

The Economic & Fiscal Impact of Three Rowan Digital Infrastructure Developments in Frederick County

December 2024

Executive Summary

Construction of Rowan Frederick One, Two, and Three, data centers that will total approximately 2.3 million square feet, will support more than 15,500 jobs, \$1 billion of labor income, and more than \$2.2 billion of statewide economic activity over the two-plus year duration. That activity will generate an estimated \$7.3 million in Frederick County tax revenues during the construction phase, a figure that doesn't include permitting and impact fees, and more than \$57 million in state level tax revenues, mostly through augmented sales tax receipts.

Once operational, the facilities will directly employ an estimated 275 people with average annual compensation likely to approach \$100,000. Including secondary impacts, the data centers will support an estimated 1,350 jobs earning more than \$86 million each year across the entirety of the state. As a result, statewide economic activity will be bolstered by \$346 million each year. This economic activity will generate approximately \$19 million in annual tax revenues for Frederick County and \$39 million for the State.

Table of Contents

Introduction.....	3
Construction Phase Impacts	3
Impacts Upon Full Build Out.....	5
Conclusion	6
About Sage Policy Group.....	6
Appendix A: Methods & Assumptions	7
Appendix B: Detailed Economic Impacts	10
Appendix C: How to Interpret Economic Impact Estimates.....	12

List of Exhibits

Exhibit 1: Construction Phase Total Economic Impacts	4
Exhibit 2: Construction Phase Fiscal Impacts.....	4
Exhibit 2: Operational Economic Impacts, Full Build Out	5
Exhibit 4: Total Ongoing, Annual Fiscal Impacts	5
Exhibit 5: Detailed Construction Phase Economic Impacts.....	10
Exhibit 6: Secondary Jobs by Sector, Construction Phase	10
Exhibit 7: Detailed Operational Economic Impacts, Full Build Out	11
Exhibit 8: Secondary Jobs by Sector, Operating Phase (annual, ongoing).....	11

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INTRODUCTION

Rowan Digital Infrastructure intends to develop three data centers totaling 2.2 million square feet in Frederick County. That development will support jobs, on a temporary basis during the construction phase and on an annual ongoing basis once the facilities are operational, and significant business-to-business spending in the local economy, both of which will augment economic activity and tax revenues at the county and state levels.

This report uses IMPLAN economic modeling software, an industry-standard platform for input-output analysis, as well as proprietary fiscal impact modeling methods that utilize data from the U.S. Census Bureau, the Office of the Maryland Comptroller, and the Frederick County Government, to estimate the jobs, labor income, economic activity, and tax revenues supported by this development. Details regarding the methods and assumptions used in this analysis can be found in Appendix A on page 7.

CONSTRUCTION PHASE IMPACTS

Construction of the powered core and shell—which is to say, the physical structure but not the equipment inside of the building—is expected to cost approximately \$1.4 billion for the three projects, all of which are slated to start in 2024 and last roughly two years. While this report does not consider the value of personal property that will be installed inside the facilities—Frederick County does not levy a personal property tax—total investment including equipment is likely to be significantly larger. Accordingly, the construction phase impacts supplied in this report should be viewed as conservative.

Development of the facilities will create approximately 10,400 construction jobs, with a job defined as one full- or part-time position that lasts for one year. **Based on conversations with Rowan, the total number of craftsmen on site on any one day will peak at approximately 2,200.** Those construction workers will average nearly \$70,000 in annual compensation.

Expenditures related to the project and made by the construction workers employed on it will support nearly 5,200 additional jobs across the state—about 3,900 of which will be performed in Frederick County—bringing the total number of jobs supported during the construction phase to approximately 15,000. Those jobs will be associated with more than \$1 billion in employee compensation over the duration of the project, which includes both wages and benefits.

In total, construction of the data centers will support more than \$2.2 billion in statewide economic activity (the sum of goods and services sold in state as a result of the project). More detailed economic impacts can be viewed in Appendix B on page 11, and more information on how to interpret economic impacts can be found in Appendix C on page 12.

Exhibit 1: Construction Phase Total Economic Impacts

	Jobs	Labor Income (Millions \$2023)	Economic Output (Millions \$2023)
<i>Frederick County</i>			
Direct effects	10,365	\$720.8	\$1,368.0
Secondary effects	3,936	\$201.5	\$626.1
Total	14,299	\$926.2	\$1,994.3
<i>Remainder of Maryland (only secondary impacts)</i>			
Total	1,227	\$77.2	\$232.7
<i>Statewide</i>			
Total	15,526	\$1,003.2	\$2,226.8

Source: Sage, IMPLAN

*Totals may not add due to rounding

These jobs and economic activity will generate significant tax revenues at both the state and local levels. After adjusting the \$925 million in Frederick County-based employee compensation to reflect only wages earned by Frederick County residents, the construction phase will generate an estimated \$7.3 million in income tax revenues for the County. At the state level, the construction phase will bolster tax revenues by more than \$57 million through augmented sales and income tax revenues.

Exhibit 2: Construction Phase Fiscal Impacts

Tax Category	Revenues (Millions \$2023)
<i>Frederick County</i>	
Income	\$7.3
Total	\$7.3
<i>State of Maryland</i>	
Sales	\$29.5
Income	\$27.7
Total	\$57.2

Source: Sage

IMPACTS UPON FULL BUILD OUT

Once the data centers are operational, they will employ an estimated 275 Marylanders—with average annual compensation likely approaching \$100,000—in positions related to management, engineering, and security.

Operational expenditures by the data centers and spending by the facilities’ employees will support nearly 1,100 additional statewide jobs, about 780 of which will be performed in Frederick County. Those secondary jobs include at least 20 positions at restaurants, consulting services, real estate firms, courier services, and computer system design firms, among other industries, and at least one job will be supported by the facilities in 109 distinct sectors.

Exhibit 2: Operational Economic Impacts, Full Build Out

Annual, Ongoing	Jobs	Labor Income (Millions \$2023)	Economic Output (Millions \$2023)
<i>Frederick County</i>			
Direct effects	275	\$26.1	\$182.4
Secondary effects	782	\$39.2	\$106.7
Total	1,057	\$65.3	\$289.1
<i>Remainder of Maryland (only secondary impacts)</i>			
Total	289	\$20.8	\$57.0
<i>Statewide</i>			
Total	1,348	\$86.1	\$346.1

Source: Sage, IMPLAN

*Totals may not add due to rounding

In total, the approximately 1,350 direct and secondary statewide jobs supported by the data centers will be associated with \$86 million in employee compensation and \$346 million in statewide economic activity each year. Including secondary impacts, the data centers will support \$19 million in tax revenues for Frederick County each year and approximately \$39 million for the State.

Exhibit 4: Total Ongoing, Annual Fiscal Impacts

Tax Category	Revenues (Millions \$2023)
<i>Frederick County</i>	
Real Property	\$18.6
Income	\$0.5
Total	\$19.1
<i>State of Maryland</i>	
Electricity (sales & franchise)	\$30.3
Sales (other than electricity)	\$4.1
Real Property	\$2.0
Income	\$2.5
Total	\$38.8

Source: Sage

CONCLUSION

Construction of approximately 2.2 million square feet of data centers in Frederick County by Rowan will support more than 15,000 jobs, \$1.0 billion of labor income, and \$2.2 billion of statewide economic activity over the two-plus year duration. That activity will generate an estimated \$7.3 million in Frederick County tax revenues, a figure that doesn't include permitting and impact fees, and more than \$57 million in state level tax revenues, mostly through augmented sales tax receipts.

Once operational, the facilities will employ an estimated 275 people with average annual compensation likely approaching \$100,000. Including secondary impacts, the data centers will support an estimated 1,350 jobs earning more than \$86 million each year across the entirety of the state. As a result, statewide economic activity will be bolstered by \$346 million each year. This economic activity will generate \$19 million in annual tax revenues for Frederick County and \$39 million for the state.

About Sage Policy Group

Sage Policy Group is an economic and policy consulting firm headquartered in Baltimore, MD. Dr. Anirban Basu, Sage's chairman and CEO, founded the firm in 2004. Sage has created a client base that encompasses more than forty states and seven countries and includes Fortune 500 companies, NFL teams, aquariums and zoos, state and local governments, insurance companies, banks, brokerage houses, major medical systems, trade organizations, and law firms, among others.

The company is especially well known for its analytical capabilities in economic and fiscal impact estimation, economic development, forecasting, legislative analyses, litigation support, environmental economics, and industry outlooks.

In addition to leading Sage, Dr. Basu has emerged as one of the nation's most recognizable economists. He serves as the chief economist to Associated Builders and Contractors, the Maryland Bankers Association, and the International Food Distributors Association and as the chief economic adviser to the Construction Financial Management Association. He chaired the Maryland Economic Development Commission from 2014 to 2021 and currently chairs the Baltimore County Economic Advisory Committee.

Dr. Basu's lectures in economics are delivered to audiences across the U.S. and abroad. He has lectured at Johns Hopkins University and is presently the Distinguished Economist in Residence at Goucher College, where he teaches History of Economic Thought.

Appendix A: Methods & Assumptions

CONSTRUCTION PHASE ECONOMIC IMPACTS

Construction of the powered core and shell for the data centers is expected to cost \$1.4 billion, or approximately \$610 per square foot. This is a slightly conservative estimate compared to current estimates of the cost of constructing a data center: “as a general rule, it costs between \$600 to \$1,100 per square foot....to build a data center.”¹ Rowan expects a peak of 2,200 tradesmen to be on site.

These parameters served as inputs to the custom IMPLAN model used to estimate the construction phase impacts. Specifically, the model used multi-regional input-output analysis, a technique that allows direct impacts to be confined to a certain geography (Frederick County) while capturing secondary impacts in a broader area (the remainder of Maryland).

OPERATING PHASE ECONOMIC IMPACTS

Rowan expects the facilities to employ approximately 275 people once steady state operations are attained with estimated average annual compensation approaching \$100,000. Economic activity related to operations were determined implicitly within IMPLAN, which has sectoral-specific parameters pertaining to data centers. The model of operating phase economic impacts also uses multi-region input-output analysis to produce geographically granular impact estimates.

CONSTRUCTION-RELATED INCOME TAXES

Compensation presented in the economic impact section of this report encompasses wages and benefits. According to the U.S. Bureau of Labor Statistics, wages account for 67.1 percent of private construction compensation (the only portion of compensation subject to income tax). Accordingly, construction will support approximately \$673 million in taxable income among Maryland residents (including secondary effects). Based on an estimated effective State income tax rate of 4.1 percent for state residents—calculated using data from Maryland’s FY 2022 Comprehensive Annual Financial Report—construction will support \$27.7 million in State income tax collections during development.

Some construction jobs will be held by residents of other states. Moreover, not every job held by a Marylander will be held by a Frederick County resident. Based on inflow/outflow data from the U.S. Census Bureau, 45.4 percent of jobs in Frederick County are filled by Frederick County residents. Using that parameter and an estimated effective local income tax rate of 2.6 percent, Sage estimates that the construction phase will support \$7.3 million in income tax revenue for Frederick County.

¹ Mary Zhang. “How Much Does it Cost to Build a Data Center?” Dgtl Infra, November 5, 2023. Accessed on December 4, 2023. <https://dgtlinfra.com/how-much-does-it-cost-to-build-a-data-center/>

CONSTRUCTION-RELATED SALES TAXES

To determine the sales tax impact of the construction phase, this study uses the same custom IMPLAN model used to produce economic impacts. Servers, which represent a significant portion of the overall capital expenditure associated with this development, are exempt from Maryland sales and use taxes. Based on Sage’s modeling, the construction phase will support \$29.5 million in sales taxes—including those related to secondary purchasing—over the period of development.

PERMITTING AND IMPACT FEES

This analysis does not endeavor to estimate permitting fees to be paid to Frederick County as a result of development. While those fees will likely represent upwards of \$1 million in revenues for the County over the duration of construction, based on estimates provided by Rowan, there are too many uncertainties at this juncture to provide an accurate assessment.

OPERATIONAL INCOME TAXES

Once operational, the Rowan facilities will support an estimated \$86 million in statewide employee compensation. To determine the income tax paid on that total, the figure first must be adjusted to include only wages, which on average represent 69.0 percent of total compensation. Based on that parameter and an effective state level tax rate of 4.1 percent, the development will support an estimated \$2.5 million in State-level income tax revenues each year once steady-state operations are achieved.

At full build out the jobs supported in Frederick County will support an estimated \$65 million in total labor income. After adjusting that figure to reflect only wages (69.0%) and to include only the workers who live in Frederick County (45.4%), approximately \$20 million in income will be subject to Frederick County’s income tax. Based on an effective income tax rate of 2.6 percent, the development will support \$500,000 in income tax revenue for Frederick County each year once full build out is achieved.

REAL PROPERTY TAXES

As of 2023, Frederick County levied a real property tax of \$1.06 per \$100 of assessed value. The State of Maryland levied a real property tax of \$0.112 per \$100 of assessed value. Using projected construction costs related to only the powered core and shell and the projected value of the land upon full build out, the assessed real property valuation of the Rowan development is estimated to be \$1.7 billion (constant 2023 dollars). Based on these parameters, the development will support approximately \$19 million in annual real property tax revenues for Frederick County and \$2.0 million for the State.

OPERATIONS-RELATED SALES TAX (EXCLUDING ON ELECTRICITY)

To determine the sales tax revenue supported by steady-state operations, this study uses the same custom IMPLAN model used to produce economic impacts. Based on Sage’s modeling, the facilities’ operations will support approximately \$4.1 million in sales taxes—including those related to secondary purchasing—each year once operational. This figure excludes sales tax collected on the direct purchase of electricity, an estimate of which is discussed below.

FRANCHISE AND SALES TAX ON ELECTRICITY USAGE

Maryland levies a franchise tax applicable to public service companies calculated as 2 percent of gross receipts plus a charge of \$0.00062 per kilowatt-hour delivered. Given the data centers’ expected power utilization at steady state, the franchise tax will generate \$10.2 million in annual revenues for the State while the per kilowatt-hour charge will generate an additional \$20.1 million from power utilization.

Appendix B: Detailed Economic Impacts

Exhibit 5: Detailed Construction Phase Economic Impacts

	Jobs	Labor Income (Millions \$2023)	Economic Output (Millions \$2023)
<i>Frederick County</i>			
Direct effects	10,365	\$720.8	\$1,368.0
Indirect effects	1,254	\$85.8	\$245.7
Induced effects	2,682	\$115.7	\$380.4
Total	14,299	\$926.2	\$1,994.3
<i>Remainder of Maryland</i>			
Indirect effects	428	\$32.5	\$98.9
Induced effects	799	\$44.7	\$133.6
Total	1,227	\$77.2	\$232.7
<i>Statewide</i>			
Total	15,526	\$1,003.2	\$2,226.8

Source: Sage, IMPLAN

*Totals may not add due to rounding

Exhibit 6: Secondary Jobs by Sector, Construction Phase

Sector	Indirect	Induced	Total
Full-service restaurants	20	193	210
Other real estate	129	81	207
Limited-service restaurants	6	196	201
Wholesale - Other durable goods merchant wholesalers	132	11	143
Hospitals	0	137	137
Architectural, engineering, and related services	120	6	126
Offices of physicians	0	120	120
Retail - General merchandise stores	6	101	106
Retail - Food and beverage stores	0	104	104
Truck transportation	90	14	104
All other food and drinking places	11	90	101
Retail - Nonstore retailers	6	90	95
Religious organizations	0	78	78
Automotive repair and maintenance, except car washes	20	59	78
Personal care services	0	78	78
Services to buildings	36	39	78
Nursing and community care facilities	0	76	76
Landscape and horticultural services	50	22	73
Wholesale - Wholesale electronic markets and agents and brokers	59	14	70
Accounting, tax preparation, bookkeeping, and payroll services	45	25	70
Other educational services	0	67	70
Offices of other health practitioners	0	70	70
Child day care services	0	67	67
Home health care services	0	67	67
Other	926	1,525	2,451
Total	1,651	3,327	4,981

Source: Sage, IMPLAN

*Totals may not add due to rounding

Exhibit 7: Detailed Operational Economic Impacts, Full Build Out

Annual, Ongoing	Jobs	Labor Income (Millions \$2023)	Economic Output (Millions \$2023)
<i>Frederick County</i>			
Direct effects	275	\$26.1	\$182.4
Indirect effects	598	\$31.2	\$80.5
Induced effects	184	\$8.0	\$26.1
Total	1,057	\$65.3	\$289.1
<i>Remainder of Maryland</i>			
Indirect effects	173	\$14.3	\$37.7
Induced effects	116	\$6.5	\$19.3
Total	289	\$20.8	\$57.0
<i>Statewide</i>			
Total	1,348	\$86.1	\$346.1

Source: Sage, IMPLAN

*Totals may not add due to rounding

Exhibit 8: Secondary Jobs by Sector, Operating Phase (annual, ongoing)

Sector	Indirect	Induced	Total
Employment services	80	3	83
Full-service restaurants	58	17	75
Management consulting services	64	3	66
Other real estate	55	8	64
Transit and ground passenger transportation	33	3	39
Office administrative services	30	0	33
Couriers and messengers	30	0	33
Services to buildings	28	3	30
Computer systems design services	28	0	28
Limited-service restaurants	8	17	25
Accounting, tax preparation, bookkeeping, and payroll services	19	3	22
All other food and drinking places	11	8	19
Environmental and other technical consulting services	19	0	19
Advertising, public relations, and related services	17	0	19
Business support services	17	0	19
Investigation and security services	17	3	17
Management of companies and enterprises	14	3	14
Postal service	14	0	14
Hospitals	0	14	14
Legal services	11	3	14
Automotive repair and maintenance, except car washes	8	6	11
Independent artists, writers, and performers	11	0	11
Monetary authorities and depository credit intermediation	8	3	11
Landscape and horticultural services	8	3	11
Other	180	199	379
Total	770	299	1,071

Source: Sage, IMPLAN

*Totals may not add due to rounding

Appendix C: How to Interpret Economic Impact Estimates

To quantify the economic impacts of Rowan’s development, Sage used IMPLAN economic modeling software and its embodied multipliers to generate estimates of employment, labor income, and output. Below is an abbreviated glossary of terms that may prove helpful in interpreting analytical findings.

EMPLOYMENT

As defined by IMPLAN, a job that lasts twelve months equals one job, two jobs that last six months equal one job, three jobs that last four months equal one job, etc. Based on this, **job-years** represents a useful term. For instance, an endeavor that supports 200 jobs for a six-month period would be considered to support 100 jobs measured in job-years. Note that IMPLAN jobs are not quite the same thing as full-time equivalents (FTEs). Each of IMPLAN’s 536 unique industries has a different conversion rate between jobs and FTEs, although for almost every industry one job is equal to less than one FTE.

OUTPUT (BUSINESS ACTIVITY, ECONOMIC ACTIVITY)

Output equals the value of industry production or service provision. It might be easier to conceptualize this as total business sales or economic activity. For retail industries, it is the gross margin (not gross sales). For manufacturing, output is the quantity of total sales plus/minus the change in inventories. For the service sector, output is directly equal to sales. This is summarized by the following equation:

$$\text{Output} = (\text{Manufacturing sales} \pm \text{change in inventories}) + (\text{service sector sales}) + (\text{gross margin for wholesale and retail trade})$$

LABOR INCOME

Worker compensation is comprised of wages, benefits, and proprietor income (money accruing to owners of businesses).

$$\text{Worker Compensation} = \text{all forms of employee compensation (wages/benefits)} + \text{proprietor income}$$

DIRECT EFFECTS

Direct effects are impacts tightly aligned with the endeavor under consideration. In this instance, direct effects are produced by construction of the data centers as well as the facilities’ steady-state operations.

INDIRECT EFFECTS

Indirect effects stem from business-to-business spending activity within the study area that occurs as a result of the direct effects. These can also be considered broader supply chain effects. This is a form of **secondary** effect.

INDUCED EFFECTS

Induced effects relate to household spending that occurs due to expanded levels of labor/household income. This is also a form of **secondary** effect.