technology and Renewable Energy	Information Technology	Clean Technology and Renewable Energy	Tourism	Clean Technology and Renewable Energy	Bioscience and Life Sciences
Tourism	Tourism	Tourism	Clean Technology and Renewable Energy	Defense and Security	Business and Financial Services	Business and Financial Services	Defense and Security
Defense and Security	Clean Technology and Renewable Energy	Defense and Security	Defense and Security	Tourism	Clean Technology and Renewable Energy	Tourism	Clean Technology and Renewable Energy

CLUSTER PROFILES

BIOSCIENCE AND LIFE SCIENCES

Cluster definition

The Bioscience and Life Sciences cluster cluster consists of establishments that specialize in research and development, specifically as it relates to medical instruments and products.

Cluster snapshot

The Bioscience and Life Sciences cluster is Charlottesville's most competitive and equitable. It has the lowest share of jobs at risk of automation. It has over 3,000 employees and is the largest contributor to the economy with a GRP of $373 million.

It is also closely related to Charlottesville's robust Healthcare cluster which employs over 18,000 employees (a share that is 24% above the national average) and has grown by 19% over the last five years.

Earnings per job in this cluster are lower than the national average. The national average salary for the cluster is $147,022 while in Charlottesville it is $84,296. The share of employment in the cluster is 75% higher than the national average. Employment in the cluster increased by 10% in the past five years, slightly behind than the national average of 19%. The retirement risk is about average for this cluster in Charlottesville, with 25% of employees 55 or older, compared to the national average for this cluster of 23%.

Major companies in this cluster in Charlottesville include the University of Virginia Medical Center and the CVilleBioHub. The City is focused on the creation and growth of bioscience start-ups, and thus has several research parks and incubators, including North Fork Discovery Park, Fontaine Research Park, and Virginia Biosciences Health Research Corporation.

Table 2.7 Bioscience and Life Sciences industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		3,046	**275**	**10%**	**1.75**	**$84,396**	**$274,912,695**
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	1,349	278	26%	3.38	$114,524	$158,745,128

334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	85	(38)	(31%)	2.87	$81,290	$7,126,418
541990	All Other Professional, Scientific, and Technical Services	1,410	(85)	(6%)	1.56	$52,695	$77,955,226
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	45	Insf. Data	Insf. Data	0.79	$85,854	$5,296,564
334516	Analytical Laboratory Instrument Manufacturing	18	Insf. Data	Insf. Data	0.56	$84,111	$1,610,938
621511	Medical Laboratories	88	35	65%	0.48	$82,047	$7,545,796
424210	Drugs and Druggists' Sundries Merchant Wholesalers	51	30	144%	0.27	$171,258	$16,632,625

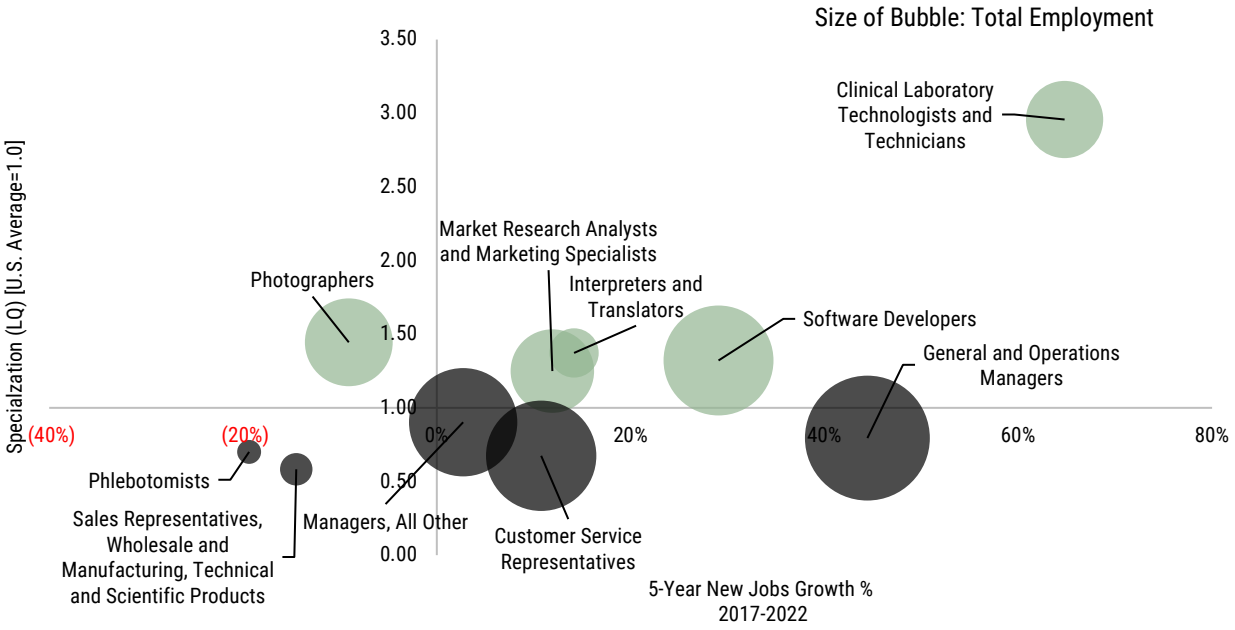
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.8 Bioscience and Life Sciences top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	Average Earnings Per Job
		1.36	**8,177**	**9,601**	**10,370**	**$85,197**
29-2018	Clinical Laboratory Technologists and Technicians	2.96	455	750	804	$56,099
27-4021	Photographers	1.44	1,067	970	955	$81,128
27-3091	Interpreters and Translators	1.37	268	306	318	$84,064
15-1252	Software Developers	1.32	1,178	1,521	1,727	$110,428
13-1161	Market Research Analysts and Marketing Specialists	1.25	784	877	988	$76,041
11-9199	Managers, All Other	0.90	1,437	1,476	1,593	$90,629
11-1021	General and Operations Managers	0.79	1,359	1,963	2,157	$116,444
31-9097	Phlebotomists	0.70	89	72	82	$37,125
43-4051	Customer Service Representatives	0.67	1,384	1,532	1,592	$37,672
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	0.58	155	132	154	$105,786

Note: Pink shading represents an employment decline.

Chart 2.25 Key Occupations in Bioscience and Life Sciences, 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Bioscience and Life Sciences cluster yielded the following key takeaways:

- The cluster's most competitive industry is *Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology).* This industry has a share of employment that is more than three times the national average, and contributes the most to the cluster's GRP ($159 million).
- *Drugs and Druggists' Sundries Merchant Wholesalers* is the fastest growing industry in the cluster. It has grown by 144% in the past five years, and offers the highest average earnings per job at $171,258.
- The *All Other Professional, Scientific, and Technical Services* industry lost 85 jobs in the past five years, the most in the cluster. However, it remains competitive, with a share of employment that is 56% higher than the national average.

INFORMATION TECHNOLOGY

Cluster definition

The Information Technology cluster consists of establishments that assist with machine repair and offer software services.

Cluster snapshot

The Information Technology cluster is the strongest in terms of resilience. It is the most well educated cluster in Charlottesville, with the highest share of employees with a Bachelor's degree, and the lowest share of employees with just a high school diploma. With a GRP per worker of $320,000, it is the most productive cluster in Charlottesville.

Earnings per job in this cluster are lower than the national average: the national average salary for the cluster is $207,234 while in Charlottesville it is $119,529. The share of employment in the cluster is 36% lower than the national average. However, employment in the cluster increased by 26% in the past five years, largest among all of Charlottesville's clusters. This value is smaller than the national average of 39% job growth. The retirement risk is relatively high for this cluster in Charlottesville, with 26% of employees 55 or older, compared to the national average for this cluster of 16%.

Major companies in this cluster in Charlottesville include ECL Inc., Skyline Information Systems, Silverchair Information Systems, and Explore Learning. These companies benefit from Virginia's Technology Zone, which offers tax incentives for tech companies located in Charlottesville.

Table 2.9 Information Technology industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		559	**115**	**26%**	**0.64**	**$119,529**	**$88,194,749**
811212	Computer and Office Machine Repair and Maintenance	77	57	301%	1.60	$71,755	$6,032,533
811219	Other Electronic and Precision Equipment Repair and Maintenance	32	Insf. Data	Insf. Data	0.80	$96,040	$3,598,210
511210	Software Publishers	345	78	29%	0.75	$138,729	$66,832,511
518210	Data Processing, Hosting, and Related Services	106	(48)	(31%)	0.30	$98,514	$11,731,495

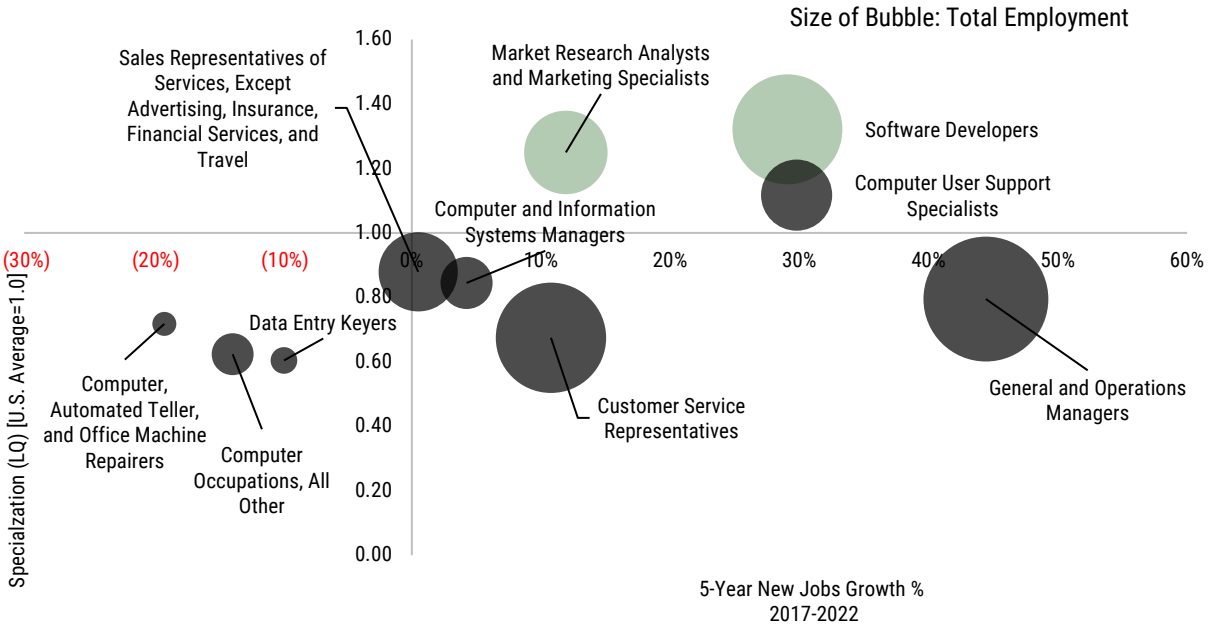
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.10 Information Technology top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	Average Earnings Per Job
		1.02	**6,754**	**8,045**	**8,792**	**$86,454**
15-1252	Software Developers	1.32	1,178	1,521	1,727	$110,428
13-1161	Market Research Analysts and Marketing Specialists	1.25	784	877	988	$76,041
15-1232	Computer User Support Specialists	1.12	491	637	703	$61,395
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	0.88	786	789	830	$74,998
11-3021	Computer and Information Systems Managers	0.84	328	342	380	$145,318
11-1021	General and Operations Managers	0.79	1,359	1,963	2,157	$116,444
49-2011	Computer, Automated Teller, and Office Machine Repairers	0.72	90	72	83	$44,207
43-4051	Customer Service Representatives	0.67	1,384	1,532	1,592	$37,672
15-1299	Computer Occupations, All Other	0.62	257	221	247	$89,204
43-9021	Data Entry Keyers	0.60	99	89	85	$40,685

Note: Pink shading represents an employment decline.

Chart 2.26 Key Occupations in Information Technology, 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Information Technology cluster yielded the following key takeaways:

- The cluster's only competitive industry is *Computer and Office Machine Repair and Maintenance*, with a share of employment that is 60% higher than the national average. This is also the fastest growing industry in the cluster, growing by 301% in the past five years.
- *Software Publishers* is a potential emerging industry. It has added the most jobs over the past five years (78), and offers the highest average earnings per job in the cluster ($139,000).
- The *Data Processing, Hosting, and Related Services* industry was the only one to experience job loss in the cluster. It shrank by 31% from 2017 to 2022.

BUISINESS AND FINANCIAL SERVICES

Cluster definition

The Business and Financial Services cluster consists of establishments that offer management training and insurance services

Cluster snapshot

The Business and Financial Services cluster is a major employer, with over 2,000 employees, and is projected to grow more than any other cluster from 2022 to 2027. It is the largest employer of People of Color (37%).

Earnings per job in this cluster are lower than the national average. The national average salary for the cluster is $80,891 while in Charlottesville it is $56,228. The share of employment in this cluster is 28% higher than the national average. Employment in the cluster increased by 11% in the past five years, more than double the national average of 5%. The retirement risk is slightly above average for this cluster in Charlottesville, with 29% of employees 55 or older, compared to the national average for this cluster of 25%.

The University of Virginia is an anchor for business services in the region, and fosters entrepreneurship and small-business growth through the UVA Licensing and Ventures Group. Major companies in this cluster in Charlottesville include Equinix Culpeper Data Center, S&P Global Market Intelligence, and the CFA Institute. The cluster's GRP is $121 million with a GRP per worker of $104,000.

Table 2.11 Business and Financial Services industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		2,032	**198**	**11%**	**1.28**	**$56,228**	**$121,471,031**
524127	Direct Title Insurance Carriers	497	131	36%	8.22	$95,804	$50,261,158
611430	Professional and Management Development Training	307	10	3%	2.75	$32,692	$10,748,245
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	26	Insf. Data	Insf. Data	1.65	$137,566	$4,015,074
561730	Landscaping Services	1,154	138	14%	1.09	$41,122	$50,351,219
524126	Direct Property and Casualty Insurance Carriers	48	(106)	(69%)	0.12	$116,378	$6,095,334

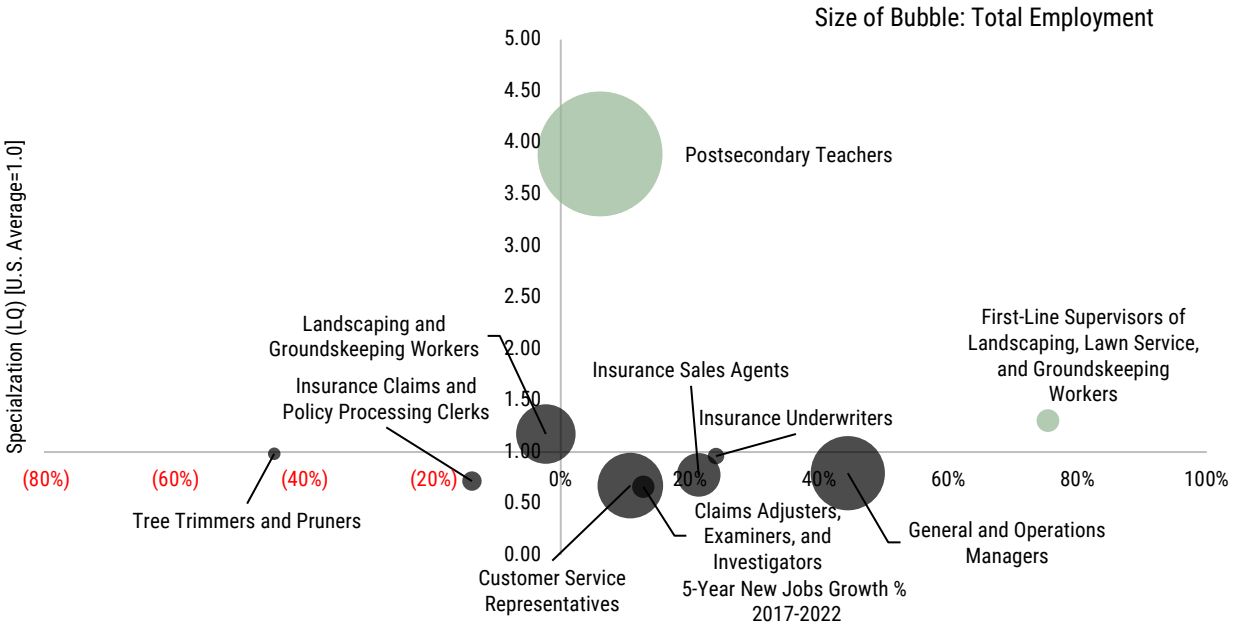
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.12 Business and Financial Services top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	Average Earnings Per Job
		1.16	**10,424**	**11,637**	**13,251**	**$86,967**
25-1099	Postsecondary Teachers	3.89	5,235	5,553	6,735	$105,548
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	1.31	105	185	200	$53,424
37-3011	Landscaping and Groundskeeping Workers	1.17	1,291	1,261	1,384	$36,597
37-3013	Tree Trimmers and Pruners	0.98	101	56	62	$42,815
13-2053	Insurance Underwriters	0.96	78	97	106	$74,821
11-1021	General and Operations Managers	0.79	1,359	1,963	2,157	$116,444
41-3021	Insurance Sales Agents	0.78	558	677	676	$82,433
43-9041	Insurance Claims and Policy Processing Clerks	0.72	155	134	146	$42,195
43-4051	Customer Service Representatives	0.67	1,384	1,532	1,592	$37,672
13-1031	Claims Adjusters, Examiners, and Investigators	0.66	158	178	192	$69,701

Note: Pink shading represents an employment decline.

Chart 2.27 Key Occupations in Business and Financial Services, 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Business and Financial Services cluster yielded the following key takeaways:

- The cluster's most competitive industry, *Direct Title Insurance Carriers*, is also the fastest growing. It has a share of employment that is more than eight times the national average, and it has grown by 36% in the past five years.
- *Landscaping Services* is the largest industry in the cluster, and has experienced steady growth over the past five years. With over 1,100 employees, and a GRP of $50 million, the industry is one of the most important in the cluster.
- A potential emerging industry in this cluster is *Other Direct Insurance (except Life, Health, and Medical Carriers).* Despite the small size, the industry has a share of employment that is 65% higher than the national average, and offers the highest average earnings per job at $138,000.

TOURISM

Cluster definition

The Tourism cluster is comprised of establishments that accommodate visitors of the area and offer unique experiences.

Cluster snapshot

The Tourism cluster is Charlottesville's largest, with over 4,000 employees. It has the highest share of female employees among Charlottesville's clusters (54%), and has the highest location quotient in key occupations (1.42), indicating a skilled workforce.

Charlottesville is a hotspot for the talent needed for this cluster, with a share of employment in the cluster that is more than two times the national average. Earnings per job are slightly lower than the national average; the national average salary for the cluster is $50,286 while in Charlottesville it is $40,457. Employment in the cluster decreased by 7% in the past five years, following the nationwide trend of job decline in this cluster. Nationally, employment has declined by 20% in the past five years. The retirement risk is relatively high for this cluster in Charlottesville, with 33% of employees 55 or older, compared to the national average for this cluster of 24%.

Several amenities drive the strength of Tourism in Charlottesville, including the University of Virginia's historic campus, a UNESCO World Heritage Site. Charlottesville also contains John Paul Jones Arena, the Monticello Wine Trail, and over a hundred award winning wineries, breweries cideries, and restaurants. The cluster's GRP is $180 million and the GRP per worker is $80,000.

Table 2.13 Tourism industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		4,342	(328)	(7%)	**2.23**	$40,457	**$180,171,890**
312130	Wineries	677	167	33%	11.49	$38,649	$26,613,129
312120	Breweries	505	268	113%	6.62	$49,023	$24,965,975
721191	Bed-and-Breakfast Inns	146	73	99%	6.13	$26,146	$3,848,220
711510	Independent Artists, Writers, and Performers	1,450	(162)	(10%)	1.74	$40,646	$61,370,221
721110	Hotels (except Casino Hotels) and Motels	1,565	(675)	(30%)	1.55	$39,637	$63,374,345

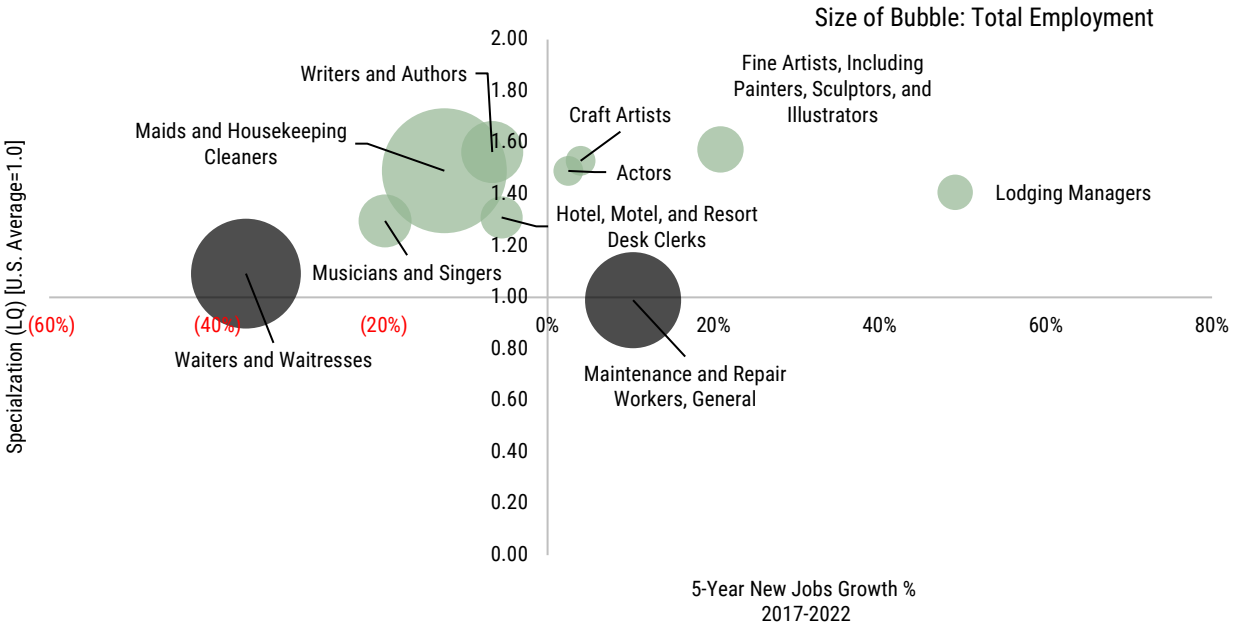
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.14 Tourism top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	Average Earnings Per Job
		1.42	**7,960**	**6,818**	**6,951**	**$41,613**
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	1.57	240	290	299	$37,926
27-3043	Writers and Authors	1.56	556	519	501	$77,213
27-1012	Craft Artists	1.53	115	119	123	$21,963
37-2012	Maids and Housekeeping Cleaners	1.49	2,405	2,106	2,203	$31,891
27-2011	Actors	1.49	117	120	119	$95,485
11-9081	Lodging Managers	1.41	114	170	187	$65,466
43-4081	Hotel, Motel, and Resort Desk Clerks	1.31	253	239	239	$27,516
27-2042	Musicians and Singers	1.30	471	379	373	$90,494
35-3031	Waiters and Waitresses	1.09	2,559	1,630	1,507	$28,637
49-9071	Maintenance and Repair Workers, General	0.99	1,130	1,247	1,400	$42,350

Note: Pink shading represents an employment decline

Chart 2.28 Key Occupations in Tourism, 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Tourism cluster yielded the following key takeaways:

- The cluster's most competitive industry is *Wineries*, with a share of employment that is more than 11 times the national average. It experienced steady growth from 2017 to 2022, adding 167 jobs.
- *Breweries* is the fastest growing industry in the cluster, adding 268 jobs and growing by 113%. It has a share of employment that is more than six times the national average.
- Two of the largest industries, *Independent Artists, Writers, and Performers*, and *Hotels (except Casino Hotels) and Motels* also experienced the most decline, shrinking by 10% and 30% respectively. Although these industries may be declining, they remain competitive, with a share of employment that is 74% and 55% higher than the national average, respectively.

DEFENSE AND SECURITY

Cluster definition

The Defense and Security cluster is comprised of establishments that engage in aircraft and aircraft system manufacturing.

Cluster snapshot

The Defense and Security cluster has the largest competitive advantage in Charlottesville, with an overall location quotient of 2.91. The cluster benefits from high productivity and high average earnings.

Earnings per job in this cluster are lower than the national average. The national average salary for the cluster is $141,644 while in Charlottesville it is $119,245. The share of employment in the cluster is almost three times higher than the national average. Employment in the cluster decreased by 14% in the past five years, while nationally the cluster grew by an average of 5%. The retirement risk is slightly above average for this cluster in Charlottesville, with 37% of employees 55 or older, compared to the national average for this cluster of 32%

Major companies in this cluster in Charlottesville include Northrop Grumman, General Dynamics, and Battelle. Industry in this region benefits from the proximity of Washington D.C. The cluster's GRP is $54 million and the GRP per worker is $272,000.

Table 2.15 Defense and Security industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		446	**(73)**	**(14%)**	**2.91**	**$119,245**	**$53,976,397**
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	446	(72)	(14%)	4.45	$119,212	$53,860,580
336412	Aircraft Engine and Engine Parts Manufacturing	<10	Insf. Data	Insf. Data	0.01	Insf. Data	$115,817

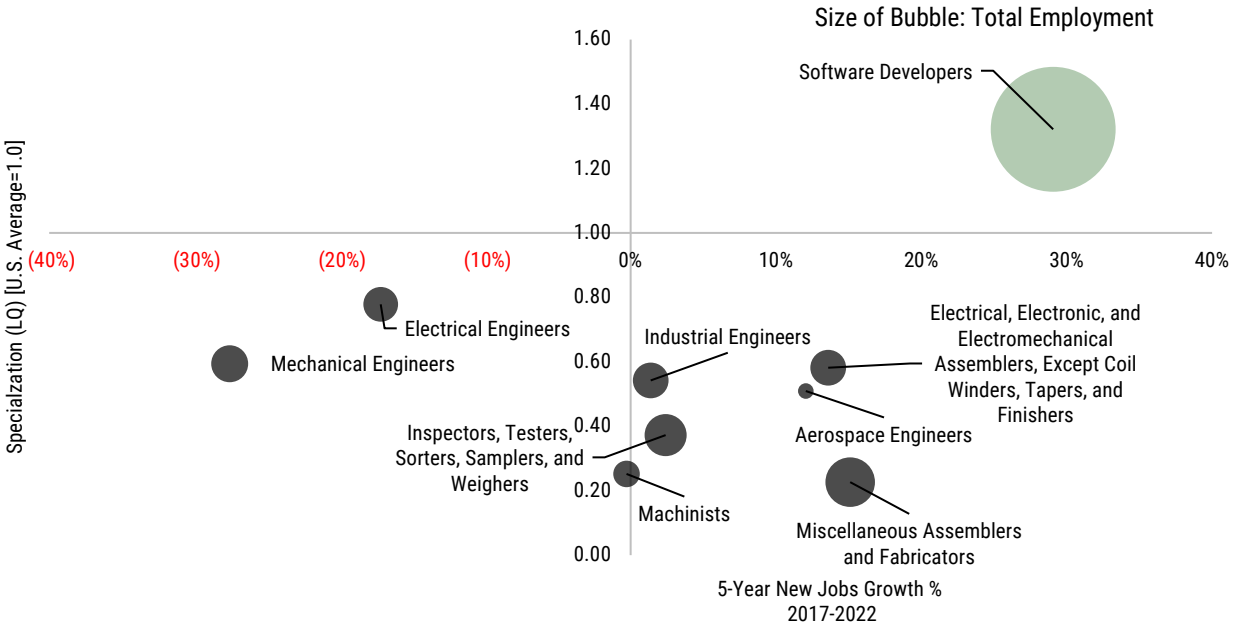
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.16 Defense and Security top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	2022 Average Earnings Per Job
		0.60	**2,217**	**2,525**	**2,781**	**$94,010**
15-1252	Software Developers	1.32	1,178	1,521	1,727	$110,428
17-2071	Electrical Engineers	0.78	142	117	124	$112,250
17-2141	Mechanical Engineers	0.59	184	133	143	$111,316
51-2028	Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	0.58	110	125	124	$42,872
17-2112	Industrial Engineers	0.54	123	124	132	$98,971
17-2011	Aerospace Engineers	0.51	21	24	24	$126,390
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	0.37	168	172	181	$53,399
51-4041	Machinists	0.25	69	69	70	$52,313
51-2098	Miscellaneous Assemblers and Fabricators	0.23	208	239	256	$33,163
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	0.00	14	0	0	$0

Note: Pink shading represents an employment decline

Chart 2.29 Key Occupations in Defense and Security 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Defense and Security cluster yielded the following key takeaways:

- The *Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing* industry is the major contributor to the overall cluster. Despite losing 72 jobs in the past five years, it has a share of employment that is more than four times higher than the national average.
- The only other industry in this cluster is *Aircraft Engine and Engine Parts Manufacturing*. Given the size of this industry (< 10 jobs), it is not yet a major contributor to the overall cluster.

CLEAN TECHNOLOGY AND RENEWABLE ENERGY

Cluster definition

The Clean Technology and Renewable Energy cluster consists of establishments primarily involved in the construction of new homes and the retrofitting of energy technology to old homes.

Cluster snapshot

The Clean Technology and Renewable Energy cluster is a major contributor to the Charlottesville economy. It employs over 3,000 employees and has a GRP of $266 million.

Earnings per job in this cluster are lower than the national average. The national average salary for the cluster is $89,965 while in Charlottesville it is $64,293. The share of employment in the cluster is 11% lower than the national average. Employment in the cluster decreased by 4% in the past five years, while nationally the cluster grew by an average of 13%. The retirement risk is relatively high for this cluster in Charlottesville, with 31% of employees 55 or older, compared to the national average for this cluster of 23%.

The Charlottesville Renewable Energy Alliance organizes and advocates for this cluster. Major companies in this cluster in Charlottesville include Apex Clean Energy, East Point Energy, and Hexagon Energy.

Table 2.17 Clean Technology and Renewable Energy industry statistics

NAICS	NAICS Name	2022 Jobs	2017 - 2022 Change	2017 - 2022 % Change	2022 Location Quotient	2022 Avg. Earnings Per Job	2022 GRP Earnings
		3,120	**(137)**	**(4%)**	**0.89**	**$64,293**	**$209,596,165**
236115	New Single-Family Housing Construction (except For-Sale Builders)	798	(29)	(4%)	1.75	$71,323	$58,587,685
236117	New Housing For-Sale Builders	116	(2)	(1%)	1.46	$84,198	$9,982,983
236118	Residential Remodelers	658	(105)	(14%)	0.99	$48,693	$32,819,279
238220	Plumbing, Heating, and Air-Conditioning Contractors	929	64	7%	0.86	$60,427	$58,691,600
236116	New Multifamily Housing Construction (except For-Sale Builders)	26	(13)	(34%)	0.69	$72,739	$2,068,041
237120	Oil and Gas Pipeline and Related Structures Construction	80	25	45%	0.62	$53,239	$4,556,645

237130	Power and Communication Line and Related Structures Construction	102	68	202%	0.48	$72,091	$8,456,106
236220	Commercial and Institutional Building Construction	288	(119)	(29%)	0.47	$85,345	$26,515,449
237110	Water and Sewer Line and Related Structures Construction	79	(52)	(40%)	0.44	$58,402	$4,740,115
236210	Industrial Building Construction	42	27	186%	0.32	$69,037	$3,178,261

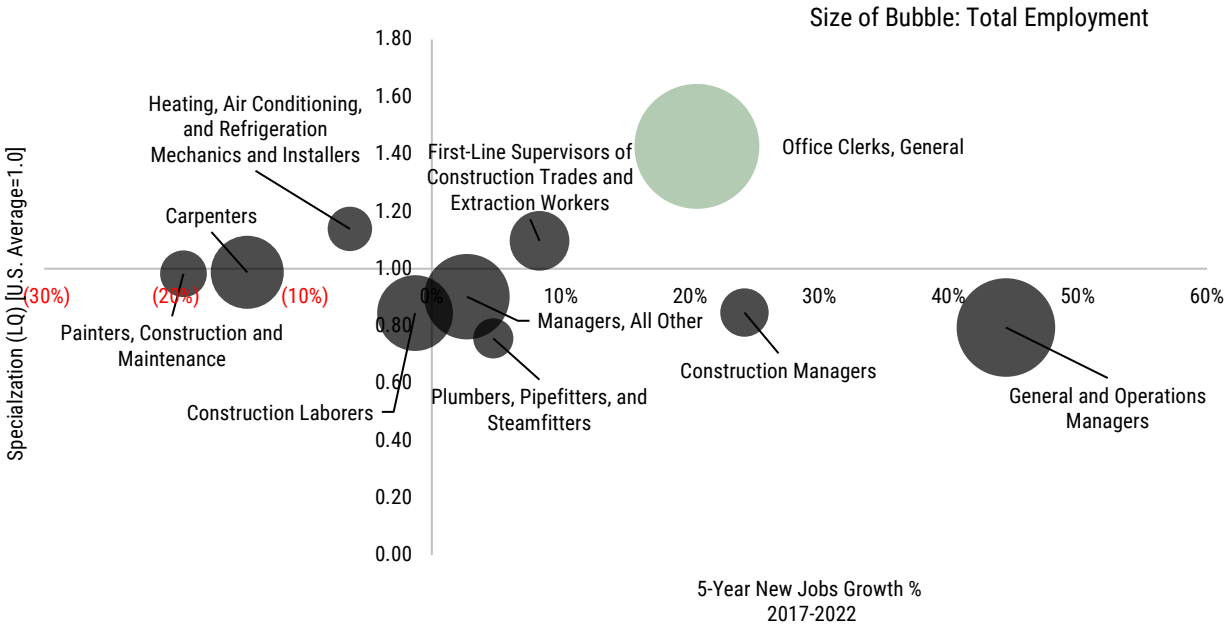
Note: Green shading represents competitive clusters with LQ's greater than 1.25; pink shading represents an employment decline.

Table 2.18 Clean Technology and Renewable Energy top 10 occupations by concentration

SOC	Key Occupation	Concentration	2017 Jobs	2022 Jobs	Forecasted 2027 Jobs	Average Earnings Per Job
		0.95	**10,176**	**11,191**	**11,634**	**$65,029**
43-9061	Office Clerks, General	1.43	2,615	3,152	3,324	$38,896
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1.14	426	399	395	$51,993
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	1.10	665	720	697	$66,466
47-2031	Carpenters	0.99	1,258	1,078	1,044	$47,986
47-2141	Painters, Construction and Maintenance	0.98	546	441	435	$45,982
11-9199	Managers, All Other	0.90	1,437	1,476	1,593	$90,629
11-9021	Construction Managers	0.85	381	473	495	$81,660
47-2061	Construction Laborers	0.85	1,176	1,161	1,169	$39,744
11-1021	General and Operations Managers	0.79	1,359	1,963	2,157	$116,444
47-2152	Plumbers, Pipefitters, and Steamfitters	0.76	311	326	325	$52,979

Note: Pink shading represents an employment decline

Chart 2.30 Key Occupations in Clean Technology and Renewable Energy, 2022



Competitive Advantages and Key Takeaways:

Our analysis of Charlottesville's Clean Technology and Renewable Energy cluster yielded the following key takeaways:

- The cluster's most competitive industry is *New Single-Family Housing Construction (except For-Sale Builders)*. This industry is one of the largest in the cluster, employing almost 800 workers, and has a share of employment that is 75% higher than the national average.
- The *New Housing For-Sale Builders* is the only other competitive industry in this cluster. Despite losing 2 jobs over the past five years, it has a share of employment that is 46% higher than the national average.
- *Power and Communication Line and Related Structure Construction* is the industry that has grown the most over the past five years. With a growth rate of 202%, and a location quotient of 0.48, this may be an emerging industry in the cluster.

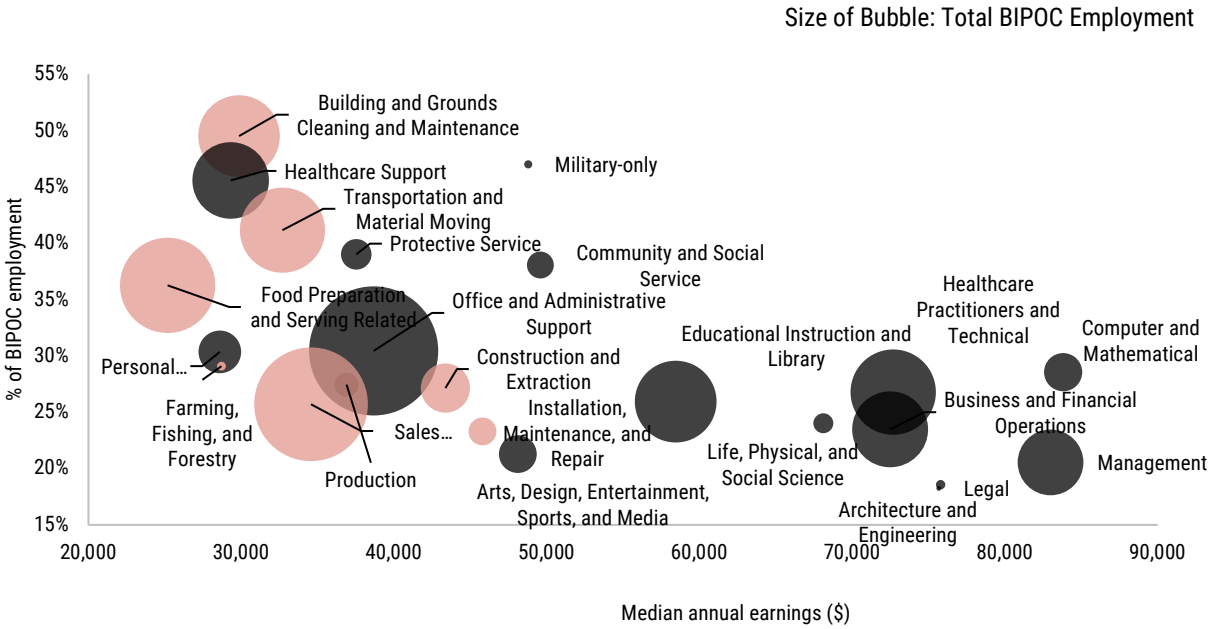
Appendix C: Career Pathways Analysis

Workforce development is a vital part of any healthy city. In general, it is important for regions to have flexible upskilling programs to meet the labor needs of growing industries, help workers access higher paying and more secure jobs, and improve the overall resilience and innovation of the area. With the continuing impacts of the COVID-19 pandemic and the rise of automated occupations, workforce development will become more essential than ever. Both of these trends are increasing the skill and earnings gap between those with a higher education level and those without.[20] An inclusive Career Pathways Analysis can build the prosperity of the City and the people within it.

More specifically, a Career Pathway Analysis better equips a city to create targeted and effective workforce development programs. This approach matches skills to occupations that increase salaries and offer the easiest transitions, either because of a high degree of similarity or an accessibility of educational opportunities. Programs informed by career pathways have been shown to increase earnings, educational progress, and employment in the industry trained for.[21] A Career Pathway Analysis can guide the future of work by allowing communities to make better decisions about connecting workers with jobs. It reveals the earning potential resulting from developing skill sets of workers in particular occupations.

Career pathway programs with a larger share of BIPOC participants are associated with larger labor market impacts, such as employment**.** This is key for the City given the diverse makeup of Charlottesville and the strong focus on developing an inclusive economic development strategy. While the lack of access to training and skills play a large role, discrimination and smaller networks have limited BIPOC employment in the higher paying jobs essential for wealth building.[22] Because of this, the analysis intentionally focuses on occupations with a high share of BIPOC employment and that offer career pathways that serve Charlottesville's largest industry clusters.

[20] Source: Pere-Johnson, Irma and Holzer. "The Importance of Workforce Development for a Future-Ready, Resilient, and Equitable American Economy." American Institute for Research. April 2021.
[21] Source: "Career Pathways Descriptive and Analytical Project." Department of Labor. January 2022.
[22] Source: Holzer, Harry. "Workforce Training: What Works? Who Benefits?" Wisconsin Family Impact Seminars.



The analysis focused on majority BIPOC occupations within three main industries: Transportation, Healthcare, and Tourism.

SOC	Occupation Description	Share of BIPOC employment
Transportation		
53-3054	Taxi Drivers	63%
33-9093	Transportation Security Screeners	63%
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	62%
53-3052	Bus Drivers, Transit and Intercity	62%
53-7051	Industrial Truck and Tractor Operators	52%
Healthcare		
31-1131	Nursing Assistants	60%
31-1128	Home Health and Personal Care Aides	50%
Tourism		
37-2012	Maids and Housekeeping Cleaners	60%
35-1011	Chefs and Head Cooks	51%
35-3041	Food Servers, Nonrestaurant	50%

PATHWAY FRAMEWORK

Methodology

A number of quantitative and qualitative indicators were calculated to gain an understanding of the strength and equity of each occupation, as well as the type and accessibility of pathways available for upskilling. They include:

- **Median annual earnings;** Indicates current earnings levels for majority-BIPOC occupations. Comparison with national averages is used to reveal equity gaps.
- **Automation index;** Scores each occupation based on the content of the job tasks and how vulnerable they are to technological disruption. Occupations above 100 have an above average risk of automation.
- **Degree of skill relevance;** Shows how closely aligned the two occupations are based on skills required.
- **Mean salary improvement;** Shows the average salary increase for each occupational shift. Increasing salaries is an important way to improve individual lives and the overall equity of the City.
- **Technical skills needed;** Includes skills that are important and frequently found on application postings. An important skill is one that contributes to salary estimates and bridges the gap between two occupations.
- **Occupational programs;** Programs that provide the upskilling necessary for the desired occupation, defined by Classification of Instructional Programs (CIP) Code.

Data Source

This career pathways analysis employs data from Economic Modeling Specialists, INTL (EMSI) Lightcast. EMSI serves as an economic data analytics advisor to leaders in economic development organizations, higher education, business, and community, by gathering and integrating economic, labor market, demographic, education, profile, and job posting data from dozens of government and private-sector sources, creating a comprehensive and current dataset that includes both published data and detailed estimates.

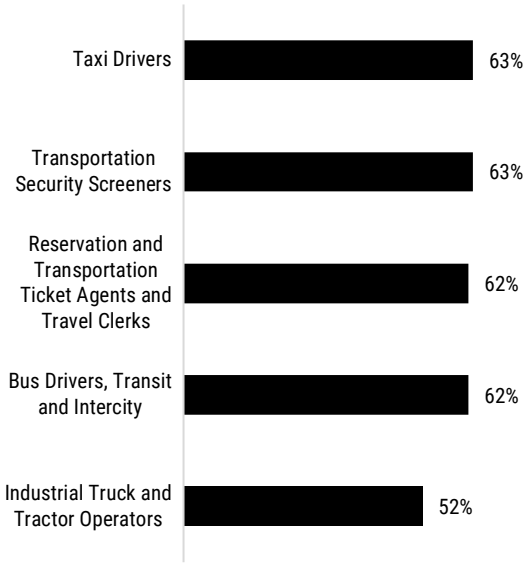
This chapter includes three parts, one for each of the three main industries. Each section will give an overview of key takeaways and trends for the majority-BIPOC occupations and then explore the career pathway analysis for each individual occupation.

TRANSPORTATION

Beyond the importance of connecting BIPOC populations to one of Charlottesville's largest industry clusters, equity in the Transportation sector can improve overall accessibility of public transit and other forms of transportation for disadvantaged communities.[23] The detailed analysis of the Transportation sector in Charlottesville, as well as the career pathway analysis for the five majority-BIPOC occupations, is shown below.

Throughout the total transportation sector, four in 10 workers in Charlottesville are BIPOC. Five occupations within the transportation sector have majority-BIPOC employment. Together, they employ over 1,000 workers, 39% of transportation workers.

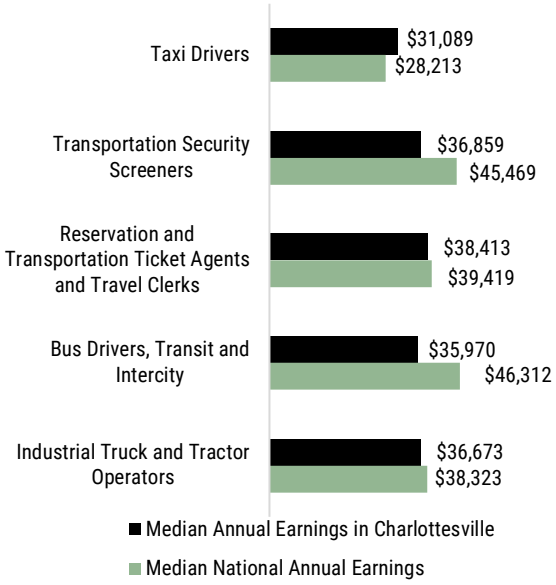
Chart 3.1 Majority BIPOC Occupations in Transportation, 2022



[23] Source: Karner, Alex. "Equity-Advancing Practices at Public Transit Agencies in the United States." Journal of the Transportation Research Board. July 15, 2021.

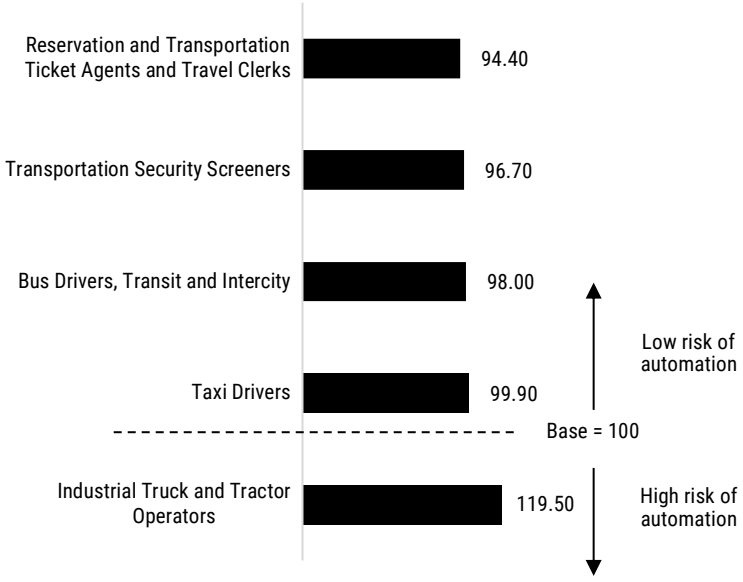
The median wage for these five occupations is $36,160, which is $8,860 lower than the median wage in Charlottesville of $45,020. For four of the selected occupations, the national median annual earnings are higher than earnings in Charlottesville.

Chart 3.2 Median Annual Earnings in Majority BIPOC Occupations



Only *Industrial Truck and Tractor Operators* has a high risk of automation, with an automation index of almost 120.

Chart 3.3 Automation Index for Majority BIPOC Occupations



Career Pathway Analysis

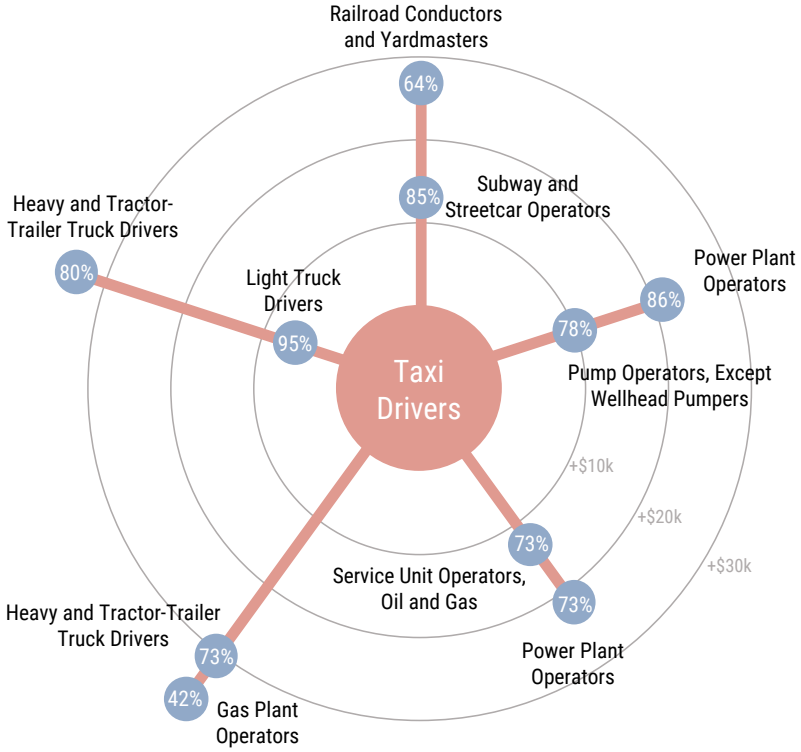
TAXI DRIVERS

With a starting salary of $31,089, the *Taxi Drivers* occupation has the lowest starting salary of all the majority BIPOC occupations in the Transportation industry. Considering this occupation also has the highest share of BIPOC employment (65%), a concerted upskilling effort is needed.

The *Light Truck Drivers* occupation is the closest in skill relevance to *Taxi Drivers*, with a value of 95%. While this makes the transition appealing, the occupation offers an average salary increase of $4,339, lowest among the first level of occupation changes. However, moving to the second level occupation, *Heavy and Tractor-Trailer Truck Drivers*, offers an additional salary increase of $27,639. This corresponds to a total salary increase of over $30,000 after the two career steps have been made, one of the highest increases for the *Taxi Drivers* occupation.

Following the pathway from *Taxi Driver* to *Heavy Tractor-Trailer Truck Drivers* leads to the highest first-level salary increase, and the highest total salary increase. The first-level jump has a 73% degree of skill relevance and a nearly $32,000 average salary increase. The second-level jump to *Gas Plant Operators* increases salary by an additional $1,720, but only has a 42% degree of skill relevance.

Chart 3.4 Career Pathway Infographic for Taxi Drivers



Common technical skills needed to move from the *Taxi Drivers* occupation to the first next level job include truck driving and vehicle maintenance. Skills such as Wastewater treatment and knowledge of boilers are required to move to the second next level job. In Charlottesville, no educational programs currently exist to assist with upskilling in these occupations.

Table 3.1 Career Ladder Pathways for Taxi Drivers

First Next Level Job	Degree of Skill Relevance	Top Skills Required	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Required	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Light Truck Drivers	95%	Truck Driving, Vehicle Maintenance	24%	$4,339	Heavy and Tractor-Trailer Truck Drivers	80%	Vehicle Inspection	22%	$27,639
Subway and Streetcar Operators	85%	Network Stitches, Two-Way Radios	Insf. Data	$12,666	Railroad Conductors and Yardmasters	64%	Locomotive Engineering	20%	$14,051
Pump Operators, Except Wellhead Pumpers	78%	Valves, Hydraulics	Insf. Data	$10,549	Power Plant Operator	86%	Boilers, Water Treatment	21%	$10,955
Service Unit Operators, Oil and Gas	73%	Pressure Controls, Oil and Gas	Insf. Data	$14,051	Power Plant Operator	73%	Wastewater, Boilers	21%	$7,363
Heavy and Tractor-Trailer Truck Drivers	73%	Vehicle Maintenance, Truck Driving	22%	$31,978	Gas Plant Operators	42%	Project Implementation	0%	$1,720

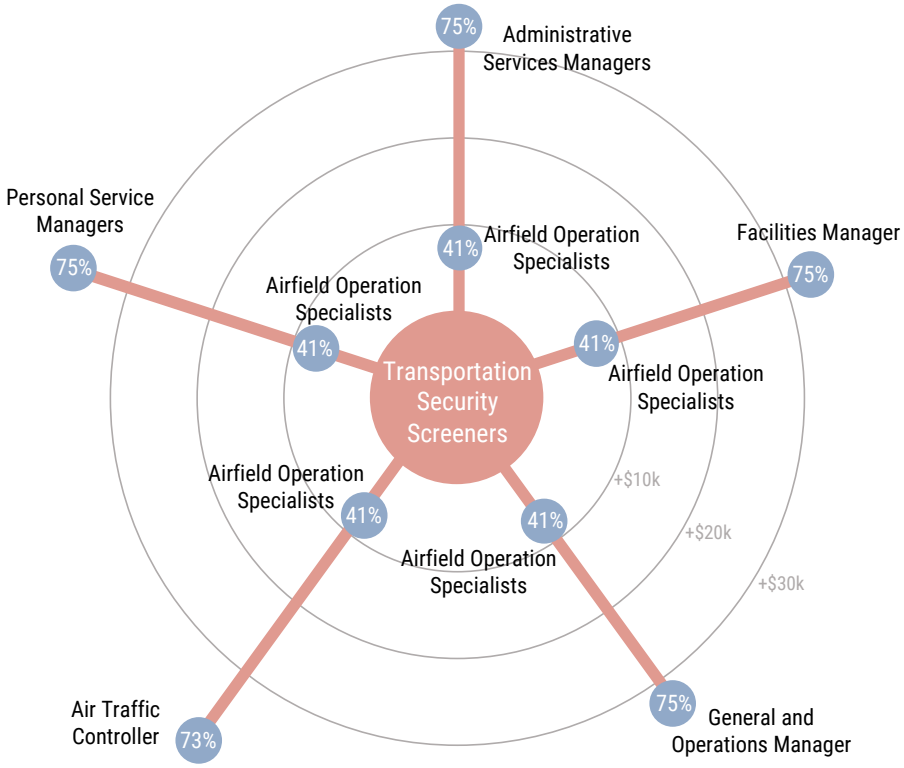
Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group.

TRANSPORTATION SECURITY SCREENERS

The best option for those in the *Transportation Security Screeners* occupation is to make the first-level step to become and *Airfield Operation Specialist*. Although the degree of skill relevance is only 41%, the average salary increase is $7,138, increasing salaries from an average of $38,413 to over $45,000.

After making the first-level step to *Airfield Operation Specialist,* several pathways exist, all of which yield an overall salary increase greater than $30,000. The second-level step to *Air Traffic Controller* has the lowest degree of skill relevance of all second-level steps (73%), but also offers the highest average salary increase ($33,298).

Chart 3.5 Career Pathway Infographic for Transportation Security Screeners



The most important technical skills needed to move from a *Transportation Security Screener* to an *Airfield Operations Specialist* included flight planning and accounting. In Charlottesville, no educational programs currently exist to assist with upskilling for this occupation. For the second-level occupations, skills such as facility management and marketing will prepare workers for the various management positions available at this level. Several occupational programs exist in Charlottesville to assist with upskilling on this level, and Purchasing, Procurement/Acquisition and Contracts Management and Project Management programs foster the most options.

Table 3.2 Career Ladder Pathways for Transportation Security Screeners

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Airfield Operation Specialists	41%	Flight Planning, Accounting	Insf. Data	$7,138	Personal Service Managers	75%	Project Management, Marketing	-6%	$29,689
					Administrative Services Managers	75%	Facility Management	31%	$25,800
					Facilities Manager	75%	Facility Management	19%	$25,800
					General and Operations Managers	75%	Marketing, Finance	18%	$25,322
					Air Traffic Controllers	73%	Air Traffic Control	Insf. Data	$33,298

Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group

Table 3.3 Occupation Programs for Transportation Security Screeners Upskilling

Occupation	CIP Code	Occupational Program
Personal Service Managers	30.9999	Multi-/Interdisciplinary Studies
	52.0399	Accounting and Related Services
Administrative Service Managers	52.0202	Purchasing, Procurement/Acquisitions and Contracts Management
	52.0211	Project Management
	51.0701	Health/Health Care Administration/Management
Facilities Manager	52.0202	Purchasing, Procurement/Acquisitions and Contracts Management
	52.0211	Project Management
General and Operations Manager	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management
	52.1399	Management Sciences and Quantitative Methods

Note: Light green shading represents a career advancement in a new occupational group

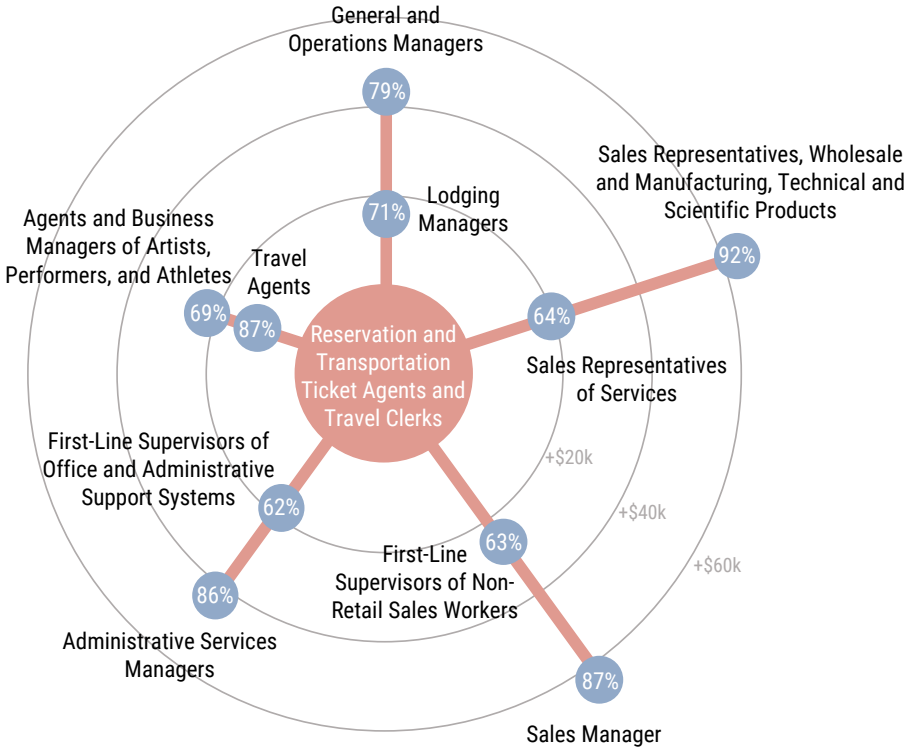
RESERVATION AND TRANSPORTATION TICKET AGENTS AND TRAVEL CLERKS

The *Reservation and Transportation Ticket Agents and Travel Clerks* occupation has the highest earnings of all the majority-BIPOC occupations in the Transportation sector. However, the pathways for this occupation show the high opportunity for improvement; upskilling efforts for this occupation have among the largest average salary increases across all of Charlottesville's majority-BIPOC occupations.

The first-level step from *Reservation and Transportation Ticket Agents and Travel Clerks* to *Travel Agents* has the highest degree of skill relevance (87%) and offers a moderate salary increase of almost $10,000, making it an appealing first step. However, this pathway offers the lowest total salary increase of just over $20,000, and has the lowest degree of skill relevance when moving from the first to second-level (69%). While the *Lodging Managers* pathway has only a 71% share of degree relevance for the first-level, it yields an average salary increase of almost $18,000.

When observing the full pathway, *Sales Representatives of Services,* and *First-Line Supervisors of Non-Retail Sales Workers* offer the highest total increase in salary. Although the first-level steps have low levels of skill relevance, the second-level steps have much higher levels of skill relevance and can increase salaries significantly. Moving from *Sales Representatives of Services* to *Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products* offers a $43,000 salary increase, and moving from *First-Line Supervisors of Non-Retail Sales Workers* to *Sales Managers* offers a $36,000 salary increase.

Chart 3.6 Career Pathway Infographic for Reservation and Transportation Ticket Agents and Travel Clerks



Common technical skills needed to move from the *Reservation and Transportation Ticket Agents and Travel Clerks* occupation to the first next level jobs include Accounting, Hotel Operations, and various Management skills. Skills such as Marketing, Account Management, and Business Development offer the most opportunities for second-level jobs. In Charlottesville, several occupational programs currently exist to assist with upskilling. Business Administration and Management programs allow workers to gain skills for both levels of next jobs.

Table 3.4 Career Ladder Pathways for Reservation and Transportation Ticket Agents and Travel Clerks

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Travel Agents	87%	Travel Arrangements, Accounting	-28%	$9,962	Agents and Business Managers of Artists, Performers, and Athletes	69%	Talent Scouting, Marketing	55%	$12,132
Lodging Managers	71%	Hotel Operations, Accounting	10%	$17,791	General and Operations Managers	79%	Process Improvement, Workflow Management	18%	$24,829
Sales Representatives of Services	64%	Customer Relationship Management	11%	$19,625	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	92%	Selling Techniques, Account Management	33%	$42,916
First-Line Supervisors of Non-Retail Sales Workers	63%	Merchandising, Sales Management	6%	$27,249	Sales Managers	87%	Business Development, Marketing	35%	$35,675
First-Line Supervisors of Office and Administrative Support Workers	62%	Office Management, Finance	9%	$19,208	Administrative Services Managers	86%	Facility Management, Construction	31%	$23,890

Note: Light green shading represents a career advancement in a new occupational group

Table 3.5 Occupations Programs for Reservation and Transportation Ticket Agents and Travel Clerks Upskilling

Occupation	CIP Code	Occupational Program
Sales Representatives of Services	52.0201	Business Administration and Management
First-Line Supervisors of Office and Administrative Support Workers	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management
Agents and Business Managers of Artists, Performers, and Athletes	52.0202	Purchasing, Procurement/Acquisitions and Contracts Management
	52.0399	Accounting and Related Services, Other
	09.0199	Communication and Media Studies
General and Operations Managers	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management, General
	52.1399	Management Sciences and Quantitative Methods
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific	52.0201	Business Administration and Management
Sales Managers	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management
Administrative Service Managers	52.0202	Purchasing, Procurement/Acquisitions and Contracts Management
	52.0211	Project Management
	51.0701	Health/Health Care Administration/Management

Note: Light green shading represents a career advancement in a new occupational group

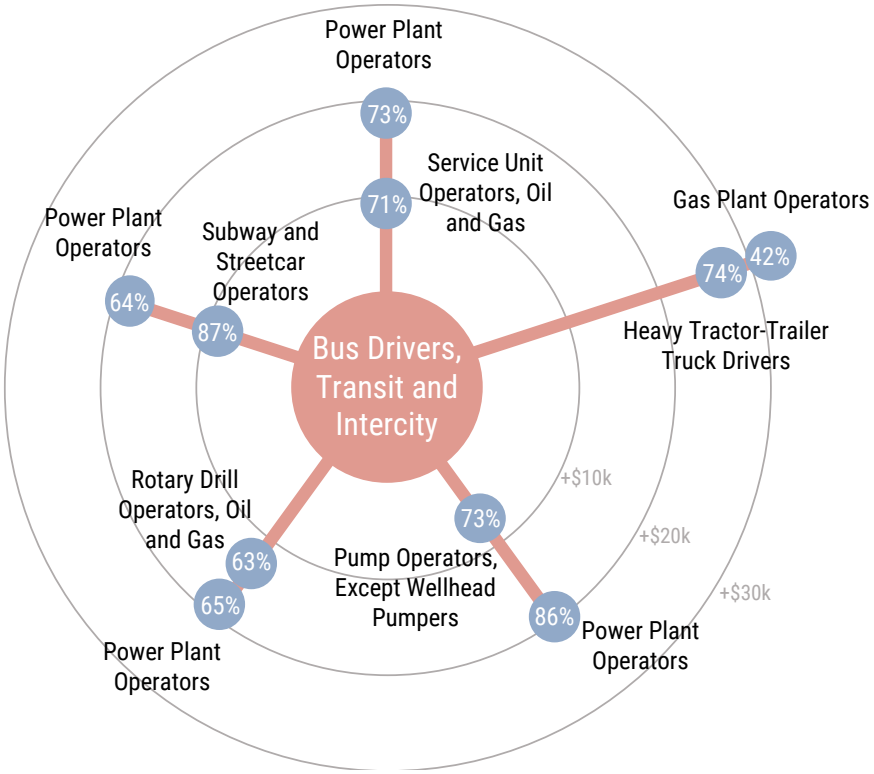
BUS DRIVERS, TRANSIT AND INTERCITY

Bus Drivers, Transit and Intercity is the majority-BIPOC occupation in the Transportation industry with the highest difference in earnings compared to the national average, with a gap of over $10,000.

The most common second-level occupation is *Power Plant Operators*, with a $18,000 average salary increase from *Bus Drivers, Transit and Intercity* and several different options for first-level occupations. The most accessible of these is the *Subway and Streetcar* occupation, with an 87% degree of skill relevance and an average salary increase of almost $10,000.

Following the pathway from *Bus Drivers, Transit and Intercity* to *Heavy Tractor-Trailer Truck Drivers* leads to the highest first-level salary increase, and the highest total salary increase. The first-level jump has a 74% degree of skill relevance and a nearly $29,000 average salary increase. The second-level jump to *Gas Plant Operators* increases salary by an additional $1,720, but only has a 42% degree of skill relevance.

Chart 3.7 Career Pathway Infographic for Bus Drivers, Transit and Intercity



Common technical skills needed to move up the career pathway for *Bus Drivers, Transit and* Intercity include Truck Driving, Forklift Truck Operation, and Water Treatment. To make the jump to a *Power Plant Operator*, knowledge of Supervisory Control and Data Acquisition (SCADA) is essential. In Charlottesville, no educational programs currently exist to assist with upskilling in these occupations.

Table 3.6 Career Ladder Pathways for Bus Drivers, Transit and Intercity

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Subway and Streetcar Operators	87%	Geographic Information Systems	Insf. Data	$9,630	Power Plant Operators	64%	Valves, Water Treatment	21%	$8,749
Service Unit Operators, Oil and Gas	71%	Pressure Controls, Oil Well Workover	Insf. Data	$11,015	Power Plant Operators	73%	Forklift Truck, SCADA	21%	$7,363
Heavy and Tractor-Trailer Truck Drivers	74%	Truck Driving	22%	$28,942	Gas Plant Operators	42%	Project Implementation	0%	$1,720
Pump Operators, Except Wellhead Pumpers	73%	Valves, Forklift Truck	Insf. Data	$7,423	Power Plant Operators	86%	Water Treatment, SCADA	Insf. Data	$10,955
Rotary Drill Operators, Oil and Gas	63%	Drilling, Data Recording	Insf. Data	$16,409	Power Plant Operators	65%	Forklift Truck, SCADA	Insf. Data	$1,969

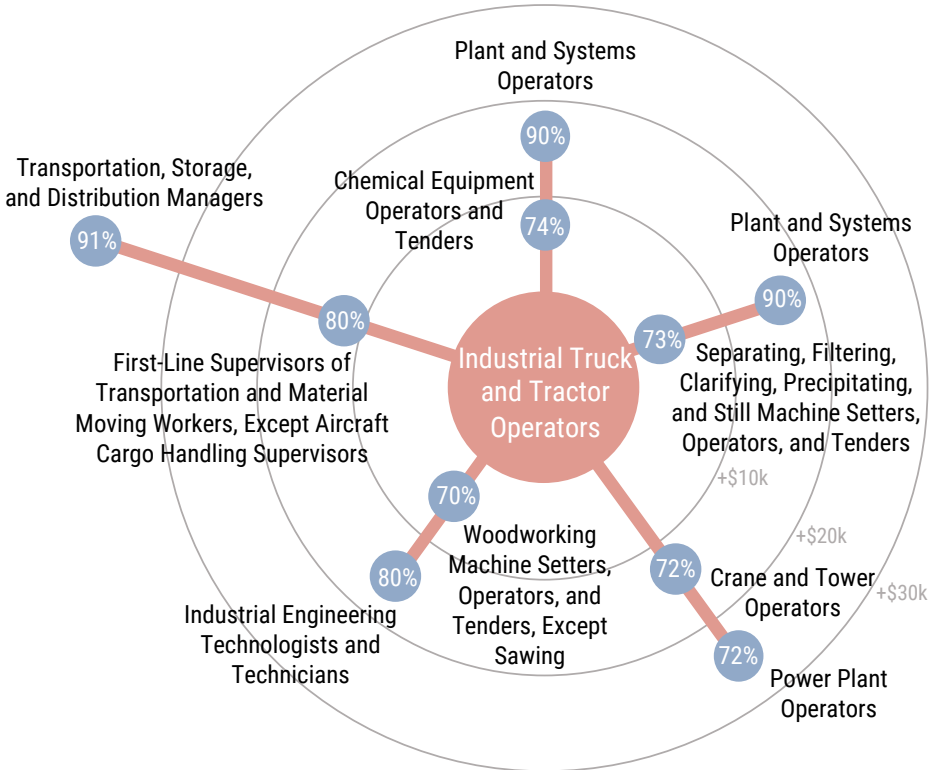
Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group

INDUSTRIAL TRUCK AND TRACTOR OPERATIONS

Industrial Truck and Tractor Operations has an automation index of almost 120, showing both the high risk of automation and the high need for upskilling in this occupation.

The most appealing upskilling pathway starts with the jump from *Industrial Truck and Tractor Operators* to the *First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors* occupation. These occupations are similar, with an 80% degree of skill relevance, and offer one of the highest salary increases from the original occupation to the first level ($12,000). The second-level occupation, *Transportation, Storage, and Distribution Managers* offers the highest average salary increase for this occupation, over $30,000.

Chart 3.8 Career Pathway Infographic for Industrial Truck and Tractor Operators



Common technical skills needed to move from the *Industrial Truck and Tractor Operators* occupation to the first next level job include Warehouse Operations, Construction, and Chemical Process. Skills such as Equipment Operation and Process Control are required to move to the second next level job. For this group, two second-level jobs are bolstered by occupational programs. Education opportunities exist for gaining skills in the *Transportation, Storage, and Distribution Managers* and *Industrial Engineering Technologists and Technicians* occupations.

Table 3.7 Career Ladder Pathways for Industrial Truck and Tractor Operators

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	80%	Warehouse Operations, Auditing	15%	$11,989	Transportation, Storage, and Distribution Managers	91%	Supply Chain Management, Logistics Management	27%	$31,171
Chemical Equipment Operators and Tenders	74%	Chemical Process, Valves	43%	$8,090	Plant and System Operators	90%	Equipment Operation, Process Control	0%	$7,597
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	73%	Warehouse Operations, Manufacturing	15%	$4,084	Plant and System Operators	90%	Equipment Operation, Process Control	0%	$11,603
Crane and Tower Operators	72%	Telecommunications, Construction	6%	$12,634	Power Plant Operators	72%	Valves, Water Treatment	21%	$11,109

Woodworking Machine Setters, Operators, and Tenders, Except Sawing	70%	Tooling	35%	$4,655	Industrial Engineering Technologists and Technicians	80%	Preventative Maintenance, Programmable Logic Controllers	10%	$9,885

Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group.

Table 3.8 Occupational Programs for Industrial Truck and Tractor Operators Upskilling

Occupation	CIP Code	Education
Transportation, Storage, and Distribution	52.0202	Purchasing, Procurement/Acquisitions and Contracts Management
	44.0401	Public Administration
Industrial Engineering Technologists and Technicians	15.0699	Industrial Production Technologies/Technicians
	47.0105	Industrial Electronics Technology/Technician

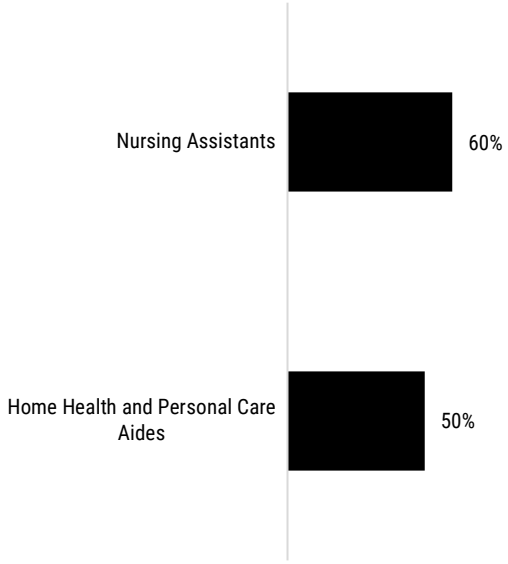
Note: Light green shading represents a career advancement in a new occupational group

HEALTHCARE

Healthcare is one of the largest and fastest growing industries not just in Charlottesville but across the nation. Connecting BIPOC residents to higher paying and more advanced jobs improves the shared prosperity of the region. Importantly, equity in the Healthcare sector also improves health outcomes for BIPOC patients.[24] Below are the takeaways for the majority BIPOC occupations in the Healthcare sector.

Overall, three in 10 Healthcare workers in Charlottesville are BIPOC. Two occupations within the healthcare sector have majority-BIPOC employment. Together, they employ over 4,000 workers in Charlottesville, 32% of total healthcare employment in the area.

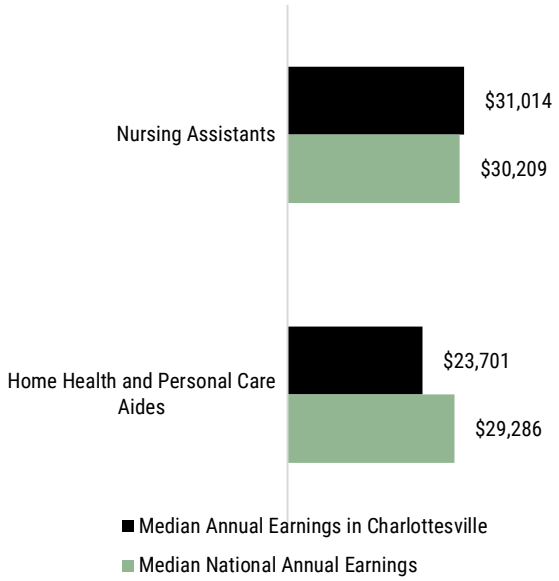
Chart 3.9 Majority BIPOC Occupations in Healthcare, 2022



[24] Arnett, M.J. "Race, Medical Mistrust, and Segregation in Primary Care as Usual Source of Care: Findings from the Exploring Health Disparities in Integrated Communities Study." Journal of Urban Health. June 2016.

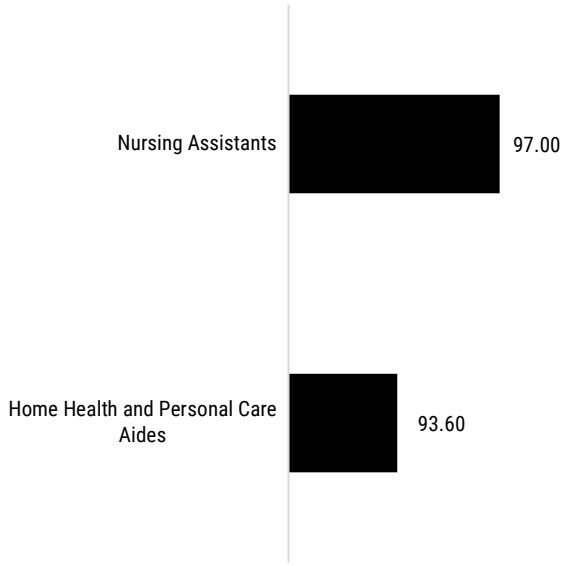
The median earnings for *Nursing Assistants* are comparable with the national level, however, *Home Health and Personal Care Aides* earn 19% less. The combined median earnings for the two occupations is $25,490, a value that is $19,530 lower than the median wage in Charlottesville.

Chart 3.10 Median Annual Earnings in Majority BIPOC Occupations, 2022



Nursing Assistants and *Home Health and Personal Care Aides* are both occupations that do not face a high risk of automation.

Chart 3.11 Automation Index for Majority BIPOC Occupations



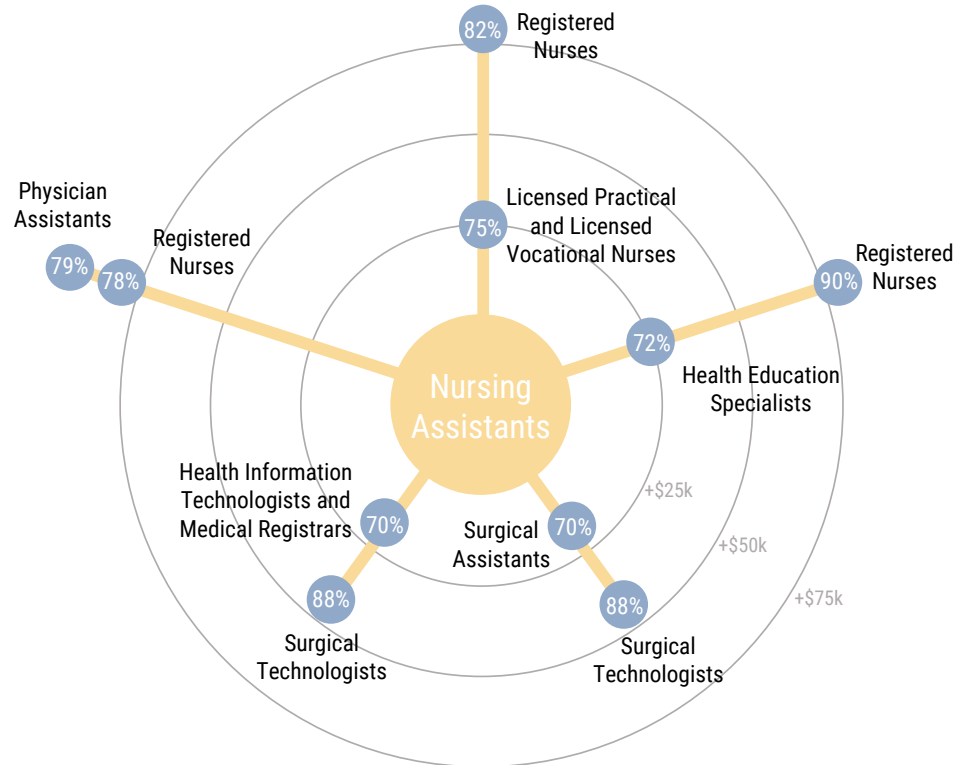
NURSING ASSISTANTS

The *Nursing Assistants* occupation has the highest share of BIPOC employment (60%) and the highest average earnings ($31,014) for majority-BIPOC occupations in Charlottesville's Healthcare industry. This occupation has access to the highest earning occupations included in the pathway analysis, with a total salary increase of over $75,000.

The *Registered Nurses* occupation has a 78% degree of skill relevance, the highest value among all first-level occupation jumps. This occupation also yields the highest average salary increase ($78,000) and gives access to the *Physician Assistants* occupation which offers an additional salary increase of $7,000.

Several other occupations serve as a stepping stone to the *Registered Nurses* occupation. The *Licensed Practical and Licensed Vocational Nurses* and *Health Education Specialists* both offer a salary increase of almost $25,000. Additionally, the second-level occupation of *Surgical Technologists* has a high level of skill relevance (88%) and has a total average salary increase of almost $50,000.

Chart 3.12 Career Pathway Infographic for Nursing Assistants



To move into the *Registered Nurses* occupation, technical skills such as Intensive Care Unit knowledge and Nursing Practices are necessary. Other common skills needed in this pathway include Surgical Procedures and Surgical Technology. In Charlottesville, programs for Registered Nursing training are plentiful, and Allied Health Diagnostic, Intervention, and Treatment Professions programs offer training for a variety of occupations.

Table 3.9 Career Ladder Pathways for Nursing Assistants

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Registered Nurses	78%	Intensive Care Unit, Nursing Practices	21%	$78,161	Physician Assistants	79%	Primary Care, Anesthesia	31%	$7,015
Licensed Practical and Licensed Vocational Nurses	75%	Intravenous Therapy, Nursing Practices	17%	$24,698	Registered Nurses	82%	Intensive Care Unit, Emergency Departments	21%	$53,463
Health Education Specialists	72%	Clinical Nursing	28%	$24,790	Registered Nurses	90%	Nursing Practices	21%	$53,371
Surgical Assistants	70%	Operating Room, Surgical Procedures	13%	$20,087	Surgical Technologists	88%	Surgical Technology	21%	$26,268
Health Information Technologists and Medical Registrars	70%	Operating Room, Surgical Procedures	41%	$20,087	Surgical Technologists	88%	Surgical Technology		$26,268

Note: Grey shading represents a career lateral transition; light green shading represents a career advancement in a new occupational group

Table 3.10 Occupational Programs for Nursing Assistants Upskilling

Occupation	CIP Code	Education
Registered Nurses	51.3801	Registered Nursing/Registered Nurse
	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions
Licensed Practical and Licensed Vocational Nurses	51.3901	Licensed Practical/Vocational Nurse Training
Health Education Specialists	51.2201	Public Health, General
Physician Assistants	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions
Surgical Technologists	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions
	51.0909	Surgical Technology/Technologist

Note: Grey shading represents a career lateral transition; light green shading represents a career advancement in a new occupational group

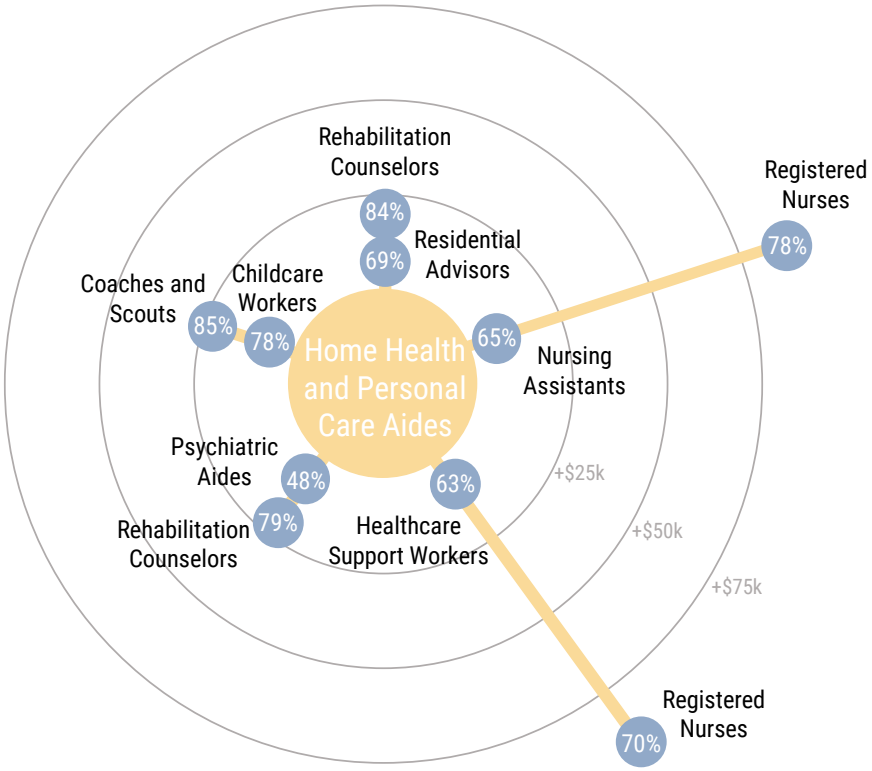
HOME HEALTH AND PERSONAL CARE AIDES

With a starting salary of $23,707, the *Home Health and Personal Care Aides* occupation has a $5,500 earnings gap compared to the national average. Upskilling pathways for this occupation include the *Registered Nurses* occupation which offers a total salary increase of over $85,000.

The *Childcare Workers* occupation is the closest in skill relevance to *Home Health and Personal Care Aides*, with a value of 78%. Although this occupation has the lowest average salary increase ($6,600), no additional skills are required to move up to the second-level occupation, *Coaches and Scouts*.

Two career pathways exist to reach the *Rehabilitation Counselors* occupation. This occupation offers a moderate total salary increase of $15,000, and has a high level of skill relevance.

Chart 3.13 Career Pathway Infographic for Home Health and Personal Care Aides



A variety of technical skills are needed to move from the *Home Health and Personal Care Aides* occupation to the first next level jobs, such as Nursing, Human Services, and Child Development. Skills such as Social Work and Intensive Care Unit knowledge are required to move to the second next level job. Charlottesville has several specialized occupational programs to assist with upskilling for this occupation. Psychology, General and Registered Nursing programs offer trainings for the skills required for second-level jobs.

Table 3.11 Career Ladder Pathways for Home Health and Personal Care Aides

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Childcare Workers	78%	Working with Children, Child Development	1%	$6,652	Coaches and Scouts	85%	None	21%	$10,010
Residential Advisors	69%	Human Services, Treatment Planning	37%	$11,082	Rehabilitation Counselors	84%	Rehabilitation, Social Work	37%	$4,551
Nursing Assistants	65%	Nursing, Vital Signs	14%	$8,903	Registered Nurses	78%	Nursing, Intensive Care Unit	21%	$78,161
Healthcare Support Workers	63%	Endoscopy	31%	$9,399	Registered Nurses	70%	Nursing, Intensive Care Unit	21%	$77,666
Psychiatric Aides	48%	Mental and Behavioral Health	170%	$10,361	Rehabilitation Counselors	79%	Rehabilitation, Human Services	37%	$5,272

Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group.

Table 3.12 Occupational Programs for Home Health and Personal Care Aides Upskilling

Occupation	CIP Code	Education
Childcare Workers	19.0706	Child Development
	19.0709	Child Care Provider/Assistant
Nursing Assistants	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions
	51.9999	Health Professions and Related Clinical Sciences
Psychiatric Aides	42.0101	Psychology, General
Coaches and Scouts	13.1314	Physical Education Teaching and Coaching
Rehabilitation Counselors	42.0101	Psychology, General
Registered Nurses	51.3801	Registered Nursing/Registered Nurse
	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions

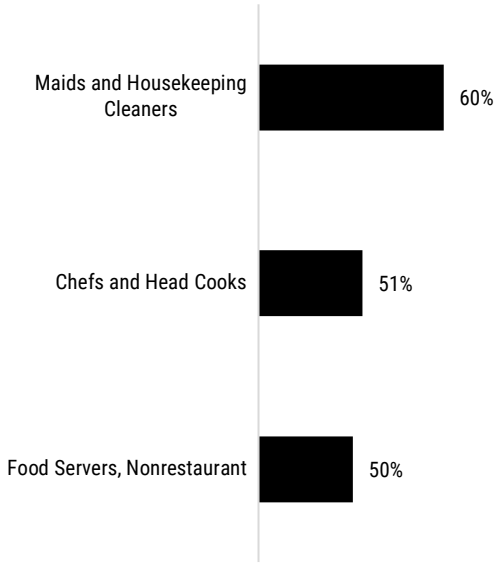
Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group.

TOURISM

Tourism is one of Charlottesville's largest industries and has a large share of BIPOC employment. However, wages for occupations in this industry tend to fall below the national average. Below are the key takeaways for the majority BIPOC occupations in the Tourism industry.

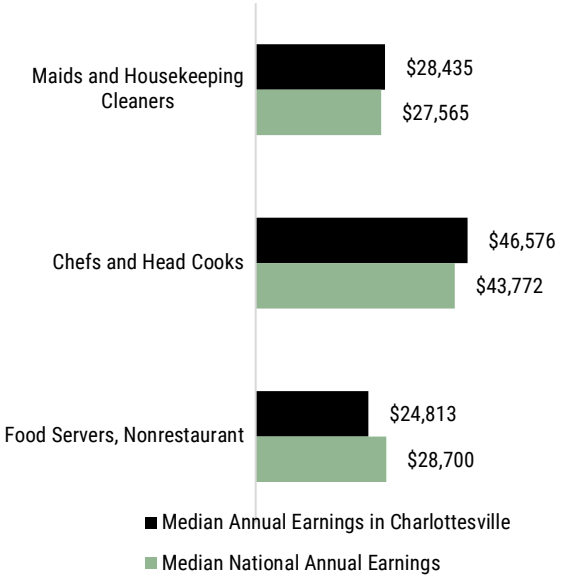
Three occupations within the tourism sector have majority-BIPOC employment. Together they employ 2,500 workers in Charlottesville, 72% of tourism employment.

Chart 3.14 Majority BIPOC Employment in Tourism, 2022



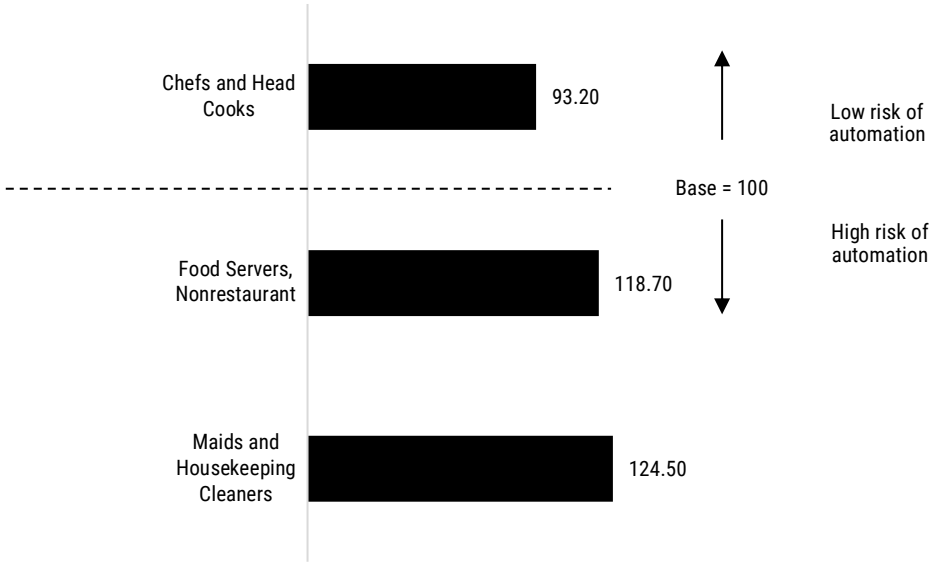
Charlottesville offers earnings that are comparable to the national level for *Maids and Housekeeping Cleaners* and *Chefs and Head Cooks. Food Servers, Nonrestaurant* earn around 14% less. The combined median wage for these three occupations in $28,282, which is $16,738 lower than the median wage in Charlottesville.

Chart 3.15 Median Annual Earnings in Majority BIPOC Occupations, 2022



Maids and Housekeeping Cleaners and *Food Servers, Nonrestaurant* face a high risk of automation, highlighting the need for a career transition.

Chart 3.16 Automation Index for Majority BIPOC Occupations



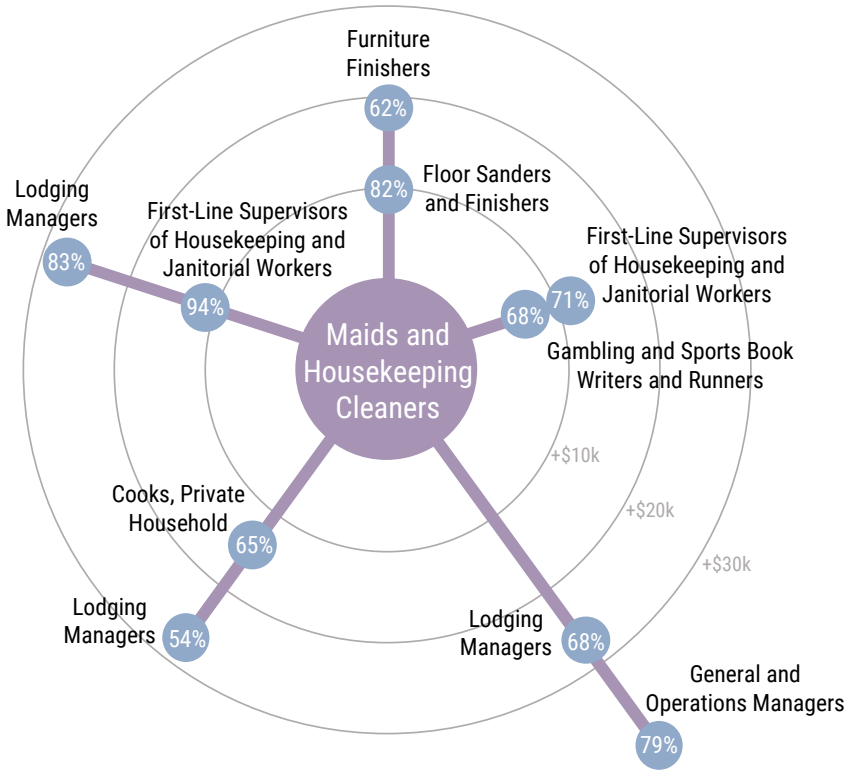
MAIDS AND HOUSEKEEPING CLEANERS

At a share of 60%, the *Maids and Housekeeping Cleaners* occupation has the highest share of BIPOC employees among all majority-BIPOC occupations in the Tourism industry. The need for upskilling in this occupation is revealed by the high automation index of 125.

The *First-Line Supervisors of Housekeeping and Janitorial Workers* occupation is the closest in skill relevance to *Maids and Housekeeping Cleaners*, with a value of 94%. This first-level job transition offers a moderate average salary increase of $11,000. What makes this pathway particularly strong is the access to the second-level *Lodging Managers* occupation. This occupation also has a high degree of skill relevance (83%), making the overall pathway highly accessible.

The *Lodging Managers* occupation offers a total salary increase of over $26,000. While it is a viable second-level occupation, it is also the first-level occupation with the highest average salary increase. It is the only pathway attached to this occupation that leads to the *General Operations and Managers* occupation, which has a total salary increase of over $50,000.

Chart 3.17 Career Pathways Infographic for Maids and Housekeeping Cleaners



Common technical skills needed for advancement in the *Maids and Housekeeping Cleaners* occupation include Marketing, Accounting, and Operations Management. The *Cooks, Private Household* occupation requires no additional skills making it an appealing first next level job. The Cooks and Related Culinary Arts, General programs in Charlottesville can assist with this transition, but most occupational programs in focus on the upskilling required for *General and Operations Manager.*

Table 3.13 Career Ladder Pathways for Maids and Housekeeping Cleaners

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
First-Line Supervisors of Housekeeping and Janitorial Workers	94%	Front Office	18%	$11,229	Lodging Managers	83%	Marketing, Accounting	10%	$15,120
Floor Sanders and Finishers	82%	Refinishing, Wood Flooring	Insf. Data	$9,612	Furniture Finishers	62%	Upholstery, Warehousing	36%	$8,428
Gambling and Sports Book Writers and Runners	68%	Accounting, Merchandising	Insf. Data	$6,758	First-Line Supervisors of Housekeeping and Janitorial Workers	71%	None	18%	$4,471
Lodging Managers	68%	Marketing, Accounting	10%	$26,349	General and Operations Manager	79%	Operations Management	18%	$24,829
Cooks, Private Household	65%	None	Insf. Data	$13,769	Lodging Managers	54%	Hotel Operations, Marketing	10%	$12,580

Note: Light green shading represents a career advancement in a new occupational group

Table 3.14 Occupational Programs for Maids and Housekeeping Cleaners Upskilling

Occupation	CIP Code	Education
Cooks, Private Household	12.0500	Cooking and Related Culinary Arts, General
General and Operations Manager	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management, General
	52.1399	Management Sciences and Quantitative Methods

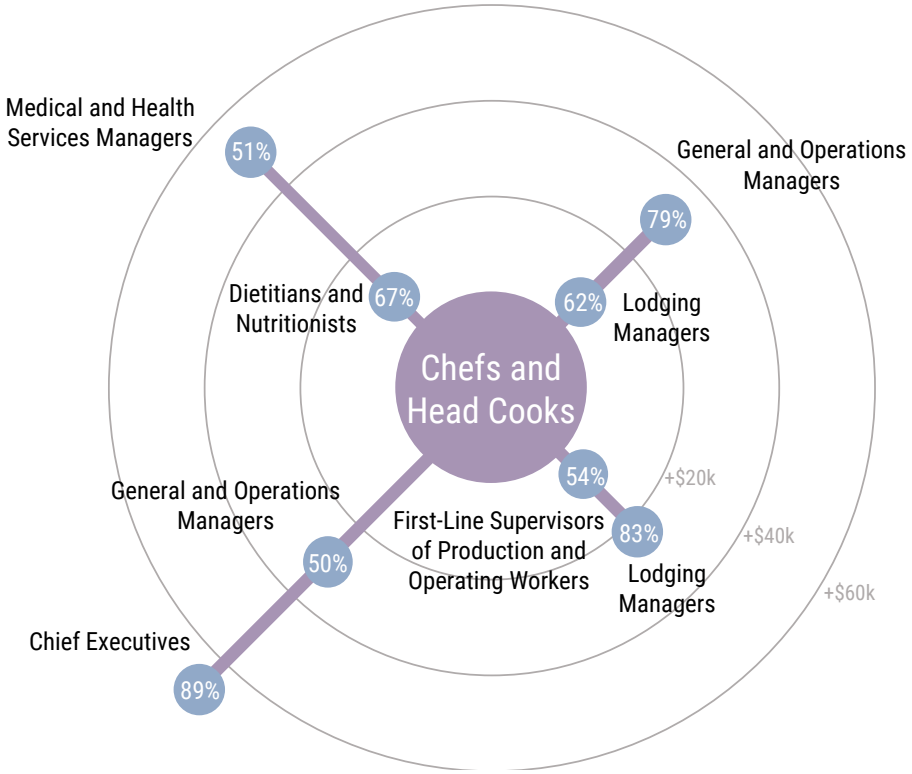
Note: Light green shading represents a career advancement in a new occupational group

CHEFS AND HEAD COOKS

The *Chefs and Head Cooks* occupation offers the highest median earnings among majority-BIPOC occupations in the Tourism industry ($46,576). Upskilling in this occupation yields the highest average salary increases, with the *Chief Executives* occupation increasing salaries by a total of nearly $70,000.

The *Dietitians and Nutritionists* occupation is the most similar to *Chefs and Head Cooks,* with a 67% degree of skill relevance. While the second-level occupation for this pathway, *Medical and Health Services Managers*, increases salaries by an additional $40,000, it only has a 51% degree of skill relevance, making the transition more difficult.

Chart 3.18 Career Pathways Infographic for Chefs and Head Cooks



Common technical skills needed to advance from the *Chefs and Head Cooks* occupation include Operations Management, Marketing, Finance, and Fundraising. Several occupational programs assist with upskilling for this occupation. Liberal Arts and Sciences, Business Administration, and Management Science and Quantitative Methods programs give access to the most lucrative occupations – *General and Operations Managers* and *Chief Executives*.

Table 3.15 Career Ladder Pathways for Chefs and Head Cooks

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Dietitians and Nutritionists	67%	Nutritional Assessment, Dietetics	23%	$9,325	Medical and Health Services Managers	51%	Marketing, Nursing	41%	$39,816
Lodging Managers	62%	Housekeeping, Accounting	10%	$5,880	General and Operations Managers	79%	Operations Management	18%	$24,829
First-Line Supervisors of Production and Operating Workers	54%	Manufacturing	16%	$6,898	Lodging Managers	83%	Operations Management, Marketing	10%	$15,120
General and Operations Managers	50%	Operations Management, Finance	18%	$30,079	Chief Executives	89%	Fundraising	21%	$38,522

Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group

Table 3.16 Occupational Programs for Chefs and Head Cooks Upskilling

Occupation	CIP Code	Occupation Program
First-Line Supervisors of Production and Operating Workers	46.0000	Construction Trades, General
General and Operations Managers	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management, General
	52.1399	Management Science and Quantitative Methods
Medical and Health Services Managers	51.3801	Registered Nursing/Registered Nurse
	51.0999	Allied Health Diagnostic, Intervention, and Treatment Professions
Chief Executives	24.0101	Liberal Arts and Sciences/Liberal Studies
	52.0201	Business Administration and Management, General
	52.1399	Management Sciences and Quantitative Methods

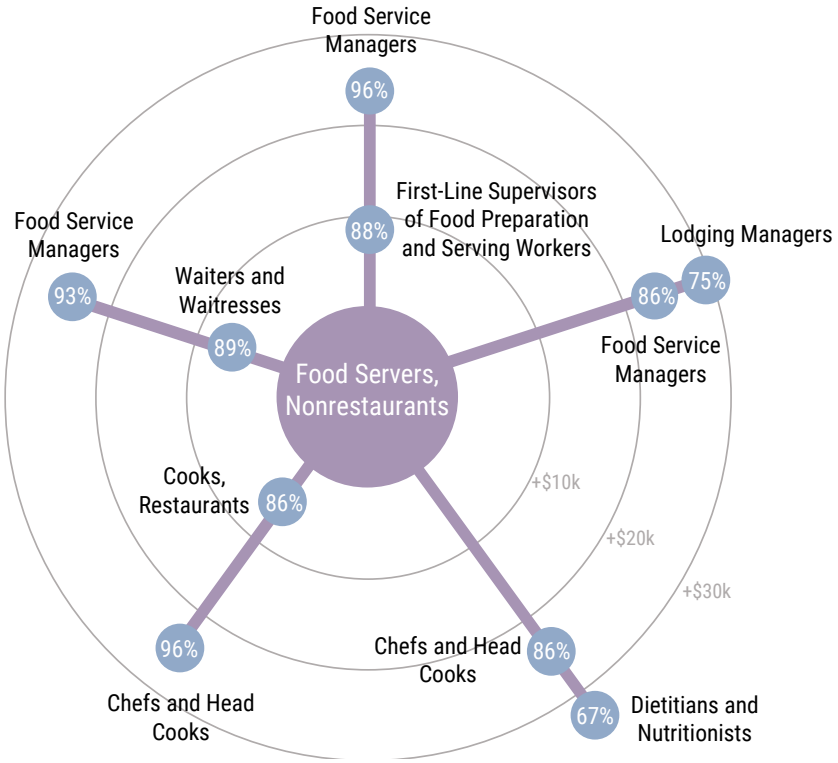
Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group

FOOD SERVERS, NONRESTAURANTS

With a starting salary of $24,813, the *Food Servers, Nonrestaurants* occupation has the lowest starting salary of all the majority-BIPOC occupations in the Tourism industry. Considering this occupation also has a high risk of automation, with an automation index of 119, a concerted upskilling effort is needed.

Several occupations in this pathway have a high degree of skill relevance, easing the overall upskilling process. The most similar first-level occupation is *Waiters and Waitresses*, which yields an overall salary increase of over $7,000. *Chefs and Head Cooks* is the first-level occupation that offers the highest increase in salary ($24,000), while still maintaining a high degree of skill relevance (86%). The second-level occupation in this pathway is *Dietitians and Nutritionists*, which yields an additional salary increase of $9,000.

Chart 3.19 Career Pathways Infographic for Food Servers, Nonrestaurants



Common technical skills needed for upskilling in the *Food Servers, Nonrestaurants* occupation included Restaurant Operations and Management, Cooking, and Purchasing. In Charlottesville, Cooking and Related Culinary Arts programs improve access to a variety of occupations in this pathway.

Table 3.17 Career Ladder Pathways for Food Servers, Nonrestaurants

First Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference	Second Next Level Job	Degree of Skill Relevance	Top Skills Needed	Forecasted change in number of jobs, 2022-2032	Mean Salary Difference
Waiters and Waitresses	89%	Restaurant Operations	13%	$7,443	Food Service Managers	93%	Restaurant Management, Marketing	13%	$15,872
First-Line Supervisors of Food Preparation and Serving Workers	88%	Restaurant Operations, Cash Handling	20%	$9,305	Food Service Managers	96%	Restaurant Management, Profit and Loss Management	13%	$14,010
Food Service Managers	86%	Restaurant Management, Marketing	31%	$23,314	Lodging Managers	75%	Hotel Operations	10%	$6,315
Chefs and Head Cooks	86%	Cooking	32%	$23,749	Dietitians and Nutritionists	67%	Nutritional Assessment, Dietetics	23%	$9,325
Cooks, Restaurant	86%	Cooking	32%	$5,580	Chefs and Head Cooks	96%	Purchasing	32%	$18,169

Note: Dark green shading represents a career advancement within the same occupational group; light green shading represents a career advancement in a new occupational group

Table 3.18 Occupational Programs for Food Servers, Nonrestaurants Upskilling

Occupation	CIP Code	Occupational Program
First-Line Supervisors of Food Preparations and Serving Workers	12.0500	Cooking and Related Culinary Arts, General
Food Service Managers	12.0500	Cooking and Related Culinary Arts, General
Chefs and Head Cooks	12.0500	Cooking and Related Culinary Arts, General
Cooks, Restaurants	12.0500	Cooking and Related Culinary Arts, General

Note: Light green shading represents a career advancement in a new occupational group

Appendix D: Real Estate Market Assessment

This chapter synthesizes real estate market trends impacting the City of Charlottesville, as well as its submarket.

METHODOLOGY & DATA SOURCE

To observe historic trends and determine growth opportunities in each of the City's Office, Industrial, and Retail real estate markets, our team utilized data provided by national commercial real estate platform, CoStar. Key indicators measured through this assessment include:

- Total Existing Supply/Inventory (Square Foot)
- Total Existing Supply/Inventory by Class - A,B,C (Square Foot)
- Quarterly Vacancy rates (%)
- Quarterly Market Rents ($)
- Total Pipeline Supply/Inventory (Square Foot)

In addition, given that office demand has drastically shifted nationally following the COVID-19 pandemic – including in Charlottesville, our team projected demand (SF) for future office space in the City. We utilized 5- and 10- year job projections data from data provider, Lightcast, and focused primarily on office-occupying jobs. Similar to the City's 2018 Commercial Real Estate Market Study, our team utilized an average rentable office space per employee figure to estimate total demand for office space over the next five and ten years. In our analysis, we also take further caution to consider occupations that require significantly less office space - i.e. jobs with tasks/activities that can be completed remotely or with hybrid arrangements. In addition, pipeline developments that will likely absorb the latent demand are also calibrated in calculations.
A similar approach was undertaken to project industrial space demand from job growth in Goods Producing, Manufacturing, and Trade, Transportation, and Logistics industries.

OFFICE

City of Charlottesville is a regional employment hub, and this has translated into its large share of the regional inventory of office space. 86% of all existing office space in the region is located within the City of Charlottesville (8,364,000 SF) with Downtown being the largest and strongest cluster (3,024,000 SF).

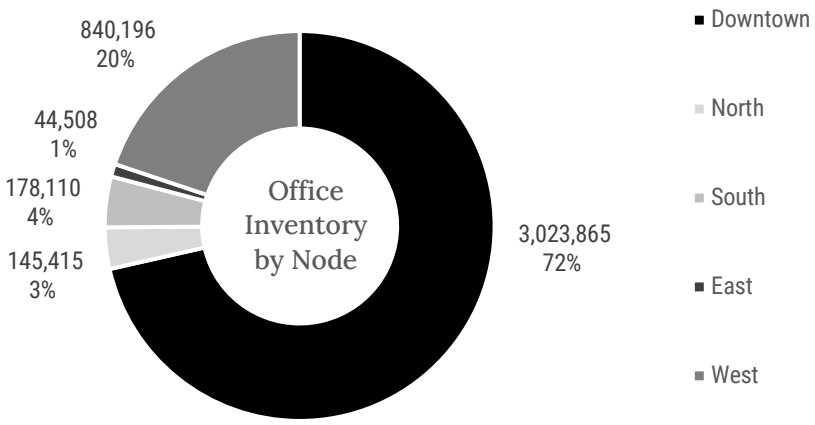


Figure 4.1 Current Office Inventory in City of Charlottesville by Node. Source: CoStar 2023 Q1 (To-date)

Of the City's existing inventory, however, only 14% is Class A (1.16 million SF). Class A office spaces are desirable investment-grade properties with the highest quality construction and workmanship, materials and systems, significant architectural features and high-quality interior finishes, abundant amenities, first rate maintenance and management; and typically occupied by prestigious tenants with above average rental rates and in an excellent location with exceptional accessibility".

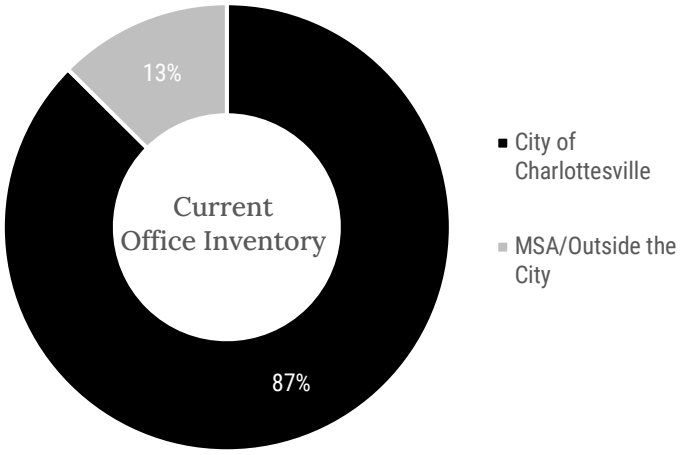


Figure 4.2 Current Office Inventory in Charlottesville MSA. Source: CoStar 2023 Q1 (To-date)

Among its regional peers (including Blacksburg, Lynchburg, and Roanoke), Charlottesville commands 30-40% higher office rents ($25.70 PSF/year). This trend is true of office spaces across all classes – A, B, and C. Despite these higher rents, office vacancies are expected to trend down from its peak of 9.0% during the COVID-19 pandemic. Vacancies are likely to stabilize in

Charlottesville at a healthy rate of 7.5% over the next five years – assuming no further inventory growth/expansion. A healthy amount of vacancy in the market – especially in Class A spaces - will facilitate the entry of new tenants and businesses looking to relocate/expand in Charlottesville.

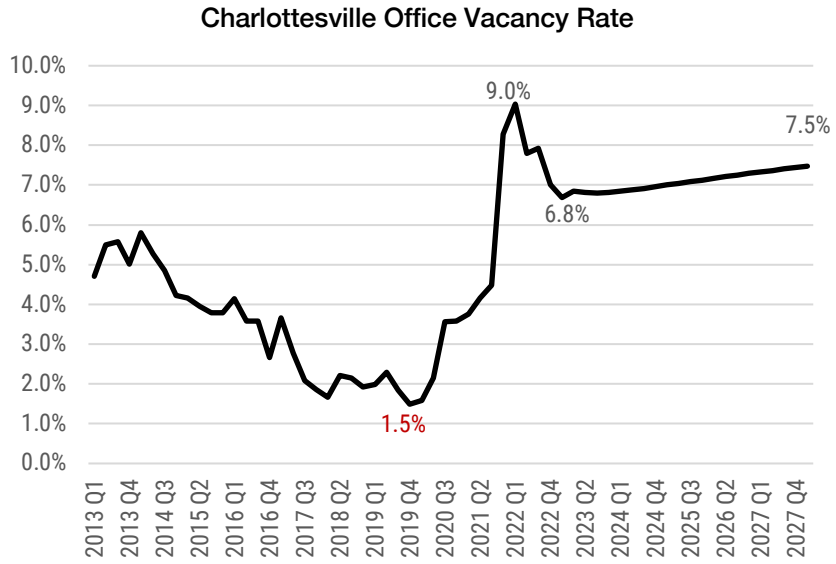


Figure 4.3 Office Vacancy Rate. Source: CoStar 2023 (To-date)

Prior to the COVID-19 pandemic, Charlottesville had record low vacancy rates indicating a space-constrained market that has since eased as a result of hybrid workforce patterns and changing real estate needs of companies.

As companies continue to adjust real estate portfolios and leasing patterns, it is important for the City to hold its pattern by managing any growth in its office inventory and maintaining/upgrading existing inventory to keep up with the needs and preferences of top employers from growing clusters. At this time, the City is already expecting an increase of 3% in office space (within and just outside the City limits) over the next five years (243,000 SF), which will bring total inventory to 8.6 million SF. This includes all properties in the pipeline – 'under construction', 'planned', or 'proposed', with a large share at the Tarleton Oak development downtown (Class A, 86,000 SF). Further growth in office inventory should be closely managed to maintain a vacancy rate of below 8% over the next decade.

A nation-wide challenge for office space demand lies currently in the growth in jobs with tasks/activities that can be completed remotely or with hybrid work arrangements. In Charlottesville, the same challenge holds true with a large share of job growth over the next five and ten years expected to be jobs in the business and financial services, and information technology sectors that have the highest potential for remote work and therefore limited demand for office space per worker.

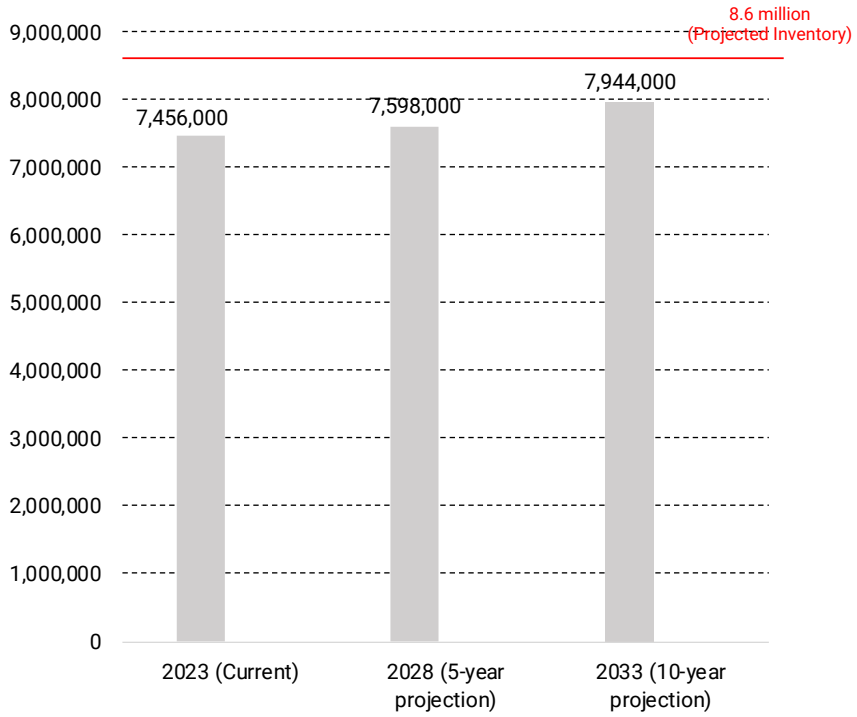


Figure 4.4 Projected Office Demand & Supply for Charlottesville. Source: CoStar 2023 (To-date); Resonance Consultancy

To project estimated demand for office space based on job growth in the Charlottesville MSA, our team has delineated between 'Low Intensity' and 'High Intensity' office-using occupations. We then applied realistic capture rates to determine total real demand for office space in 5-year increments.

- 'Low Intensity' office-using occupations include jobs with tasks and activities that may easily be completed in a variety of settings outside a traditional office and that does not require specialized machinery and tools, for example, 'Management Consulting' or 'Marketing Research'.
- 'High Intensity' office-using occupations include jobs with tasks that may only be completed with the use of specialized machinery and tools that are not portable, frequent in-person consumer interactions and services, and that are heavily regulated/monitored under Federal laws and regulations.

In total, the City is projected to be able to support 7.6 million SF of office space by 2028 and 7.9 million SF by 2033, and resulting in 700,000-1,000,000 SF of anticipated access inventory. As such, it is important for the City to focus its efforts on preserving and maintaining its Class B and C office inventory so it can better meet the needs and preferences of companies in technology, and bioscience and life science industries that are fast growing in Charlottesville. This includes the following top five office-occupying jobs generating the greatest demand for office space based on projected job growth:

	2033 Projected SF
Physical, Engineering, and Life Sciences R&D	343,500
Computer Systems Design Services	266,300
Custom Computer Programming Services	226,700
Offices of Lawyers	170,000
Other Scientific and Technical Consulting Services	136,400

INDUSTRIAL

City of Charlottesville is a small industrial market with approximately 2.1 million total square feet. Compared with peer markets in the region, Charlottesville has a limited inventory with a large share of existing spaces consisting of Class B Warehouses (65%). Warehouses are typically 25,000SF or larger in size, box-shaped with heights of 22 feet or greater and include at least one loading dock.

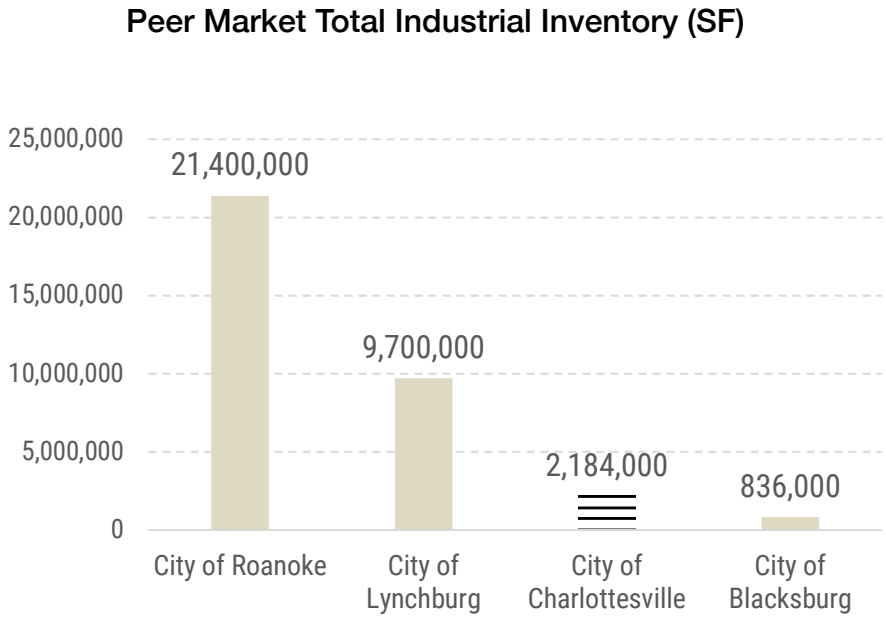


Figure 4.5 Total Industrial Space by City. Source: CoStar 2023 (To-date)

Beyond warehouses, the region also features over a million SF of Distribution and Manufacturing space – nearly equal in share (Distribution - 14% and Manufacturing - 13%) concentrated north of Charlottesville along Route 29 and east at Zion Crossroads.

With limited supply, industrial properties in Charlottesville are commanding the highest rents PSF when compared with regional peers. These average rents rose quickly since the pandemic with an average annual gain of 6.7% from 2020-2023. This is likely due to the increased need for warehouse and distribution facilities to meet domestic shipping and logistics demands. While year-on-year growth rates will slow over the next five years, industrial rents are projected to continue to increase 46% by 2028 (from 2019 levels).

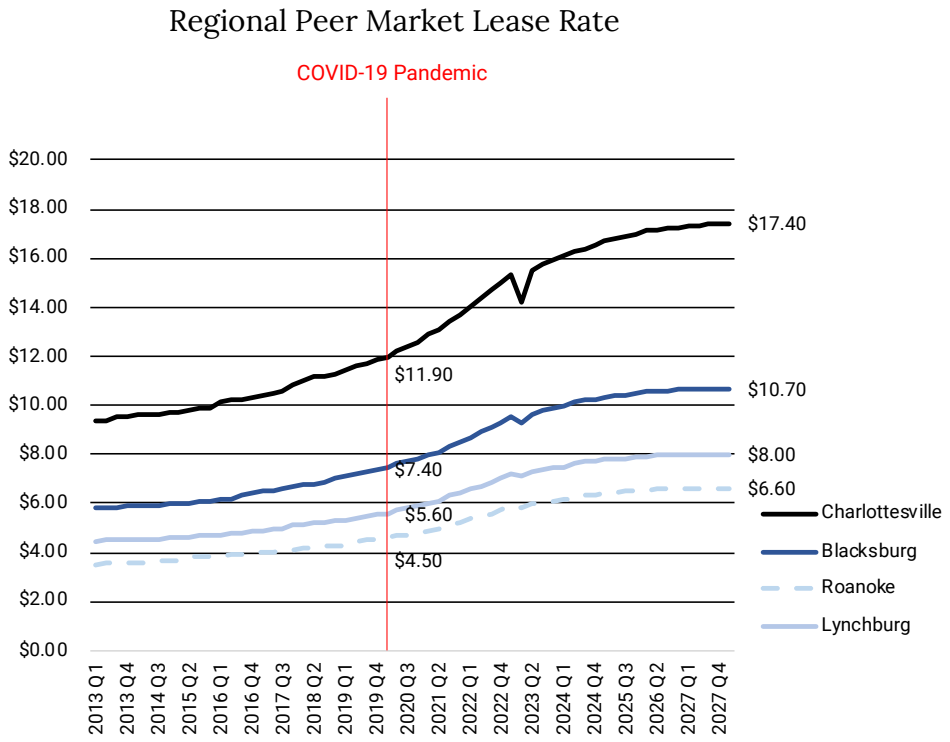


Figure 4.6 Industrial Market Rents PSF. Source: CoStar 2023 (To-date)

Despite commanding the highest market rents, industrial properties in Charlottesville have the lowest vacancy rates – well below its 10-year average (2013 Q1 to 2023 Q1). Vacancy rates are projected to rise to 2.1% over the next five years as demand cools for warehouse and distribution/logistics spaces. Similarly, construction trends also reflect a slowdown in the market with limited industrial development in the pipeline in the region (179,000 SF) – mostly located farther from the City at Zion Crossroads, at the intersection of US-15 and I-64, likely owing to higher land costs ($4-5 million/acre) and site constraints within Charlottesville.

Over the next five and ten years, despite overall projected growth in industrial-occupying jobs in the region, it is unlikely that the City of Charlottesville will likely be able to capture much demand owing to high land costs. To project estimated demand for industrial space based on job growth in the Charlottesville MSA, our team has identified all industrial space-using occupations in Goods Producing, Manufacturing, and Trade, Transportation, and Logistics industries. We then applied realistic capture rates to determine total real demand for industrial space in 5-year increments.

In total, by 2028, the City is projected to be able to support nearly 3.3 million SF of industrial space. However, given land and cost constraints, it is important for the City to simply focus on attracting and retaining higher value industrial uses that align closely with the City's strong base of bioscience/life science activities, including manufacturing and wholesale trade of medical and pharmaceutical products. In the bioscience cluster, for example, adjacent industrial uses may include storage and warehousing for biochemical products that further support the growth of research &

development while providing property owners the opportunity to upgrade real estate for higher value tenants.

Property owners may consider both ready-to-occupy and built-to-suit spaces for early-stage bioscience and life sciences companies that require real estate they can grow into as capital is raised and products are developed. Class B Office and Industrial conversions are prime opportunity sites to accommodate emerging and graduating bio science/life sciences start-ups from UVA and CVilleBioHub. Similar to other 'Eds & Meds' markets, supply of these 'graduate' lab spaces and ancillary warehousing/storage and distribution spaces lag demand in Charlottesville.

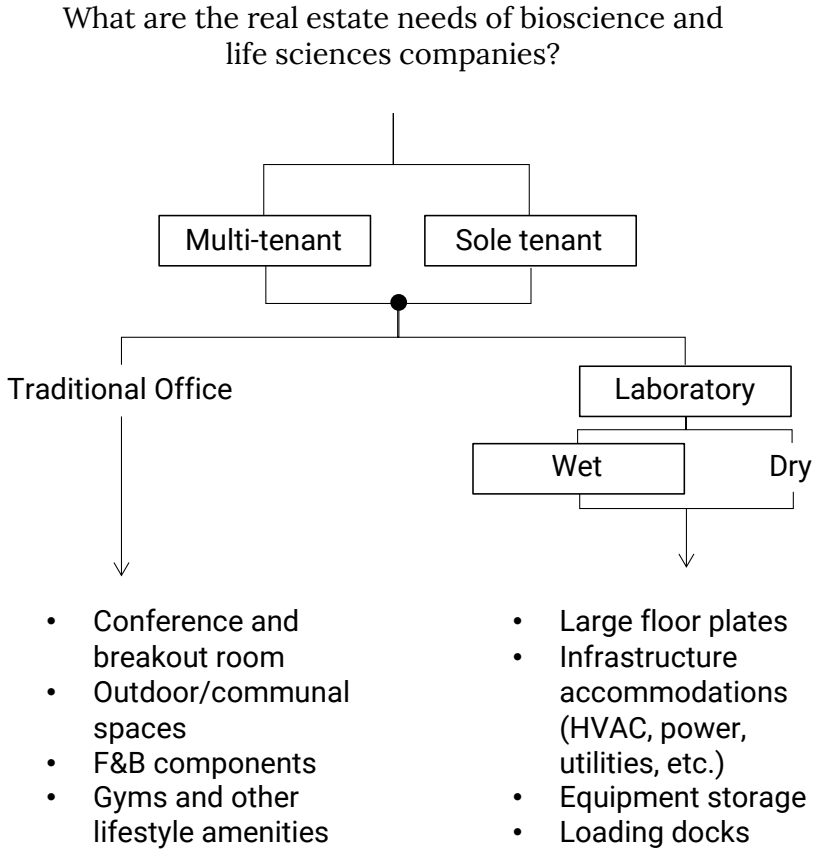


Figure 4.6 Potential redevelopment of Class B Industrial and Office properties. Source: Resonance Consultancy

Additionally, attracting craft beverage manufacturing facilities and operations to the City may offer Charlottesville an opportunity to further capture visitor spending in the region and revitalize its tourism economy.

The following table shows the top five industrial-occupying jobs generating the greatest demand for industrial space based on projected job growth:

	2033 Projected SF
Wineries	467,100
Breweries	366,000
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	167,600
Surgical Appliance and Supplies Manufacturing	136,000
Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	130,300

RETAIL

Charlottesville is in a highly competitive regional retail market. Customers in the region have over 10.5 million SF of retail to choose for shopping and dining and less than 50% of existing supply is located within the City. The largest node of retail and dining offerings is Route 29 with over 3.6 million SF of retail. The corridor consists of a mix of regional malls with comparison goods and community-serving malls anchored by grocery stores, pharmacies, and other local services.

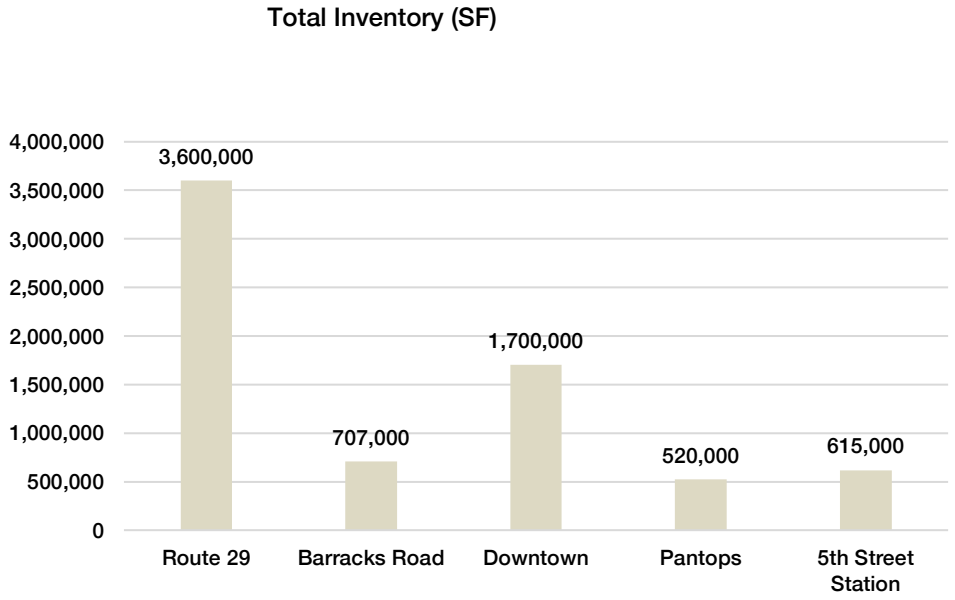


Figure 4.7 Total Retail Inventory by Commercial Node. Source: CoStar 2023 (To-date)

Base market rents for retail spaces in Charlottesville, similar to peer cities, has continued to rise over the last decade and is projected to reach $23 PSF/year – 70% higher than Lynchburg and 45% higher than Roanoke. Despite rising rents, Charlottesville will expect to see a decline in vacancy rates following a temporary spike in 2022 and will likely maintain a healthy average vacancy rate of 4.8% over the next five years. A vacancy rate of between 4-5% – particularly for Class A or B properties – will enable the market to facilitate the entry of any potential new retailers, restaurants and other ground floor commercial tenants looking to relocate/expand in Charlottesville.

These positive real estate performance trends in retail indicate the potential for Charlottesville to strategically support more retail inventory over the next five to ten years in existing retail nodes and/or in neighborhoods with anticipated population growth – specifically with neighborhood goods and services tenants. In particular, the City's existing ecosystem of healthcare providers offers the opportunity to continue growing wellness and medical services to the residential customer base.

In markets with a growing base of young families and seniors aging-in-place, retail real estate is increasingly being turned over to higher value 'medtail' – a hybrid healthcare and retail tenant, namely

outpatient services, wellness services, urgent care clinics, and chronic care services – and community service tenants. According to data from CoStar Group, the national proportion of leased medical space in retail buildings has grown from 16% in 2010 to 20% today—and it is expected to continue to grow as landlords seek to fill vacancies and generate foot traffic in retail spaces affected by the pandemic. This trend is no different in Charlottesville where several malls along Route 29 have also seen increasing turnover of spaces to medtail tenants.

Although they have not traditionally been recognized as 'retailers', their expansion and search for commercial spaces along retail corridors provide convenient, on-demand care for residents and generate regular foot traffic for adjacent retailers. Typically, medtail tenants seek visibility to their consumer/patient base and proximity to community amenities such as grocery stores, drug stores/pharmacies, and personal care services – and are therefore suited to commercial nodes within walking distance of office buildings or residential neighborhoods.

To compete with regional malls along Route 29, however, Charlottesville will need to remain flexible with its regulatory and zoning requirements for commercial uses. As the lines continue to blur between traditionally retail, industrial/micro warehouse, and entertainment uses, the City's zoning ordinance will need to build in flexibilities in use groups and code requirements that account for the rapidly changing business models and store concepts that emerge as a result of changing consumer lifestyle preferences and technological advancements. Among hybrid concepts that have entered the Charlottesville market include:

Hybrid Concept	Example Brand
Dining and Entertainment: Combining dining and entertainment concepts extend customer dwell time and spending potential within the market.	Bowlero at Rivanna Plaza
Retail and Education: Beyond transactions, storefronts are also prime sites for educational uses – including enrichment and skill centers.	Magpie Knits at Downtown Mall
Multi-tenant and temporary: Pop-up markets and short-term/seasonal food halls create smaller and more affordable spaces for local entrepreneurs and brands to test the market.	Dairy Market

Appendix E: Stakeholder Engagement

While a data assessment helps determine a city's competitive advantages, opportunities, and challenges, an economic development strategy must be co-authored by the community it intends to serve.

By providing a platform for community members to share their expertise and new ideas, we hope to generate a universal understanding of economic opportunity among public, private, and governmental partners. This process of convening local stakeholders is reflective of the City of Charlottesville's mission to build meaningful relationships between industry players, service providers, residents, non-profit organizations, and economic development partners.

The roundtable discussions with the different groups represent the beginning of a long-term effort to foster community engagement. To arrive at a firm understanding of Charlottesville's many assets and challenges, the City of Charlottesville, in partnership with Resonance Consultancy, hosted a series of discussions on a detailed list of topics; more than 80 business, community and government representatives participated in the conversation.

The City also conducted a community and business survey to help inform the economic development plan, which were answered by 280 respondents - mostly residents - and gathered their opinion around living and working in Charlottesville, to be able to identify key opportunities for growth and improving quality of place.

ROUNDTABLE DISCUSSION KEY TAKEAWAYS

To gain a deeper understanding of Charlottesville's history, culture, unique assets, opportunities, and challenges, the City's economic development team, in partnership with Resonance Consultancy, hosted a series of topic-specific discussions with 50+ industry leaders, business executives, small business owners, elected officials, regional stakeholders, and workforce development partners. Based on experience, we know that the most successful economic development plans are co-created with the communities it is intended to serve. The roundtable discussions demonstrate the City's commitment to co-creating a new vision and plan for Charlottesville in collaboration with key stakeholders.

By embedding community and stakeholder engagement into our overall analysis of Charlottesville, we've developed a more comprehensive understanding of economic opportunity and challenges that should be prioritized by public, private, and governmental partners. We look forward to producing a plan that is responsive to the ongoing work, new ideas, and most promising strategies shared by roundtable participants.

Overall, roundtable discussions addressed an array of issues including promoting the city's quality of place and tourist destinations, developing resources for the city's workforce development ecosystem, growing industry and cluster capabilities, leveraging anchor institutions, and adopting strategies to attract and retain young professionals.

The following key takeaways summarize the attitudes, perceptions, desires, and ongoing work of Charlottesville's business and industry leaders and lay the groundwork for the City's forthcoming inclusive economic development plan.

COMMERCIAL REAL ESTATE

A changing yet promising market.

With a commercial real estate vacancy of 4%, lower than the national average, Charlottesville's downtown corridor has a promising future—the demand for inventory is projected to increase over the next 10 years coupled with opportunities to upgrade/rehab commercial spaces for more flexible use by the city's growing sectors and clusters.

Resilience, revival, and readiness.

Although the COVID-19 pandemic disproportionately impacted Charlottesville's small business ecosystem, changes to the commercial real estate market have created opportunities to reimagine the use of spaces traditionally leased by local retailers. Nonprofit organizations in particular, have revived and reactivated commercial spaces while also serving broad needs of the Charlottesville community.

Barriers to investment.

Charlottesville's low commercial real estate inventory and high cost of doing business creates a significant barrier to investment and deters to economic development. Better connectivity, alignment, and collaboration across real estate practitioners, developers, and the City's planning and development bureaus could foster and expedite new market products, attract investments, and meet the growing demand for affordable, flexible, and geographically accessible commercial space across all classes.

QUALITY OF PLACE

Small town feel, big city amenities.

Nestled in a rich, vibrant regional hub, Charlottesville offers an easy-going atmosphere with an abundance of attractions that entertain visitors and locals alike—from 40+ wineries along the historic Monticello wine trail, outdoor recreational activities, annual book, film, and arts festivals, and an assortment of local, family-owned eateries ranging from southern cuisine to Turkish döner kebab. Residents and tourists celebrate the small town feel while enjoying big city amenities. Charlottesville's quality of place, diverse amenities, and proximity to a regional hub are essential for tourism, attracting and retaining talent, and encouraging intentional economic development in high-growth sectors.

Leveraging anchor institutions.

Infusing youthful energy and intellectual tourism into Charlottesville's culture and range of amenities is a key outcome, among many, of the city's anchor institution, The University of Virginia (UVA). Excitement and buzz are leveraged through the university's diverse offerings of educational, arts, and culture-focused events, as well as entertaining athletic games and experiential learning programs for young children and youth. UVA's presence cultivates a civic culture committed to innovation, attracting world-class entertainment, and delivering expansive educational experiences that can be enjoyed by all.

Community desire for safety and activation.

Like most cities across the nation, Charlottesville continues to grapple with increasing public safety challenges stemming from the fallout of the COVID-19 pandemic leaving many long-term, low-income residents and newcomers without basic needs like consistent employment and affordable housing. Charlottesville residents desire better public safety and downtown activation strategies to reduce crime and encourage consumers—especially from marginalized populations to return to and invest in the economic core.

ECONOMIC DEVELOPMENT PARTNERS

Upward mobility for the underemployed.

Charlottesville recognizes its most onerous chasm: increasing income inequality and disparities across its two largest sectors: the knowledge economy fueled by UVA and the service industry powered by local tourism. There is an acute focus on strengthening the city's workforce development ecosystem to both upskill homegrown underemployed talent to create upward economic mobility and attract mid-level professionals to meet the demands of local employers in high-growth sectors. With more strategic alignment across education, workforce development, and industry leaders, Charlottesville's talent pool will be better prepared to benefit from industry growth—and their contribution to the local economy will be more sustainable.

A vision and plan for the future of work.

While programs like Earn While Your Learn fortify local workforce development strategies, there's a lack of clarity around Charlottesville's vision for the future of work—specifically the most opportune sectors that could generate sustainable high-wage jobs for homegrown and outside talent. There's an opportunity for better alignment between local industry leaders in high-growth sectors like biotechnology, biomedical, life sciences, and renewable energy, and workforce development organizations and City leaders. To cultivate and foster a strong workforce pipeline, local employers need to be integrated into a comprehensive workforce development strategy and included in touch points with workforce development leaders, facilitated by Charlottesville's economic development team.

Cultivating the small business ecosystem.

Charlottesville has a strong, supportive entrepreneurial community tied to its culture of being a small town that offers big city amenities. The City, along with its workforce development partners and small business leaders are cultivating a resource-rich ecosystem by providing education and technical

assistance to help micro-to-medium-sized businesses successfully scale and expand. However, the City's lack of data and inventory of the small business economy makes it challenging to make strategic, targeted investments. Gathering baseline quantitative and ethnographic data across the spectrum of businesses in Charlottesville will better support strategic decisions and investments designed to ensure entrepreneurs have a broad range of resources to support their growth—from affordable brick and mortar space, to culturally-specific technical assistance, access to flexible capital, and professional services that will serve the small business community as it grows and diversifies over time.

BIOSCIENCE + LIFE SCIENCES CLUSTER

A spinoff success story.

Once anchored by UVA, Charlottesville's bioscience and life sciences cluster has doubled its growth over the last 5 years—matching homegrown talent with cutting-edge jobs and attracting professionals from across the nation by prioritizing remote work positions and socializing the idea that research can be conducted anywhere. As the demand for entry and mid-level sector jobs continues to increase, collaboration between industry leaders and the educator sector has produced clear pathways for talent to transition into careers with upward mobility.

Leadership and investments to support sector maturity.

Still in its infancy phase, the bioscience and life science cluster suffers from a lack of C-suite level leadership, serial entrepreneurs, and long-term investments that could foster sector maturity over the next 10-20 years. Although Charlottesville's lack of commercial and industrial space is a barrier to attracting larger anchor companies and helping local companies scale, the sector would benefit from industry-led partnerships with the City that focus on promoting the sector's capabilities, securing venture capital, accelerating workforce development strategies, and supporting commercialization.

Diversifying the workforce.

Although the bioscience and life science cluster has experienced exponential growth even during the most challenging moments of the COVID-19 pandemic—that growth has yet to yield benefits for Charlottesville's diverse workforce—specifically for professionals who identify as Black, Indigenous, or a person of color. Strategic partnerships with education and workforce development entities—with an acute focus on upskilling and attracting diverse talent—will help the sector grow equitably while building and cultivating a strong and diversified education to workforce pipeline.

DIVERSITY, EQUITY, AND INCLUSION

Promoting equity and inclusion.

The promotion of equity and inclusion as a framework and long-term solution for reducing income and opportunity disparities is a starting point. In particular, Black executives in the nonprofit and knowledge economy as well as workforce development experts expressed concerns about the rising racial disparities across income, access to housing, and access to capital for entrepreneurs and small business owners. To enact a bold justice-driven turning point in Charlottesville's story, City

leadership should encourage and promote a community-wide sense of belonging and inclusion through decision-making, policy, and investments. More local programming should be designed to promote, uplift, and celebrate Charlottesville's diverse communities while encouraging local investment in BIPOC-owned businesses, culturally-specific chambers, and workforce development training programs designed to better support BIPOC graduates and young professionals.

Fostering connectivity.

In addition to promoting equity and inclusion, roundtable participants expressed a strong need for relationship-building and deeper connectivity between the City leaders and culturally-specific groups invested in advancing equitable and inclusive economic development strategies. Black nonprofit leaders shared anecdotes from newcomers about the difficulties of navigating Charlottesville and finding community and networking opportunities. As Charlottesville charts its path to becoming a top destination in the region, greater connectivity amongst BIPOC executives, regional and city leaders and economic development practitioners will be paramount for fostering relationships, building trust, and engaging in the culture transformation needed for attracting and retaining talent and investments.

Reimaging Charlottesville.

Residents and tourists alike can easily express why Charlottesville is a great place to live, work, and play even amidst increasing unaffordability and a housing crunch. As regional, city, and civic leaders begin to reimagine Charlottesville against the backdrop of its history and emergent opportunities for the future, use your new inclusive economic development plan to encapsulate and express a new vision for the city that will serve as the north star for equitable policy development and decision-making.

YOUNG PROFESSIONALS

Mitigating unaffordability.

There's no shortage of young professionals in Charlottesville thanks to its anchor institution, UVA. Students transition from budding theorists to skilled talent ready to contribute to cutting-edge work across sectors. Young professionals enjoy the small town feel and big city amenities including access to arts, music, free educational programming post-graduation, and networking events. Many young professionals expressed their intent to stay in Charlottesville long-term but are challenged by the rising costs of living, particularly housing. As the City develops its new comprehensive land use plan, a key opportunity will be fusing together land use and housing development policies (affordable, middle-income and mixed-use housing/commercial products) with economic development strategies that reduce barriers to homeownership and leasing or purchasing commercial space for entry-level and lower-income young professionals and entrepreneurs.

Fostering career advancement.

Young professionals appreciate UVA's influence in cultivating venues to support workforce development and career advancement opportunities for students and alumni. However, roundtable participants expressed the need for better professional development infrastructure and encouraged

the City to convene employers and workforce development practitioners to support young professionals with career advancement training and opportunities to prepare for mid-level positions.

Housing for all.

Housing remains and will continue to be a significant barrier for young professionals until Charlottesville's comprehensive plan is adopted, implemented, and new products come online. While many young professionals work in Charlottesville, they often are forced to select a neighboring town to live in due to the affordability. Young professionals reported being priced out of 1-bedroom apartments and single-family homes and expressed deep concerns about their ability to remain in the city if the cost of living and housing prices aren't addressed in the near-term.

CLEAN TECH + RENEWABLE ENERGY & INFORMATION TECHNOLOGY

Supporting cluster growth and expansion.

Historically known for its knowledge economy and tourism in a highly accessible geographic area, Charlottesville is gradually repositioning itself as an high-opportunity place for medium-sized employers across clean and information technology industries. As sectors like renewable energy continue to raise capital and produce spinoff companies, the City has a unique opportunity to support sector and cluster growth and expansion—generating more innovation ripe for national coverage, high paying jobs, and products for the traded sector.

A key player in climate action.

With Charlottesville's first Climate Action Plan in hand, and a firm grasp on driving behavior change at commercial and residential levels, the city is well positioned to demonstrate its value in serving as a key player in advancing climate action strategies. Charlottesville's clean tech, renewable energy, and climate action clusters have a unique opportunity to lead the way for the southeastern part of the United States in driving action that may encourage regional and state leaders to follow suit in order to attract long-term investments and scalable job growth.

Financing the transition.

Commitment and innovation to drive the transition to a green economy in Charlottesville is ever present. However, to ensure sector and cluster efforts are successful, capital and flexible financing is needed. Industry leaders expressed the need for unique "green" financing streams that could support business-led commercial programs that drive behavior change, transformation of business practices, and energy efficiency upgrades across commercial and residential spaces. The City has a time-sensitive opportunity to identify funding opportunities, bridge employers with workforce development practitioners, and consistently convene industry leaders to drive connectivity and collaboration across the city and region.

SMALL BUSINESSES

Targeted investments.

Local entrepreneurs and small business owners reported feeling broad support from the Charlottesville community; local residents enjoy and take pride in buying from nearby shops and family-run businesses. Micro and small business owners receive education and technical assistance from workforce and business navigation organizations like the Community Investment Collaborative (CIC). However, roundtable participants expressed that identifying business resources and support is more challenging for newcomers. Overall, micro and small businesses ready to scale are in need of more flexible capital (beyond $50K) than what is currently offered by local Community Development Financial Institutions (CDFIs). With the cost of doing business in Charlottesville at an all-time high, the City should source capital and create additional grant and funding programs to bridge the lending gap of CDFIs and local grantmakers.

From at-home office to brick and mortar.

As many micro and small businesses encounter the need to scale, hire talent, and transition to a dedicated workspace, many are challenged by the high cost of commercial space. Creating affordable commercial space should be a high priority in your new inclusive economic development plan—including programs that offer funding for storefront improvements to incentivize business owners to lease and purchase space in the downtown core—particularly the outdoor pedestrian mall.

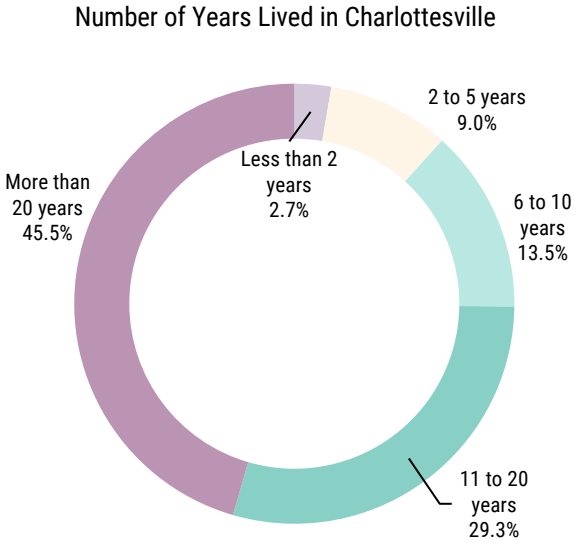
Preparing the business ecosystem for success.

Every city has a key role in supporting and incentivizing business. Across the spectrum, business owners recommend the City create a solid foundation for new and existing business to build from including a streamlined business resource navigation platform and tools, a welcome packet with instructions on how to start a business and next steps for success, a directory of professional service vendors (bookkeepers, legal teams, commercial real estate brokers, etc.) an academy to support COBID certifications, and more. Deeper connectivity and collaboration between the City, business leaders, and business navigation organizations will generate strong strategies that are responsive to the needs of business owners across level of readiness, size, and industry.

COMMUNITY AND BUSINESS SURVEY RESULTS

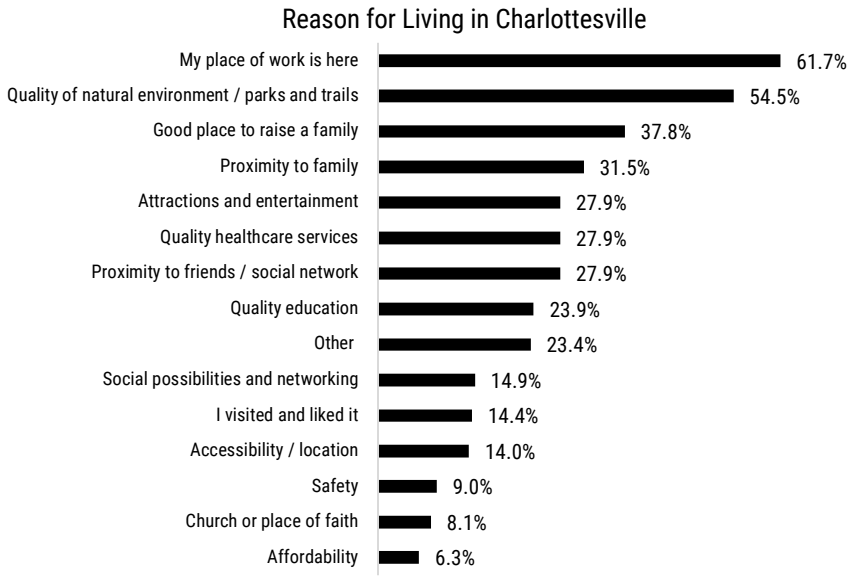
All Respondents

The City of Charlottesville promoted a community and business survey. Of the total survey respondents, almost seven in 10 (68%) of respondents live in the City of Charlottesville, followed by Albermale (27%). Over half of survey respondents have lived in the city for more than 20 years.

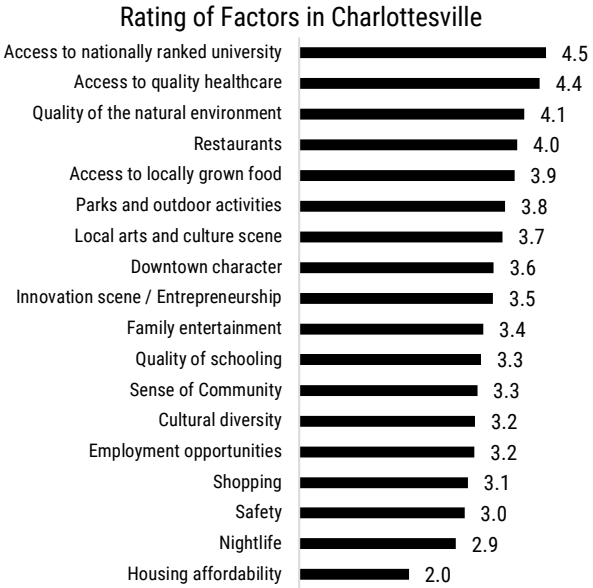


The largest age group represented in the survey were 35-44 year old residents (24%), followed by the 55-64 age group (23%). More than 7 in 10 respondents were White (74%). Most respondents were married individuals with children (40%), followed by married couples (34%). As for education and employment levels, 88% of the respondents had a Bachelor's degree or above, and 58% were employed full-time, while 13% were retired.

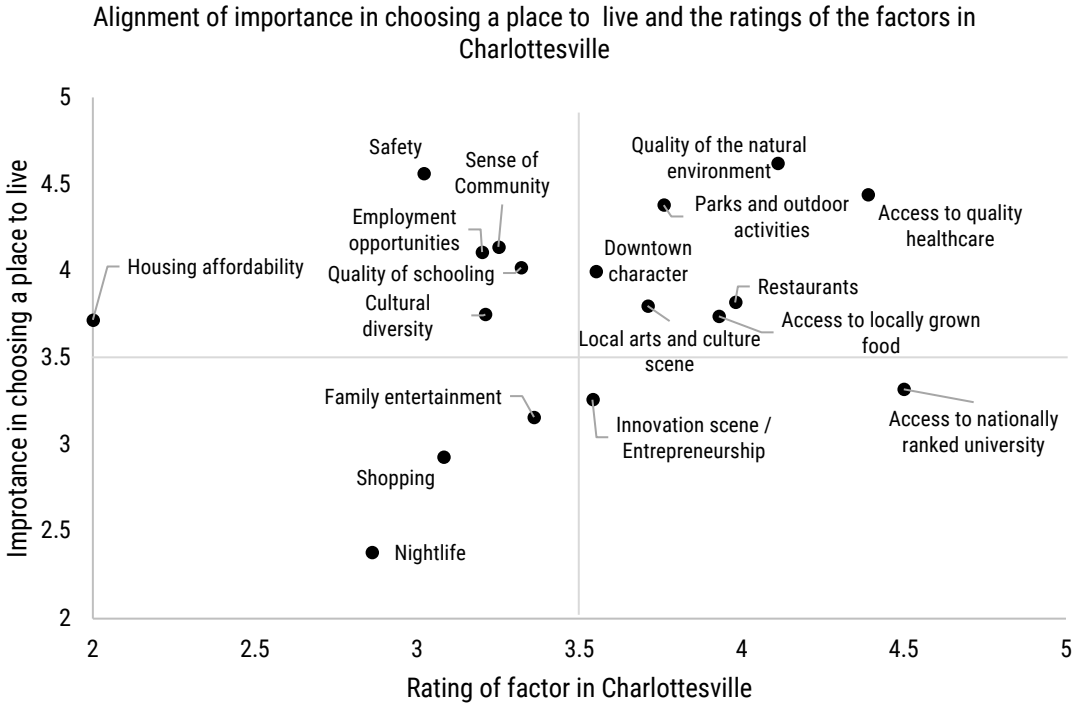
When asked why they chose to live/stay in Charlottesville, work, the quality of its natural environment and its suitability for raising a family were the top three reasons why residents chose Charlottesville.



Respondents shared that the 3 most important factors for them when choosing a place to live are quality of the natural environment, safety, and access to quality healthcare. When asked to rank these same factors, the top-ranking factors were access to a nationally ranked university, access to quality healthcare and quality of the natural environment.



By comparing the answers of the respondents to both questions, we can see that the natural environment in Charlottesville is a strength, together with its quality healthcare system, its downtown character and local arts and culinary scenes. We can see that housing affordability is a major concern for residents, and there are opportunities to also improve safety, sense of community, employment opportunities, quality of schooling, and cultural diversity.

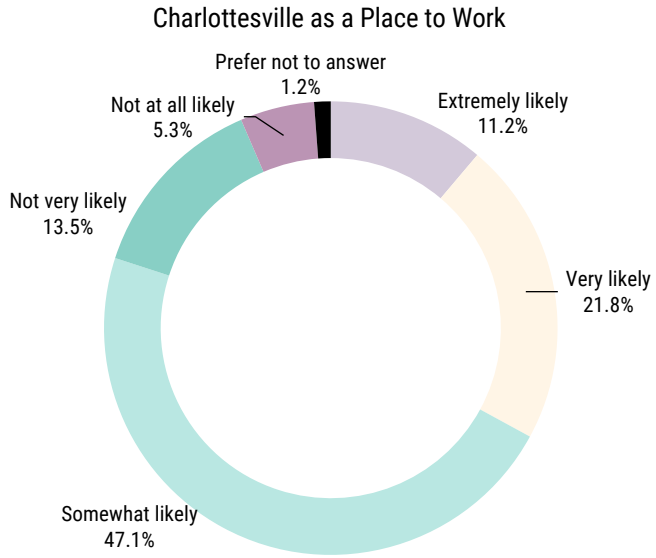


Respondents were asked to share the first thing that comes to mind when they think of Charlottesville as a place to live and many of the terms were very positive: “beautiful”, “historic”, “scenic” and “homely”. However, some concerns were expressed over the City’s affordability and inclusion.

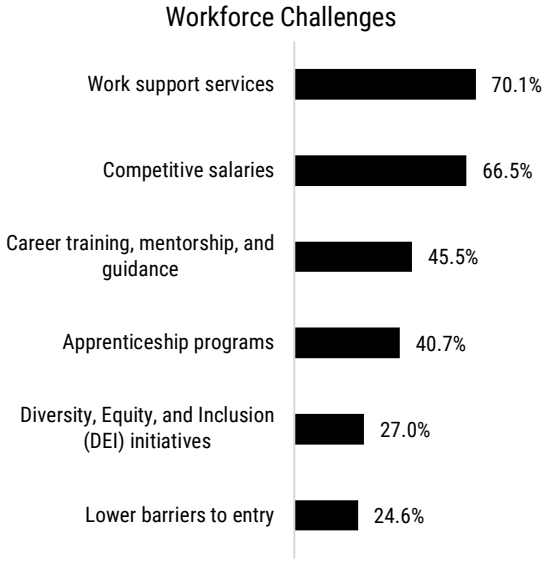
Furthermore, respondents were asked to share the one thing they cannot imagine not having in Charlottesville; the majority mentioned Blue Ridge Mountains, Rivanna Trail, University of Virginia and the Downtown mall.

When asked whether they would recommend Charlottesville to others as a place to live, eight in 10 survey respondents said they were either extremely, very likely or somewhat likely to recommend the city.

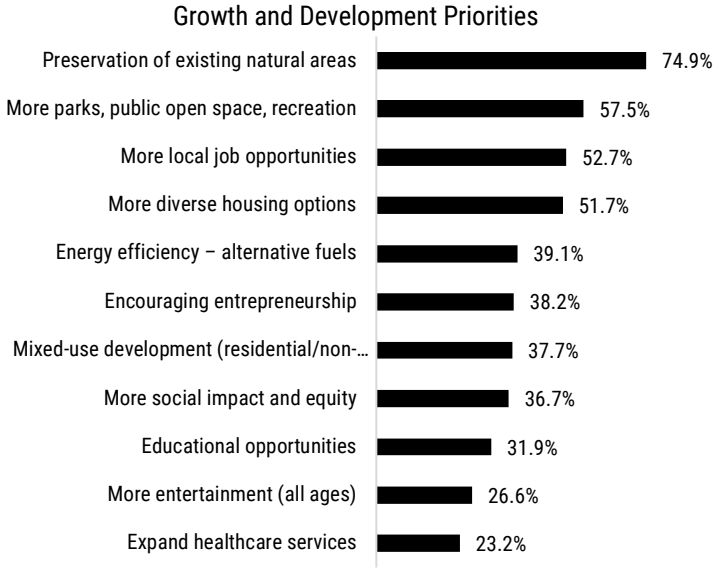
When asked whether they would recommend Charlottesville to others as a place to work, seven in 10 respondents are either very likely or somewhat likely to recommend the city.



With regards to the labor force, respondents shared that the top areas the workforce could be supported are through support services (e.g., childcare, housing and transportation), competitive salaries and training programs (career training, mentorship and guidance).



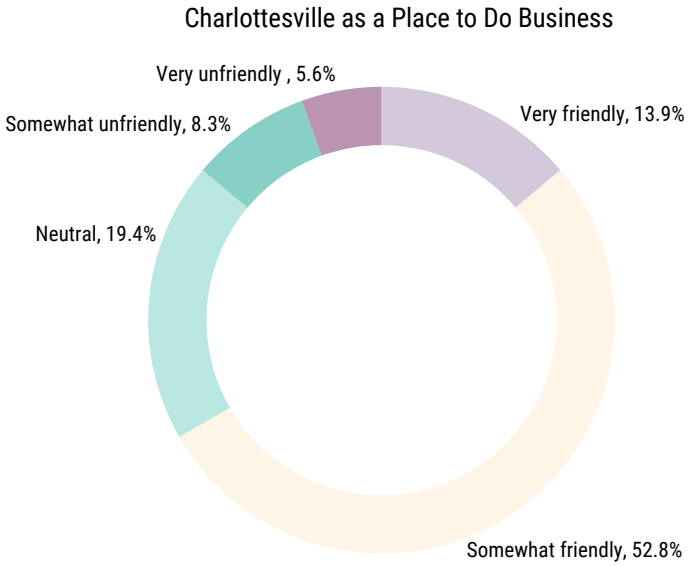
In terms of growth and development priorities that would benefit residents, the top three needs that were mentioned were preservation of natural areas, more social amenities (parks, public open spaces and recreation centers) and more local job opportunities.



Finally, the respondents were asked about their vision for Charlottesville. Charlottesville residents envision a clean, vibrant, and equitable future. Respondents see a lot of opportunity in the City adopting more forward-thinking policies that would allow it to attract talent and businesses. They also envision a more inclusive Charlottesville and one that is more affordable.

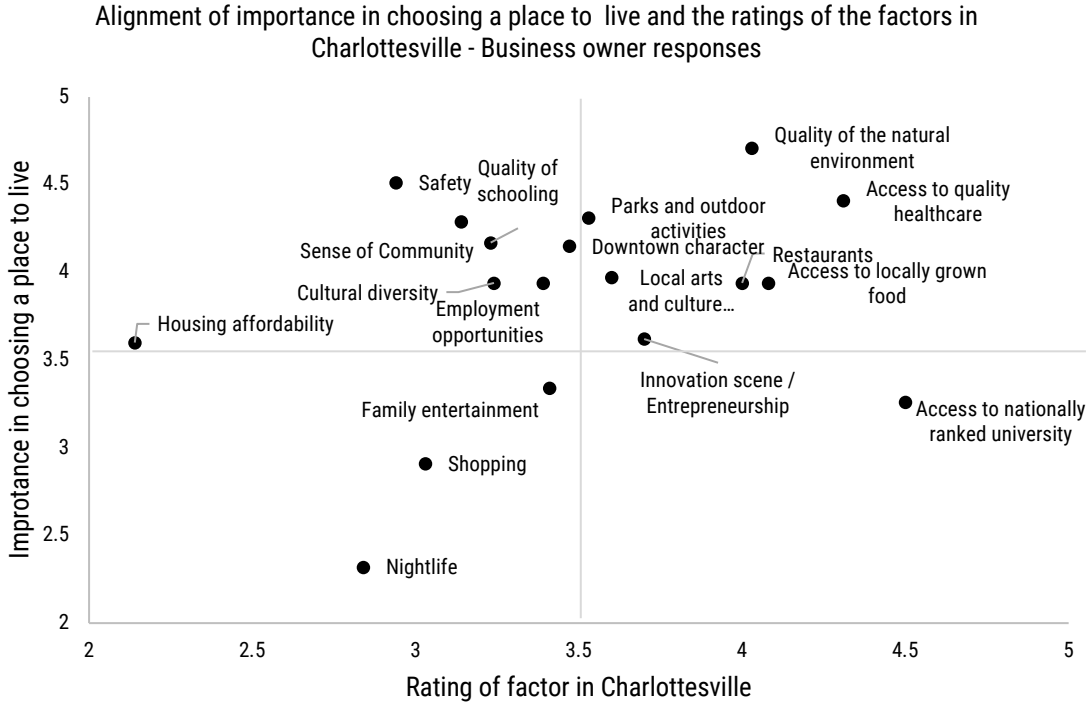
Business Owners

According to the survey, 36 of the survey respondents were self-employed. The majority – 67% – are operating their business in the City of Charlottesville. Furthermore, six in 10 respondents considered Charlottesville to be either very or somewhat business friendly.

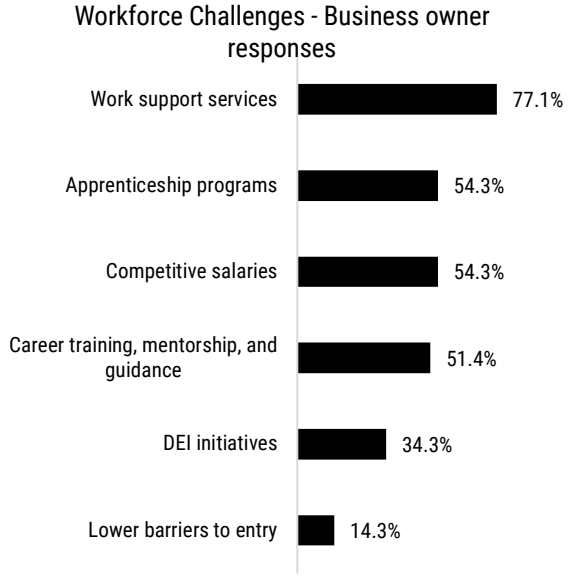


Business owners shared that their top three business challenges were local property taxes, infrastructure and services, as well as business regulations.

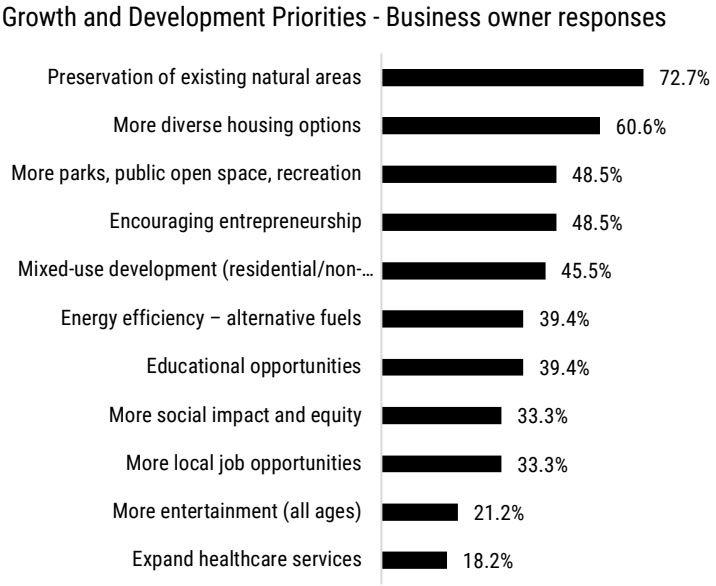
When analyzing the business owner responses for the business owner rating of the different factors in Charlottesville, we did not notice significant differences between their responses and the rest of the respondents. However, they rate employment opportunities and the innovation scene higher than all other respondents.



With regards to workforce support, business owners shared that the top areas the workforce could be supported are through support services (e.g., childcare, housing and transportation), apprenticeship programs, and competitive salaries.



Regarding growth and development priorities, preservation of existing natural areas came in as business owners' first priority, followed by more diverse housing options, and more parks, open spaces, and recreation.



Finally, regarding a vision for the future, business owners envision a safer and more inclusive city with affordable housing, great schools, lots of family entertainment and unique shopping especially small businesses, and lots of outdoor activities. Growing an entrepreneurship scene that is independent of UVA has been mentioned along with expansion of businesses with the DC and Richmond markets. Moreover, infrastructure improvements have been identified to potentially attract more talent and investment. Below are some direct quotes from business owners:

"To be a leader."

"Safe place to live. Good paying jobs. Lower health care costs. Healthy entertainment. Outdoor activities. Entrepreneurship."

"I hope Charlottesville invests more funds into making the area more walkers and bikers friendly. Without that, a community cannot grow and everything else is secondary."

"A thriving Downtown core, where it doesn't feel unsafe to walk around due to the aggressive homeless population."

"A much more equitable place to live, with consistent, safe bike and walking trails that allow for easy commuting without cars. It's embarrassing how much wealth exists in this city and county for it to be so thoroughly outclassed by both Roanoke and Richmond. Commuting without fossil fuel use is very dangerous here, and living here on moderate income is basically impossible."

"An increased focus on women and minorities in small business. Getting people employed so they can afford housing. Working Together."

"More racial harmony. Better vocational training. Beautification of architecture. Thriving entrepreneurial sector. Improved roads and streets. Safe bike lanes. Less poverty. More gun control."

"To preserve the aesthetics & educational/cultural/humanitarian efforts & opportunities, a discount airline, light rail, less crime, and less racial division, more constructive problem solving, public school classes in anger management, mediation & health education in depth, and personal finance."