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HEARTLAND INNOVATIVE TECHNOLOGY PARK

ANNUAL ECONOMIC & FISCAL CONTRIBUTION TO PRINCE EDWARD
COUNTY

FOR TIMMONS GROUP



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About Mangum Economics, LLC

Mangum Economics is a Glen Allen, Virginia based firm that was founded in 2003. Since then, we have become known as a leader in industry analysis, economic impact assessment, policy and program evaluation, and economic and workforce strategy development. The Mangum Team specializes in producing objective and actionable quantitative economic research that our clients use for strategic decision making in a variety of industries and environments. We know that our clients are unique, and that one size does not fit all. As a result, we have a well-earned reputation for tailoring our analyses to meet the specific needs of specific clients, with a specific audience.

Most of our research falls into four general categories:

- **Information Technology:** Working with some of the largest names in the industry, to date the Mangum Team has produced analyses of the economic and fiscal impact of the data center industry in multiple states. Among those, were studies conducted in Arizona, Illinois, and Maryland that were instrumental in the passage of industry-specific legislation.
- **Economic Development and Special Projects:** The Mangum Team has performed hundreds of analyses of proposed economic development projects. One recent example was an analysis of the proposed \$2.3 billion Green City “net-zero eco district.” The Mangum Team has also authored multiple economic development plans, including identifying industry recruitment opportunities created by the high-speed MAREA and BRUSA sub-sea cable landings in Virginia Beach.
- **Energy:** The Mangum Team has produced analyses of the economic and fiscal impact of over 18 GW of proposed solar, wind, battery, and hydro projects spanning at least fifteen states. Among those projects was Dominion Energy’s 2.6 GW Coastal Virginia Offshore Wind project off of Hampton Roads. In addition, the Mangum Team has also performed economic and fiscal impact analyses for the natural gas, nuclear, oil, and pipeline industries.
- **Policy Analysis:** The Mangum Team also has extensive experience in identifying and quantifying the intended and unintended economic consequences of proposed legislative and regulatory initiatives.

The Project Team

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The estimates provided in this report are based on the best information available and all reasonable care has been taken in assessing the quality of that information. However, because these estimates attempt to foresee the consequences of circumstances that have not yet occurred, it is not possible to be certain that they will be representative of actual events. These estimates are intended to provide a good indication of likely future outcomes and should not be construed to represent a precise measure of those outcomes.

Executive Summary

This report provides an estimate of the ways that the Heartland Innovative Technology Park could impact Prince Edward County, Virginia. This data center campus proposed for Prince Edward County would occupy 280 acres. Three data center facilities would make up about 1.3 million gross square feet. The first data center is planned to come online in 2026, with one additional data center being added in 2027 and 2028. We estimate that the project would create approximately 130 new data center operational jobs.

Prince Edward County tax revenues from the Heartland Innovative Technology Park are expected to rise from \$10 million in 2026 to almost \$21 million in 2032 when they level out.

Estimates for Heartland Innovative Technology Park Used to Calculate Annual Prince Edward County Tax Revenue Gained (in millions)¹

Year	Cumulative Real Property Value	Annual Real Property Tax Paid	Cumulative Personal Property Invested	Deprec'd Cumulative Personal Property Value	Annual Personal Property Tax Paid	Annual Total Tax Paid
2026	\$666.7	\$3.40	\$1,333.3	\$666.7	\$6.67	\$10.07
2027	\$1,333.3	\$6.80	\$2,666.7	\$1,226.7	\$12.27	\$19.07
2028	\$1,733.3	\$8.84	\$4,000.0	\$1,706.7	\$17.07	\$25.91
2029	\$1,733.3	\$8.84	\$4,000.0	\$1,466.7	\$14.67	\$23.51
2030	\$1,733.3	\$8.84	\$4,000.0	\$1,306.7	\$13.07	\$21.91
2031	\$1,733.3	\$8.84	\$4,000.0	\$1,226.7	\$12.27	\$21.11
2032 and after	\$1,733.3	\$8.84	\$4,000.0	\$1,200.0	\$12.00	\$20.84

The assumptions that we used for calculating the tax revenues have the effect of underestimating the actual tax revenue that Prince Edward County will gain from the development of the data center campus in the Heartland Innovative Technology Park. The value of the business personal property data center equipment is likely to increase over time due to inflation. Additionally, the construction and operation of data centers produce local economic activity that generates local tax revenue – ranging from almost \$7 million at peak construction and leveling out at over \$3 million beginning in 2028.

From 2024 through 2028 (the five years including the complete construction period and one year when all of the facilities are operational), the Heartland Innovative Technology Park would support about \$2.2 billion of new economic output activity in Prince Edward County. After that, the project would support \$300 million of economic output activity in the County every year.

¹ All monetary values are in 2023 dollars.

Introduction

This report provides an estimate of the tax revenue and economic contribution that the Heartland Innovative Technology Park would make to Prince Edward County, Virginia. The report was commissioned by Timmons Group and produced by Mangum Economics.

The Proposed Heartland Innovative Technology Park

The data center campus in the Heartland Innovative Technology Park proposed for Prince Edward County would occupy 280 acres southeast of Persimmon Tree Road. It would be comprised of three data center facilities making up about 1.3 million gross square feet. The first data center (500,000 square feet) is planned to come online in 2026, the second (500,000 square feet) in 2027, and the third data center (300,000 square feet) in 2028. We estimate that the project would create about 130 new data center operational jobs.

Heartland Innovative Technology Park Estimates and Assumptions²

The cost of constructing data centers and the amount of data center equipment (e.g., computer servers and switches) inside these facilities varies depending on their purpose and the workload that they serve. For this analysis, we have outlined an illustrative data center campus to show the potential economic and fiscal impact that could be experienced in Prince Edward County. The full build-out of the Heartland Innovative Technology Park is planned to be completed in 2028. Our assumptions and calculations are based on expert opinion, actual data center projects, similar research projects, and information about expenditures from data center sources.

In total, the Heartland Innovative Technology Park would cost approximately \$5.2 billion for the construction of all three buildings, the construction and installation of associated infrastructure, and the purchase and installation of the data center equipment housed inside. Of that total, \$3.5 billion would be for the data center (computer) equipment, and \$1.7 billion would be for the construction of the buildings and all of the fixed (non-data center) equipment. We assume that the buildings are built one year apart and that each building is filled to capacity with data center equipment in the first year of its operation.

The computer equipment inside data centers is replaced regularly. Depending on the type of equipment and its use, refresh rates vary. Our analysis assumes that the data center equipment is refreshed on a five-year cycle.

² All monetary values are in 2023 dollars.

Annual Prince Edward County Revenue from a Single Large Data Center

Before providing estimates of the tax revenue generated by the Heartland Innovative Technology Park, in its entirety, we show the tax revenue generated by only a single large data center.

Our model anticipates the construction of a 500,000 gross-square-foot data center (including support space) employing about 50 people. The total investment for a data center of this size would be about \$2 billion – roughly \$1.3 billion for the data center equipment and roughly \$700 million for the powered shell of the facility and electrical infrastructure. We estimate that once the facility is constructed and commissioned, it would be filled to capacity with data center equipment in the first year of operation.

We estimate that operators begin to refresh the data center equipment in the second year of operation to be on a five-year refresh cycle for all data center equipment. One-fifth of the data center equipment (which is business personal property for Prince Edward County) is replaced every year thereafter. Prince Edward County's data center personal property depreciation schedule applies to the initial investments and refreshed computer equipment. Annually replacing some old data center equipment with new data center equipment while at the same time, the depreciation of data center equipment changes annually has the combined effect of delaying the time to where the annual tax paid on personal property reaches a steady state. It takes five years for a data center to reach a steady-state stream of tax revenue in Prince Edward County.

Table 1 shows how the investment in one data center at the proposed campus would contribute to the Prince Edward County tax base.

Table 1: Estimates for One 500,000 Square Foot Data Center Used to Calculate Annual Prince Edward County Tax Revenue Gained (in millions)³

Year	Cumulative Real Property Value	Annual Real Property Tax Paid	Cumulative Personal Property Invested	Deprec'd Cumulative Personal Property Value	Annual Personal Property Tax Paid	Annual Total Tax Paid
2026	\$666.7	\$3.40	\$1,333.3	\$666.7	\$6.67	\$10.07
2027	\$666.7	\$3.40	\$1,333.3	\$560.0	\$5.60	\$9.00
2028	\$666.7	\$3.40	\$1,333.3	\$480.0	\$4.80	\$8.20
2029	\$666.7	\$3.40	\$1,333.3	\$426.7	\$4.27	\$7.67
2030 and after	\$666.7	\$3.40	\$1,333.3	\$400.0	\$4.00	\$7.40

³ All monetary values are in 2023 dollars.



Annual Heartland Innovative Technology Park Real and Personal Property Tax Revenues

Property Tax Calculation Inputs and Assumptions

In addition to the description of the data centers included above, our analysis is based on the following information and assumptions:

- Real property is assessed at the cost of its original construction.
- The Prince Edward County real property tax rate is \$0.51 per \$100 of assessed value.
- The County property tax rate for data center equipment is \$1/\$100 of depreciated value.
- One-fifth of the data center equipment is replaced each year beginning in year two.
- According to Prince Edward County’s schedule of depreciation, data center equipment is depreciated by 50 percent in the first year, 60 percent in the second year, 70 percent in the third year, 80 percent in the fourth year, and 90 percent in the fifth and following years.
- Tax and depreciation rates remain constant throughout the seven years covered by the analysis.

Our assumptions have the effect of underestimating the actual tax revenue that Prince Edward County will gain from the development of the Heartland Innovative Technology Park. The value of the business personal property data center equipment is likely to increase over time due to inflation. Additionally, we do not include any business license revenue from the data centers. Finally, the construction and operation of data centers produce local economic activity that generates local tax revenue.

Annual Gross County Property Revenue⁴

Table 2 shows how total real (column two) and personal (column four) property investment develops over time across the Heartland Innovative Technology Park. The real property value would be assessed at \$667 million in 2026 with the first data center and rise to \$1.7 billion in 2028. The total personal property invested in the development increases from \$1.3 billion in 2026 as the first data center opens to \$4 billion in 2028. Column five shows the depreciated value of the personal property that is invested according to the age of the personal property in each data center and the County’s depreciation schedule for computer equipment. The depreciated value stabilizes in 2032 once all three data centers on the campus are on a stable five-year refresh cycle. Columns three and six show the totals of the real and the personal property taxes (respectively) paid each year. The total of taxes paid to Prince Edward County is shown in column seven. **Development of the Heartland Innovative Technology Park would provide Prince Edward County with \$10 million in property tax revenue in 2026 and would stabilize at almost \$21 million in 2032.**

⁴ All monetary values are in 2023 dollars.

Table 2: Estimates for Heartland Innovative Technology Park Used to Calculate Annual Prince Edward County Tax Revenue Gained (in millions)⁵

Year	Cumulative Real Property Value	Annual Real Property Tax Paid	Cumulative Personal Property Invested	Deprec'd Cumulative Personal Property Value	Annual Personal Property Tax Paid	Annual Total Tax Paid
2026	\$666.7	\$3.40	\$1,333.3	\$666.7	\$6.67	\$10.07
2027	\$1,333.3	\$6.80	\$2,666.7	\$1,226.7	\$12.27	\$19.07
2028	\$1,733.3	\$8.84	\$4,000.0	\$1,706.7	\$17.07	\$25.91
2029	\$1,733.3	\$8.84	\$4,000.0	\$1,466.7	\$14.67	\$23.51
2030	\$1,733.3	\$8.84	\$4,000.0	\$1,306.7	\$13.07	\$21.91
2031	\$1,733.3	\$8.84	\$4,000.0	\$1,226.7	\$12.27	\$21.11
2032 and after	\$1,733.3	\$8.84	\$4,000.0	\$1,200.0	\$12.00	\$20.84

⁵ All monetary values are in 2023 dollars.

Economic Impact of the Heartland Innovative Technology Park

In this section, we quantify the economic contribution that the proposed Heartland Innovative Technology Park would make to Prince Edward County. We separately evaluate the one-time pulse of economic activity that would occur during the construction phase of the project, as well as the annual economic activity that the data center campus would generate during its ongoing operational phase.

Method of Analysis

To estimate the likely local economic impact attributable to the proposed data center campus project, we use a regional economic impact model called IMPLAN.⁶ The IMPLAN model is one of the most commonly used economic impact models in the United States. Like all economic impact models, the IMPLAN model uses economic multipliers to quantify economic impacts.

Economic multipliers measure the ripple effects that an expenditure generates as it makes its way through the economy. For example, data centers spend money to pay employees and purchase goods and services which provides income to the employee households and the businesses of the vendors. Those employees and vendors then have money to spend on goods and services which again provides income for other businesses – and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the economic multiplier.

One of the primary advantages of the IMPLAN model is that it uses regional and national production and trade flow data to construct region-specific and industry-specific economic multipliers. These multipliers are then further adjusted to reflect anticipated actual spending patterns within the specific geographic area that is being evaluated. As a result, the economic impact estimates produced by IMPLAN are not generic. They reflect as precisely as possible the economic realities of the specific industry and the specific geographic area – in this case, data centers in Prince Edward County.

We divide these impact estimates into three categories.

1. The first-round direct impact measures the direct economic contribution of the entity being evaluated (e.g., own employment, wages paid, goods and services purchased by the proposed data centers).
2. The second-round indirect and induced impact measures the economic ripple effects of this direct impact in terms of business-to-business and household/employee-to-business transactions.
3. The total impact is simply the sum of those two.

These impacts are defined in terms of jobs, the pay and benefits associated with those jobs, and economic output (the total amount of economic activity that is created in the economy).

⁶ IMPLAN is produced by IMPLAN Group, LLC.

Construction Phase for One Data Center⁷

On a per-facility basis, total capital investment in the 500,000-square-foot data center is estimated to be \$2 billion with \$666.7 million for the real property investment in the facility. Construction of each data center is expected to take two years.

As shown in Table 3, we estimate that annually for the two-year construction period one of the 500,000-square-foot data centers would directly provide approximately:

- 1,050 construction jobs,
- \$55.7 million in pay and benefits, and
- \$200 million in economic output to Prince Edward County.

Taking into account the economic ripple effects that that direct investment would generate throughout the Prince Edward County economy, we estimate that annually for the two-year construction period the 500,000-square-foot data center would in total support:

- 1,550 jobs,
- \$77.7 million in pay and benefits, and almost
- \$285.8 million in economic output.

Table 3: Estimated Annual Economic Impact on Prince Edward County from Construction of a Single 500,000-Square-Foot Data Center

Economic Impact	Jobs	Pay & Benefits (millions)	Output (millions)
1st Round Direct Economic Activity	1,050	\$55.7	\$200.0
2nd Round Indirect and Induced Economic Activity	500	\$22.0	\$85.8
Total Economic Activity	1,550	\$77.7	\$285.8

Table 4 shows the annual impact of the construction of the 300,000-square-foot data center.

Table 4: Estimated Annual Economic Impact on Prince Edward County from Construction of a Single 300,000-Square-Foot Data Center

Economic Impact	Jobs	Pay & Benefits (millions)	Output (millions)
1st Round Direct Economic Activity	630	\$33.4	\$120.0
2nd Round Indirect and Induced Economic Activity	300	\$13.2	\$51.5
Total Economic Activity	930	\$46.6	\$171.5

⁷ All monetary values are in 2023 dollars.

Ongoing Operations Phase for One Data Center⁸

On a per-facility basis, once the 500,000-square-foot data center is operational, we estimate that it will employ about 50 people.

As shown in Table 5, we estimate that the operation of a single 500,000-square-foot data center would, on an annual basis, directly provide approximately:

- 50 operational jobs,
- \$5.4 million in pay and benefits, and
- \$76.6 million in economic output to Prince Edward County.

Taking into account the economic ripple effects of the annual operational spending by a single 500,000-square-foot data center in the Prince Edward County economy, we estimate that each proposed data center facility would support:

- 220 jobs,
- \$13.5 million in pay and benefits, and almost
- \$116.8 million in economic output.

Table 5: Estimated Annual Economic Impact on Prince Edward County from Operation of One of the 500,000-Square-Foot Data Centers

Economic Impact	Jobs	Pay & Benefits (millions)	Output (millions)
1st Round Direct Economic Activity	50	\$5.4	\$76.6
2nd Round Indirect and Induced Economic Activity	170	\$8.1	\$40.2
Total Economic Activity	220	\$13.5	\$116.8

Table 6 shows the annual impact of the operation of the 300,000-square-foot data center.

Table 6: Estimated Annual Economic Impact on Prince Edward County from Operation of the 300,000-Square-Foot Data Center

Economic Impact	Jobs	Pay & Benefits (millions)	Output (millions)
1st Round Direct Economic Activity	30	\$3.2	\$46.0
2nd Round Indirect and Induced Economic Activity	100	\$4.9	\$24.1
Total Economic Activity	130	\$8.1	\$68.1

⁸ All monetary values are in 2023 dollars.

Construction and Operation Phases for the Heartland Innovative Technology Park⁹

While construction of the Heartland Innovative Technology Park is occurring the number of operational data centers will increase. Using the per-facility estimates from Tables 3, 4, 5, and 6, Table 7 shows the direct impact of the data center campus, in terms of construction and operational jobs, pay and benefits, and economic output.

In the year of peak construction, when two of the 500,000-square-foot data centers are being built, the total number of direct jobs reaches 2,100 (all construction jobs). Once construction is completed, direct operational jobs on the Heartland Innovative Technology Park should remain stable at 130.

Table 7: Estimated Direct Annual Economic Impact on Prince Edward County from Construction and Operation of the Proposed Heartland Innovative Technology Park

Year of Operation	Direct Construction Jobs	Direct Operational Jobs	Total Direct Jobs	Total Direct Pay & Benefits (millions)	Total Direct Output (millions)
2024 (Prior to Operation)	1,050		1,050	\$55.7	\$200.0
2025 (Prior to Operation)	2,100		2,100	\$111.4	\$400.0
2026	1,680	50	1,730	\$117.1	\$396.6
2027	630	100	730	\$44.2	\$273.2
2028 and after		130	130	\$14.0	\$199.2

From 2024 through 2028 (the five years including the complete construction period and one year when all of the facilities are operational), the direct impact of the Heartland Innovative Technology Park on Prince Edward County in terms of economic output would total almost \$1.5 billion. After that, the direct impact of the project on the County would be almost \$200 million per year.

⁹ All monetary values are in 2023 dollars.

Similarly, using the per-facility estimates from Tables 3, 4, 5, and 6, Table 8 shows the total economic impact of the Heartland Innovative Technology Park including the indirect and induced impact, in terms of jobs, pay and benefits, and economic output.

In the year of peak construction, when two of the 500,000-square-foot data centers are being built, the total number of supported jobs reaches 3,100 (all construction jobs). Once construction is completed, total jobs supported by operations should remain stable at 570.

Additionally, the construction and operation of data centers produce local economic activity that generates local tax revenue – ranging from almost \$7 million at peak construction and leveling out at over \$3 million beginning in 2028.

Table 8: Estimated Total Supported Annual Economic Impact on Prince Edward County from Construction and Operation of the Proposed Heartland Innovative Technology Park

Year of Operation	Total Direct Jobs	Additional Indirect & Induced Jobs	Total Supported Jobs	Total Supported Pay & Benefits (millions)	Total Supported Output (millions)	Total Taxes Generated by Indirect & Induced Activity
2024 (Prior to Operation)	1,050	500	1,550	\$77.7	\$285.8	\$3.4
2025 (Prior to Operation)	2,100	1,000	3,100	\$155.4	\$571.6	\$6.8
2026	1,730	970	2,700	\$137.8	\$574.1	\$6.7
2027	730	640	1,370	\$73.6	\$405.1	\$4.6
2028 and after	130	440	570	\$35.1	\$301.7	\$3.4

From 2024 through 2028 (the five years including the complete construction period and one year when all of the facilities are operational), the Heartland Innovative Technology Park would support about \$2.2 billion of new economic output activity in Prince Edward County. After that, the project would support \$300 million of economic output activity in the County every year.