

The Economic & Fiscal Impact of a Rowan Digital Infrastructure Development in Frederick County

January 2024

Executive Summary

Construction of Rowan’s almost 800,000 foot data center in Frederick County will support more than 5,500 jobs, nearly \$360 million of labor income, and more than \$775 million of statewide economic activity over the two-plus year duration. That activity will generate an estimated \$2.6 million in Frederick County during the construction phase, a figure that doesn’t include permitting and impact fees, and more than \$20 million in state level tax revenues, mostly through augmented sales tax receipts.

Once operational, the facility itself will employ an estimated 100 people with average annual compensation likely to approach \$100,000. Including secondary impacts, the data center will support an estimated 487 jobs earning more than \$31 million each year across the entirety of the state. As a result, statewide economic activity will be bolstered by \$125 million each year. This economic activity will generate nearly \$7 million in annual tax revenues for Frederick County and \$14 million for the State.

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INTRODUCTION

Rowan Digital Infrastructure intends to develop an almost 800,000 square foot data center on 150 acres in Frederick County, Maryland. That development will support jobs, on a temporary basis during the construction phase and on an annual ongoing basis once the facility is 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 \$480 million. The project is slated to begin in the first half of 2024 and expected to last roughly two years. While this report does not consider the value of personal property that will be installed inside the facility—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 facility will create approximately 3,770 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 over 800.** 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 1,800 additional jobs across the state—about 1,350 of which will be performed in Frederick County—bringing the total number of jobs supported during the construction phase to approximately 5,550. Those jobs will be associated with nearly \$360 million in employee compensation over the duration of the project, which includes both wages and benefits.

In total, construction of the data center will support more than \$775 million 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	3,769	\$262.1	\$480.0
Secondary effects	1,351	\$69.4	\$215.5
Total	5,119	\$331.6	\$695.5
<i>Remainder of Maryland (only secondary impacts)</i>			
Total	429	\$27.0	\$81.4
<i>Statewide</i>			
Total	5,548	\$358.5	\$776.8

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 \$330 million in Frederick County-based employee compensation to reflect only wages earned by Frederick County residents, the construction phase will generate an estimated \$2.6 million in income tax revenues for the County. At the state level, the construction phase will bolster tax revenues by more than \$20 million through augmented sales and income tax revenues.

Exhibit 2: Construction Phase Fiscal Impacts

Tax Category	Revenues (Millions \$2023)
<i>Frederick County</i>	
Income	\$2.6
Total	\$2.6
<i>State of Maryland</i>	
Sales	\$10.2
Income	\$9.9
Total	\$20.11

Source: Sage

IMPACTS UPON FULL BUILD OUT

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

Operational expenditures by the data center and spending by the facility’s employees will support nearly 380 additional statewide jobs, about 280 of which will be performed in Frederick County. Those secondary jobs include at least ten 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 facility in 77 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	100	\$9.5	\$65.9
Secondary effects	282	\$14.1	\$38.5
Total	382	\$23.6	\$104.4
<i>Remainder of Maryland (only secondary impacts)</i>			
Total	104	\$7.5	\$20.6
<i>Statewide</i>			
Total	487	\$31.1	\$125.0

Source: Sage, IMPLAN

*Totals may not add due to rounding

In total, the nearly 490 direct and secondary statewide jobs supported by the data center will be associated with more than \$31 million in employee compensation and \$125 million in statewide economic activity. Including secondary impacts, the data center will support nearly \$7 million in tax revenues for Frederick County each year and approximately \$14 million for the State.

Exhibit 4: Total Ongoing, Annual Fiscal Impacts

Tax Category	Revenues (Millions \$2023)
<i>Frederick County</i>	
Real Property	\$6.7
Income	\$0.2
Total	\$6.9
<i>State of Maryland</i>	
Electricity (sales & franchise)	\$11.0
Sales (other than electricity)	\$1.5
Real Property	\$0.7
Income	\$0.9
Total	\$14.0

Source: Sage

CONCLUSION

Construction of Rowan's nearly 800,000 square foot data center in Frederick County will support more than 5,500 jobs, nearly \$360 million of labor income, and more than \$775 million of statewide economic activity over the two-plus year duration. That activity will generate an estimated \$2.6 million in Frederick County tax revenues, a figure that doesn't include permitting and impact fees, and more than \$20 million in state level tax revenues, mostly through augmented sales tax receipts.

Once operational, the facility itself will employ an estimated 100 people with average annual compensation likely approaching \$100,000. Including secondary impacts, the data center will support an estimated 487 jobs earning more than \$31 million each year across the entirety of the state. As a result, statewide economic activity will be bolstered by \$125 million each year. This economic activity will generate nearly \$7 million in annual tax revenues for Frederick County and \$14 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 is expected to cost \$480 million, or approximately \$585 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 The facility’s core and shell, which excludes civil engineering and power-related outlays, will cost an estimated \$240 per square foot, which is also in line with existing estimates.² Rowan expects between 1,500 and 1,800 tradesmen to be on site at some point during the two-plus year construction phase, with upwards of 800 on site at peak.

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 facility to employ approximately 100 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 \$241 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 \$9.9 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.

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/>

² Tim Day and Nam D. Pham. “Data Centers: Jobs and Opportunities in Communities Nationwide.” U.S. Chamber of Commerce Technology Engagement Center. 2017. Accessed August 26, 2023. https://www.uschamber.com/assets/archived/images/ctec_datacenterppt_lowres.pdf

Using that parameter and an estimated effective local income tax rate of 2.6 percent, Sage estimates that the construction phase will support \$2.6 million in income tax revenue for Frederick County.

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 \$10.2 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 \$400,000 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 Facility will support an estimated \$31 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 \$900,000 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 \$24 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 \$7.4 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 \$200,000 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 \$630 million (constant 2023 dollars). Based on these parameters, the development will support approximately \$6.7 million in annual real property tax revenues for Frederick County and \$700,000 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 facility’s operations will support approximately \$1.5 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 center’s expected power utilization at steady state, the franchise tax will generate \$3.7 million in annual revenues for the State while the per kilowatt-hour charge will generate an additional \$7.3 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	3,769	\$262.1	\$480.0
Indirect effects	440	\$30.1	\$86.2
Induced effects	911	\$39.3	\$129.2
Total	5,119	\$331.6	\$695.5
<i>Remainder of Maryland</i>			
Indirect effects	150	\$11.4	\$34.7
Induced effects	279	\$15.6	\$46.6
Total	429	\$27.0	\$81.4
<i>Statewide</i>			
Total	5,548	\$358.5	\$776.8

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	7	69	75
Other real estate	46	29	74
Limited-service restaurants	2	70	72
Wholesale - Other durable goods merchant wholesalers	47	4	51
Hospitals	0	49	49
Architectural, engineering, and related services	43	2	45
Offices of physicians	0	43	43
Retail - General merchandise stores	2	36	38
Retail - Food and beverage stores	0	37	37
Truck transportation	32	5	37
All other food and drinking places	4	32	36
Retail - Nonstore retailers	2	32	34
Religious organizations	0	28	28
Automotive repair and maintenance, except car washes	7	21	28
Personal care services	0	28	28
Services to buildings	13	14	28
Nursing and community care facilities	0	27	27
Landscape and horticultural services	18	8	26
Wholesale - Wholesale electronic markets and agents and brokers	21	5	25
Accounting, tax preparation, bookkeeping, and payroll services	16	9	25
Other educational services	0	24	25
Offices of other health practitioners	0	25	25
Child day care services	0	24	24
Home health care services	0	24	24
Other	331	545	876
Total	590	1,189	1,780

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	100	\$9.5	\$65.9
Indirect effects	216	\$11.3	\$29.1
Induced effects	67	\$2.9	\$9.4
Total	382	\$23.6	\$104.4
<i>Remainder of Maryland</i>			
Indirect effects	63	\$5.2	\$13.6
Induced effects	42	\$2.3	\$7.0
Total	104	\$7.5	\$20.6
<i>Statewide</i>			
Total	487	\$31.1	\$125.0

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	29	1	30
Full-service restaurants	21	6	27
Management consulting services	23	1	24
Other real estate	20	3	23
Transit and ground passenger transportation	12	1	14
Office administrative services	11	0	12
Couriers and messengers	11	0	12
Services to buildings	10	1	11
Computer systems design services	10	0	10
Limited-service restaurants	3	6	9
Accounting, tax preparation, bookkeeping, and payroll services	7	1	8
All other food and drinking places	4	3	7
Environmental and other technical consulting services	7	0	7
Advertising, public relations, and related services	6	0	7
Business support services	6	0	7
Investigation and security services	6	1	6
Management of companies and enterprises	5	1	5
Postal service	5	0	5
Hospitals	0	5	5
Legal services	4	1	5
Automotive repair and maintenance, except car washes	3	2	4
Independent artists, writers, and performers	4	0	4
Monetary authorities and depository credit intermediation	3	1	4
Landscape and horticultural services	3	1	4
Other	65	72	137
Total	278	108	387

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 center as well as the facility’s 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.