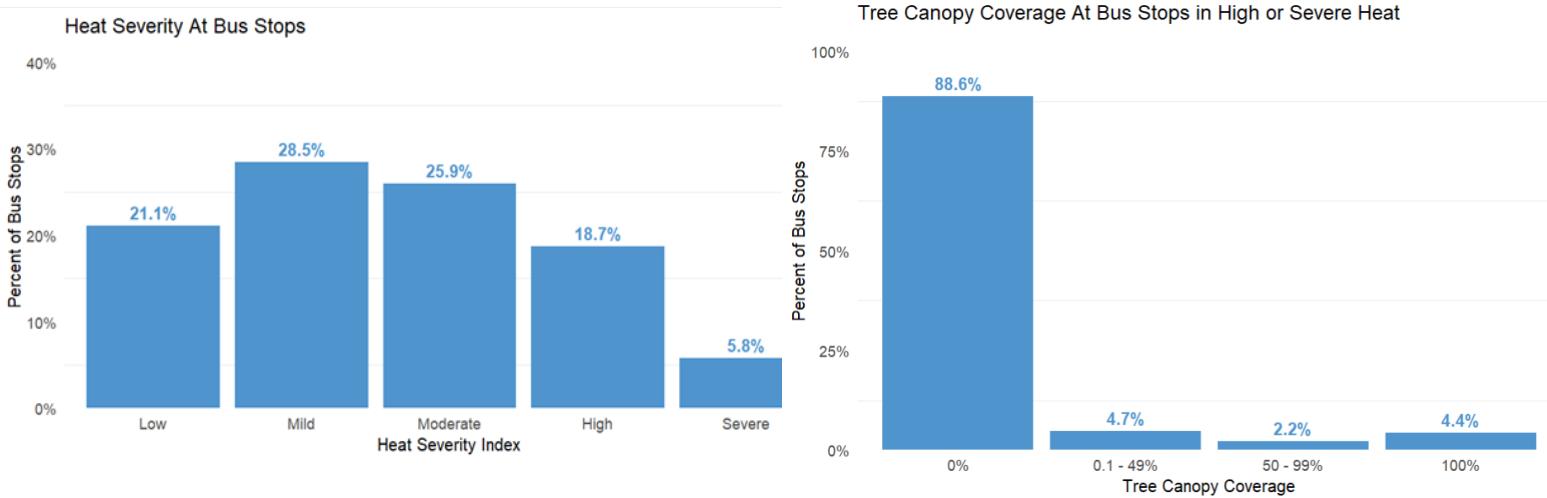


SHADY STOPS

The Hampton Roads PDC/TPO recently claimed the top prize at the Hampton Roads 2024 Datathon, an annual competition that brings teams from across the region to tackle regional issues through data-driven solutions. This year's theme centered on infrastructure, inspiring our team to investigate the role of trees as a green infrastructure solution to mitigating Urban Heat Islands (UHIs) at bus stops in Hampton Roads.

UHIs occur in metro areas where dense, built-up environments absorb and retain heat, leading to much higher temperatures than nearby areas. Bus stops located in a UHI can expose waiting passengers to intense sunlight, which can lead to discomfort, heat stress, and even heat-related illnesses. A potential green infrastructure solution, tree canopies offer natural shade that reduce surface temperatures. Research also indicates that tree canopies outperform traditional bus shelters, which, depending on their design, may provide only half the cooling effect of natural shade from trees. For this project, we analyzed tree canopy coverage and UHI severity data to identify which bus stops could be prioritized in a theoretical urban tree planting project.

Using land cover data from the Chesapeake Bay Foundation, we estimated the percentage of tree canopy coverage around each bus stop by analyzing the land cover in a 5-foot radius around each stop. Our analysis found that of the approximately 3,200 bus stops in Hampton Roads, nearly 85% of bus stops have zero canopy coverage, while 7% are completely covered by tree canopy. We then utilized data from the Trust of Public Land to identify the level of heat severity around each bus stop, finding more than one in four are in high or severe UHI areas. Combining this with the tree canopy coverage estimates, we found a slightly higher share of bus stops in high or severe UHI areas (89%) have zero canopy coverage compared to all bus stops (85%). In a theoretical urban tree planting project, we identified 132 bus stops located in severe Urban Heat Islands (UHIs) with no existing tree canopy coverage, making them high-priority sites for intervention.



Data sources: Chesapeake Bay Foundation, Trust of Public Land, ESRI, HRPDC.

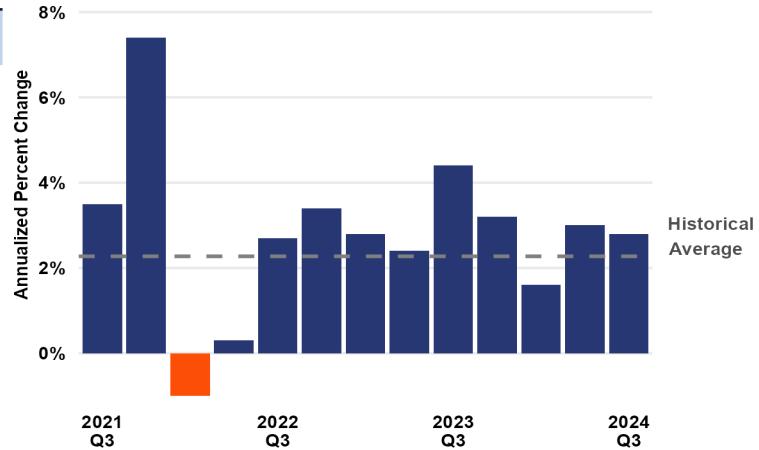
However, recognizing that data alone cannot fully capture on-the-ground realities, we designed a survey to demonstrate how crowdsourcing can complement data analysis. The survey asks passengers a few simple questions about its condition, availability of shade, and preferences for shade-improving designs. If implemented, the survey results could provide valuable community insights to validate and refine the initial analysis, ensuring that shade interventions are directed at the stops most in need.

Our research highlights the how data, when thoughtfully integrated and complemented by community voices, can be an invaluable tool for addressing local issue; a critical part of the work we do at the Hampton Roads PDC/TPO.

GDP, ANNUALIZED GROWTH RATE (Q)

	Q3 2023	Q3 2024	Trend
United States	4.4%	2.8%	▼

GDP: Gross Domestic Product combines consumption, investment, net exports, and government spending to determine the size and general health of the economy. Inflation-adjusted GDP rose 2.8% in Q3 2024, a slight decrease from the previous quarter. Personal consumption accounted for 2.46 percentage points of the 2.8% increase in Q3, followed by government spending (0.85) and gross private domestic investment (0.07). Net Exports accounted for a 0.56 percentage point decline in GDP growth.

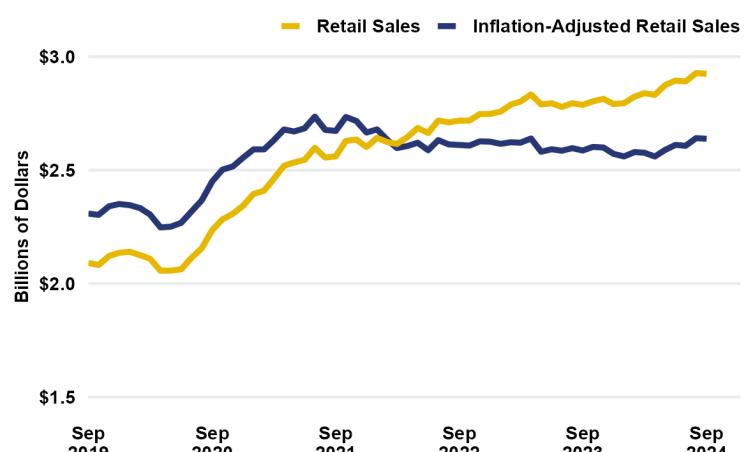


Source: Bureau of Economic Analysis, HRPDC

RETAIL SALES (M)

(not seasonally adjusted)	Sept '23	Sept '24	Trend
Hampton Roads	\$2.75B	\$2.81B	▲
Virginia	\$15.30B	\$15.14B	▼

Retail Sales: Retail sales in Hampton Roads, as measured by the 1% local option sales tax, serve as an indicator for consumption in the region. Retail sales in September 2024 were up 2.0% year over year. When seasonally adjusted, retail sales in September decreased 4.4% from the previous month. Inflation-adjusted retail sales have slowed from the post-pandemic surge in spending seen in the summer of 2021, but remain 14.8% above pre-pandemic levels observed in February 2020.

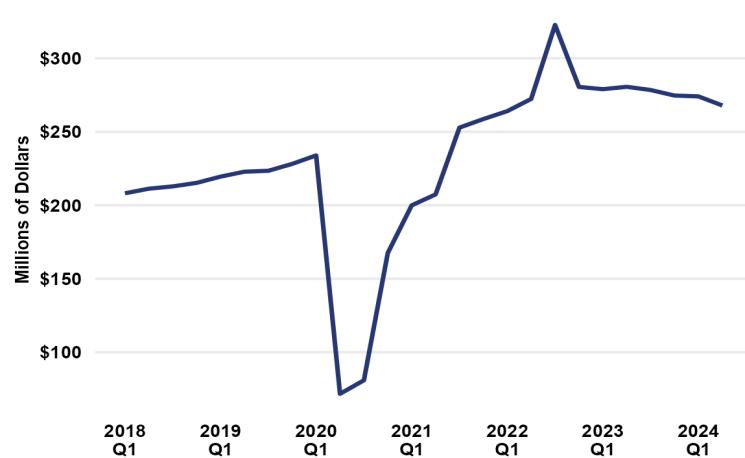


Source: Virginia Department of Taxation, HRPDC. Seasonally adjusted 5-month moving-average. Inflation-adjusted sales in 2022 dollars

ESTIMATED HOTEL REVENUE (Q)

	2023 Q2	2024 Q2	Trend
Hampton Roads	\$281M	\$268M	▼
Virginia	\$1.1B	\$1.1B	▲

Estimated Hotel Revenue: Hotel revenues indicate the performance of the region's tourism sector. Hotel revenues in Q2 2024 were down 4.5% year over year. Seasonally adjusted hotel revenues in 2024 Q2 decreased 2.3% from the previous quarter. Hotel revenues have declined for the fourth consecutive quarter, signaling a slowdown from the post-pandemic boom observed over the prior two years.



Source: Virginia Department of Taxation, HRPDC. Seasonally adjusted data.

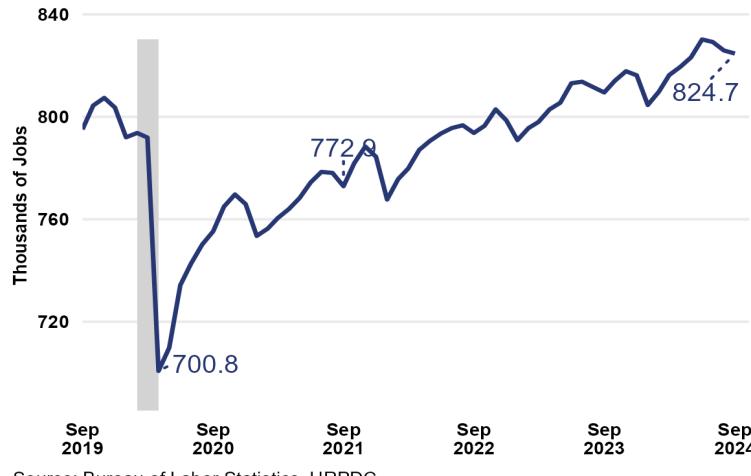
CIVILIAN PAYROLL EMPLOYMENT (M)

HISTORICAL TREND, SEASONALLY ADJUSTED



Source: Bureau of Labor Statistics, HRPDC

5-YEAR, NOT SEASONALLY ADJUSTED



Source: Bureau of Labor Statistics, HRPDC

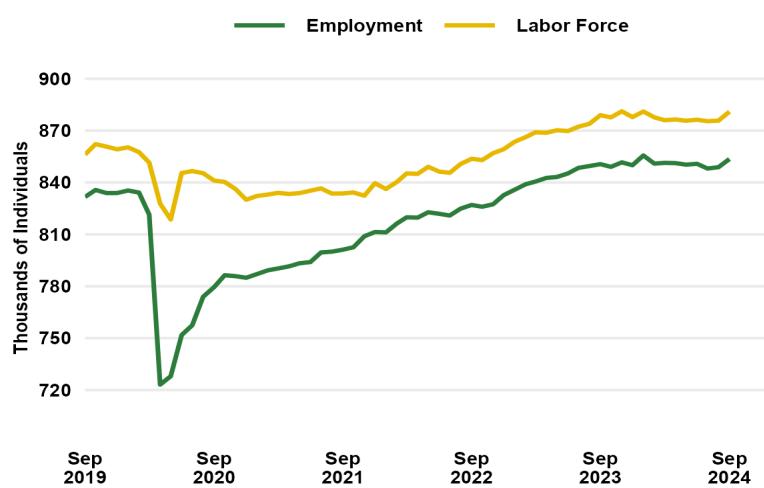
(seasonally adjusted)	Sep 2023	Aug 2024	Sep 2024	YoY % Change	MoM Trend
Hampton Roads	810,000	823,600	825,800	1.8%	▲
Virginia	4,187,400	4,248,800	4,250,900	1.5%	▲
United States	156,667,000	158,770,000	158,993,000	1.5%	▲

Employment: A leading indicator of labor market activity, the Bureau of Labor Statistics' payroll survey of businesses and government establishments measures the number of nonfarm civilian jobs. In Hampton Roads, non-seasonally adjusted civilian jobs in September were up 1.8% year over year. Seasonally adjusted civilian jobs in September increased by 0.3% from the previous month. Jobs in the United States, Virginia, and Hampton Roads each experienced job growth from the previous month, though all three regions are showing signs of a gradual slowdown compared to the accelerated gains of recent years. This trend aligns with an overall cooling in labor market conditions, suggesting that the rapid expansion seen over the last two years may be leveling off.

CIVILIAN LABOR FORCE (M)

	Labor Force	Emp	Unemp	LF Trend
Aug 2024	875,794	848,859	29,771	
Sept 2024	880,938	853,576	28,237	▲

Labor Force: The Bureau of Labor Statistic's household survey measures the employment status of the civilian population 16 years and older. An area's labor force is comprised of the number of people working (employed) and those actively seeking work (unemployed). The HRPDC's civilian labor force in September rose by 0.6% from the previous month. Year over year, the region's labor force was up 0.2%. The overall trend continues to signal a cooling of labor market activity since the second half of 2023.

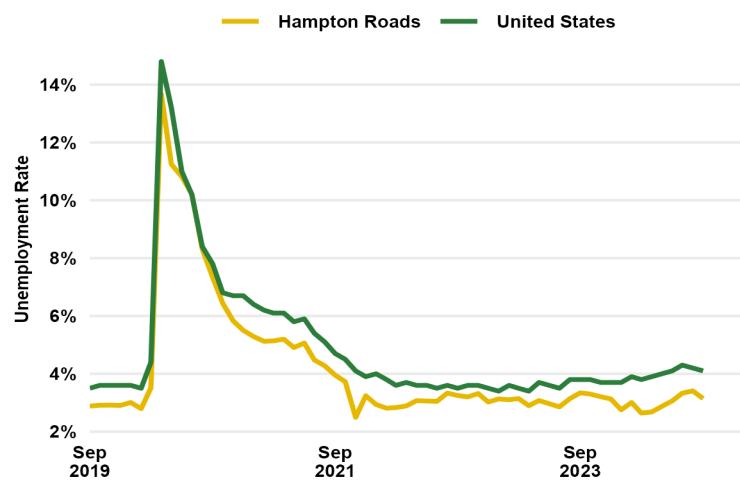


Source: Bureau of Labor Statistics, HRPDC. Seasonally adjusted data

UNEMPLOYMENT RATE (M)

	Sep '23	Aug '24	Sep '24	Trend
Hampton Roads	3.3%	3.4%	3.1%	▼
Virginia	2.9%	2.8%	2.9%	▲
United States	3.8%	4.2%	4.1%	▼

Unemployment Rate: The unemployment rate reflects the percentage of the labor force unemployed and actively seeking work. Hampton Roads' unemployment rate in September 2024 decreased 0.3 percentage points from the prior month. Despite the latest decrease, unemployment rates are gradually rising as labor market activity continues to slow down.

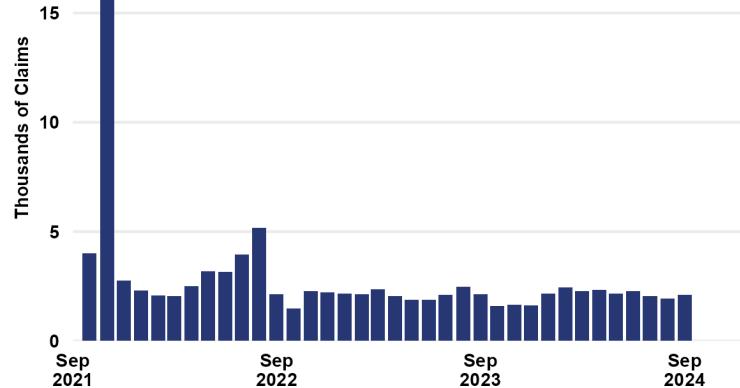


Source: Bureau of Labor Statistics, HRPDC. Seasonally adjusted data

INITIAL UNEMPLOYMENT CLAIMS (M)

(seasonally adjusted)	Aug '24	Sep '24	Trend
Hampton Roads	1,945	2,101	▲
Virginia	9,956	9,992	▲

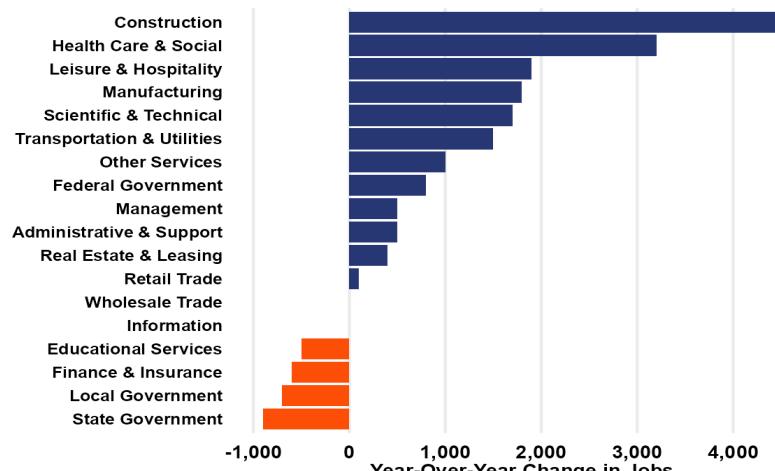
Initial Unemployment Claims: The number of initial unemployment claims is a leading economic indicator reflecting those who are forced to leave work unexpectedly, thus revealing the strength of the job market with little lag time. The number of initial claims for unemployment benefits filed in September in the region increased 8.0% from the previous month and are down 1.4% year over year. Claims continue to hover around below pre-pandemic levels.



Source: Virginia Employment Commission, HRPDC. Seasonally adjusted data

JOB GROWTH BY INDUSTRY (SEP, YEAR-OVER-YEAR CHANGE)

Civilian Job Growth by Industry: As the job market grows or contracts, there will be some industries whose experience does not resemble the regional trend. A majority of the region's industry sectors added jobs in September when compared to the prior year. The largest gains were in Construction which added 4,500 jobs year over year. Healthcare & Social Assistance (+3,200) and Leisure & Hospitality (+1,900) recorded the second and third largest gains. The largest year-over-year declines were in State Government (-900), Local Government (-700) and the Finance & Insurance (-600) industry sectors.

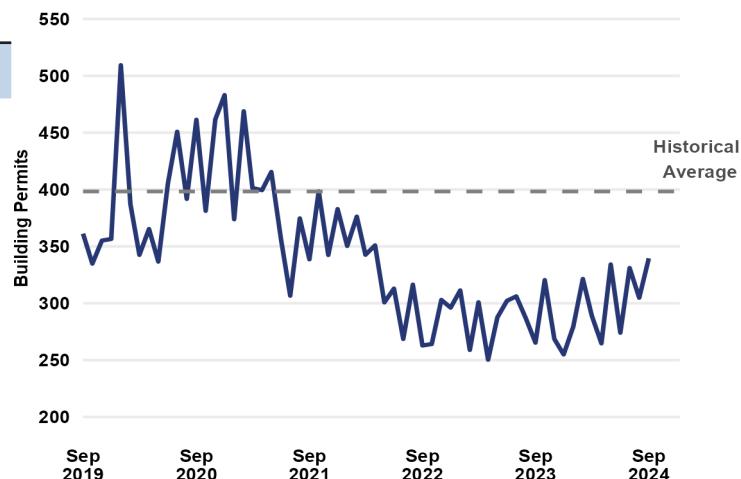


Source: Bureau of Labor Statistics, HRPDC

SINGLE FAMILY HOUSING PERMITS (M)

	Sep '23	Aug '24	Sep '24	Trend
Hampton Roads	265	305	340	▲

Single Family Housing Permits: Permit data signals the level of construction employment and confidence regarding the future trajectory of the local economy. When seasonally adjusted, there were 340 new construction permits issued for single-family homes in September 2024, a 11.4% increase from the previous month. Year to date, building permits issued in Hampton Roads in 2024 have increased by 6.6% from the previous year, marking a positive turnaround from the slowdown experienced in the prior two years.

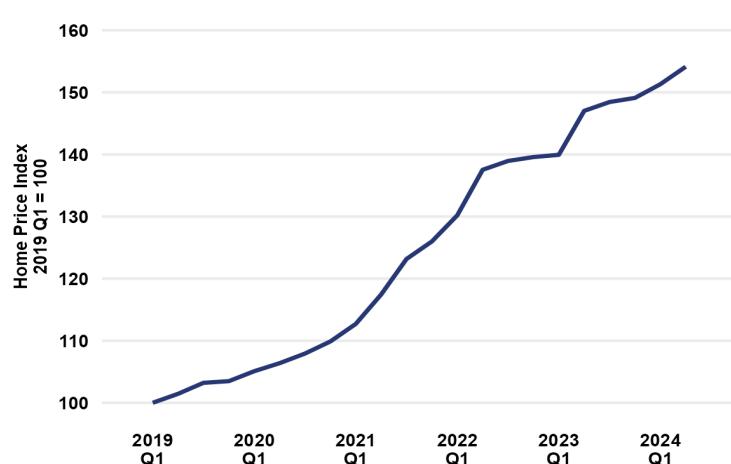


Source: US Census Bureau, HRPDC. Seasonally adjusted data

HOME PRICE INDEX, ALL TRANSACTIONS (M)

	Q2 23'	Q1 24'	Q2 24'	Trend
Hampton Roads	147.0	151.3	154.1	▲

Home Price Index: The Home Price Index tracks changes in home values by measuring price shifts through repeated sales of properties. In Hampton Roads, home prices increased by 4.8% year-over-year in Q2 2024, a slower pace than the state's 6.9% and in line with the national rate of 4.8%. While home prices accelerated in Q1 2024, growth slowed in the latest quarter. The 4.8% increase in Q2 marks the region's slowest rate of growth since early 2020.



Source: U.S. Federal Housing Finance Agency, All-Transactions House Price Index

30-YEAR FIXED RATE MORTGAGE AVERAGE (M)

	Oct '23	Sep '24	Oct '24	Trend
United States	7.6%	6.2%	6.4%	▼

30-Year Mortgage Rate: Shifts in the cost of borrowing for housing have a substantial impact on housing market trends. The 30-year fixed-rate mortgage represents the average interest rate paid by borrowers on newly issued mortgage loans, and these rates typically fluctuate in tandem with interest rate cycles. In October, mortgage rates increased from the prior month for the first time since May. Year-over-year, the mortgage rate in October was down 1.2 percentage points.



Source: Freddie Mac, HRPDC. Seasonally adjusted data