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POTENTIAL IMPACT OF HYPERSCALE DATA CENTER DEVELOPMENT IN MICHIGAN

PREPARED FOR NETCHOICE



4201 DOMINION BOULEVARD, SUITE 114
GLEN ALLEN, VIRGINIA 23060
804-346-8446

MANGUMECONOMICS.COM





About Mangum Economic Consulting, LLC

Mangum Economics, LLC is a Richmond, Virginia based firm that specializes in producing objective economic, quantitative, and qualitative analysis in support of strategic decision making. Much of our recent work relates to IT & Telecom Infrastructure (data centers, terrestrial and subsea fiber), Renewable Energy, Economic Development, and Tax and Regulatory Policy. Examples of typical studies include:

POLICY ANALYSIS

Identify the intended and, more importantly, unintended consequences of proposed legislation and other policy initiatives.

ECONOMIC IMPACT ASSESSMENTS AND RETURN ON INVESTMENT ANALYSES

Measure the economic contribution that business, education, or other enterprises make to their localities.

CLUSTER ANALYSIS

Use occupation and industry clusters to illuminate regional workforce and industry strengths and identify connections between the two.

The Project Team

David Zorn, Ph.D.

Economist

Martina Arel, M.B.A.

Researcher and Economic Development Specialist

A. Fletcher Mangum, Ph.D.

Founder and CEO

Illustrations of the Development Potential of Data Centers

We illustrate the economic and fiscal impact potential if just one new hyperscale data center were to locate in Michigan. If Michigan were to offer incentives for hyperscale data centers to locate there, the data center that we describe could possibly be constructed in the state. We estimate the economic and fiscal impact of constructing and operating the hypothetical data center in three counties in Michigan – Genesee, Jackson, and Kalamazoo. We use the IMPLAN model to estimate the impacts.

The impact of constructing and operating the same facility in different metropolitan statistical areas varies because different areas are home to different industries that will feed off of the new development. The more populated and more economically diverse a regional economy is, the more of the economic impact the area can absorb. When new development occurs in less populated and less economically diverse areas, then more of the economic development impact spills over into the surrounding areas.

THE ILLUSTRATIVE HYPERSCALE DATA CENTER PROJECT

The hypothetical hyperscale data center that we use for illustration would require a \$750 million investment for construction of the building and for purchase and installation of the computer equipment inside the building. We assume that \$244 million would be spent for construction (including the employment of 1,200 construction workers) in total over the 24 months that a data center of this scale would typically take for construction. We assume that about \$375 million would be spent on computer equipment that is almost always sourced outside of the region of interest and does not contribute to local economic activity. We also assume that \$129 million would be paid to Michigan state wholesale vendors for the purchase and installation of cooling and electrical equipment and materials.

After construction and preparation activities have been completed, the computer equipment is installed and operations can begin. We assume that once it is operational, a data center of this size would hire 100 direct employees, not counting contractors that provide services such as security and maintenance. We also assume that \$60 million would be spent annually on the purchase of electricity. Our assumptions and calculations are based on actual hyperscale, enterprise data center projects in the Midwest and elsewhere and on information about expenditures from data center industry sources.

The Economic Impact in Genesee County, Michigan

Genesee County, Michigan is part of the Detroit-Warren-Ann Arbor Combined Statistical Area. The operational workforce, connectivity, accessibility, and power in the county would be sufficient to support the operation of a hyperscale data center. Construction of a hyperscale data center as well as its ongoing operation would potentially create a direct impact of approximately:

- 1,200 total construction jobs over the two-year construction period,
- 100 full-time new operational jobs,
- \$106.6 million in associated pay and benefits for construction workers,
- \$15 million in associated pay and benefits annually for operating employees,
- \$341 million in economic output in the Genesee County economy over the two-year construction period, and
- \$100 million in economic output annually in the Genesee County economy once operations begin.

After accounting for all of the additional effects that the project would cause as the new investment ripples through the Genesee County economy, a new hyperscale data center would have a potential total economic impact on the Genesee County economy of approximately:

- 3,787 jobs supported during the two-year construction period,
- 100 data center jobs created and 528 additional jobs supported once data center operations begin,
- \$281 million over the two-year construction period in total pay and benefits,
- \$40.4 million in annual pay and benefits once operations begin,
- \$555.8 million during the construction period in total economic output, and
- \$244.3 million annually once operations begin.

In addition to the impact on the Genesee County economy, the impact of the hypothetical data center would create spillover effects in the Michigan economy outside of the Genesee County boundaries. After accounting for all of the additional effects that the project would cause as the new investment ripples through the state economy, a new hyperscale data center would have a potential total economic impact in Michigan (in addition to the impact on the Genesee County economy) of approximately:

- 458 jobs supported during the two-year construction period,
- 60 jobs supported once data center operations begin,
- \$32.7 million over the two-year construction period in total pay and benefits,
- \$6.4 million in annual pay and benefits once operations begin,
- \$100.7 million during the construction period in total economic output, and
- \$14.4 million annually once operations begin.



Table 1 summarizes the total impacts of all of the new economic activity associated with a new data center in Genesee County and the entire state of Michigan.

Table 1: Total Economic Impacts of a Hypothetical Hyperscale Data Center in Genesee County

	Construction Period	Annual Operation
Total Genesee County Jobs Supported	3,787	628
Total Genesee County Pay & Benefits	\$281,000,000	\$40,400,000
Total Genesee County Economic Output	\$555,800,000	\$244,300,000
Total Michigan Jobs Supported	4,245	688
Total Michigan Pay & Benefits	\$313,700,000	\$46,800,000
Total Michigan Economic Output	\$656,500,000	\$258,700,000

The Economic Impact in Jackson County, Michigan

Jackson County is one of the smaller counties in Michigan and not part of a larger combined statistical area. A hyperscale data center located in Jackson County would draw its workforce from Jackson and surrounding counties. The economic activity that it would generate would also spill over into surrounding counties. Connectivity, accessibility, and power would be sufficient to support a hyperscale data center in Jackson County. Construction of a hyperscale data center as well as its ongoing operation would potentially create a direct impact of approximately:

- 1,200 total construction jobs over the two-year construction period,
- 100 full-time new operational jobs,
- \$113.1 million in associated pay and benefits for construction workers,
- \$15 million in associated pay and benefits annually for operating employees,
- \$341 million in economic output in the Jackson County economy over the two-year construction period, and
- \$100 million in economic output annually in the Jackson County economy once operations begin.

After accounting for all of the additional effects that the project would cause as the new investment ripples through the Jackson County economy, a new hyperscale data center would have a potential total economic impact on the Jackson County economy of approximately:

- 3,574 jobs supported during the two-year construction period,
- 100 data center jobs created and 436 additional jobs supported once data center operations begin,
- \$277.1 million over the two-year construction period in total pay and benefits,
- \$40.3 million in annual pay and benefits once operations begin,
- \$520.4 million during the construction period in total economic output, and
- \$235 million annually once operations begin.

In addition to the impact on the Jackson County economy, the impact of the hypothetical data center would create spillover effects in the Michigan economy outside of the Jackson County boundaries. After accounting for all of the additional effects that the project would cause as the new investment ripples through the state economy, a new hyperscale data center would have a potential total economic impact in Michigan (in addition to the impact on the Jackson County economy) of approximately:

- 390 jobs supported during the two-year construction period,
- 70 jobs supported once data center operations begin,
- \$28 million over the two-year construction period in total pay and benefits,
- \$10.8 million in annual pay and benefits once operations begin,
- \$88.5 million during the construction period in total economic output, and
- \$24.8 million annually once operations begin.



Table 2 summarizes the total impacts of all of the new economic activity associated with a new data center in Jackson County and the entire state of Michigan.

Table 2: Total Economic Impacts of a Hypothetical Hyperscale Data Center in Jackson County

	Construction Period	Annual Operation
Total Jackson County Jobs Supported	3,574	536
Total Jackson County Pay & Benefits	\$277,100,000	\$40,300,000
Total Jackson County Economic Output	\$520,400,000	\$235,000,000
Total Michigan Jobs Supported	3,964	606
Total Michigan Pay & Benefits	\$305,100,000	\$51,100,000
Total Michigan Economic Output	\$608,900,000	\$259,800,000

The Economic Impact in Kalamazoo County, Michigan

Kalamazoo County in Western Michigan is part of the Kalamazoo-Battle Creek-Portage, Michigan Combined Statistical Area. The operational workforce, connectivity, accessibility, and power in the county would be sufficient to support the operation of a hyperscale data center. Construction of a hyperscale data center as well as its ongoing operation would potentially create a direct impact of approximately:

- 1,200 total construction jobs over the two-year construction period,
- 100 full-time new operational jobs,
- \$136.3 million in associated pay and benefits for construction workers,
- \$15 million in associated pay and benefits annually for operating employees,
- \$341 million in economic output in the Kalamazoo County economy over the two-year construction period, and
- \$100 million in economic output annually in the Kalamazoo County economy once operations begin.

After accounting for all of the additional effects that the project would cause as the new investment ripples through the economy of Kalamazoo County, a new hyperscale data center would have a potential total economic impact on the Kalamazoo County economy of approximately:

- 3,461 jobs supported during the two-year construction period,
- 100 data center jobs created and 337 additional jobs supported once data center operations begin,
- \$320.4 million over the two-year construction period in total pay and benefits,
- \$34.1 million in annual pay and benefits once operations begin,
- \$562.9 million during the construction period in total economic output, and
- \$189 million annually once operations begin.

In addition to the impact on the Kalamazoo County economy, the impact of the hypothetical data center would create spillover effects in the Michigan economy outside of the Kalamazoo County boundaries. After accounting for all of the additional effects that the project would cause as the new investment ripples through the state economy, a new hyperscale data center would have a potential total economic impact in Michigan (in addition to the impact on the Kalamazoo County economy) of approximately:

- 250 jobs supported during the two-year construction period,
- 110 jobs supported once data center operations begin,
- \$18 million over the two-year construction period in total pay and benefits,
- \$10.2 million in annual pay and benefits once operations begin,
- \$58.4 million during the construction period in total economic output, and
- \$52.5 million annually once operations begin.



Table 3 summarizes the total impacts of all of the new economic activity associated with a new data center in Kalamazoo County and the entire state of Michigan.

Table 3: Total Economic Impacts of a Hypothetical Hyperscale Data Center in Kalamazoo County

	Construction Period	Annual Operation
Total Kalamazoo County Jobs Supported	3,461	437
Total Kalamazoo County Pay & Benefits	\$320,400,000	\$34,100,000
Total Kalamazoo County Economic Output	\$562,900,000	\$189,000,000
Total Michigan Jobs Supported	3,711	547
Total Michigan Pay & Benefits	\$338,400,000	\$44,300,000
Total Michigan Economic Output	\$621,300,000	\$241,500,000

The Known Tax Impacts in Selected Counties in Michigan

We have estimated the local tax impact of a hypothetical, hyperscale data center in the selected Michigan counties by relying on the *2019 Total Property Tax Rates* in Michigan published by the Michigan Department of Treasury.¹ The taxable value of property in Michigan is 50 percent of its assessed value. We take the construction costs and server equipment purchase costs as the assessed value. Real property is taxed at the non-homestead millage rate, while data center server equipment would be taxed at the commercial personal property millage rate.² There is also a six percent state tax on electricity purchases.

For the purpose of illustration only in this report, we have selected possible township and school district jurisdictions for the location of a hyperscale data center in order to identify the applicable taxing authorities and rates. We have no knowledge that any companies are considering data center development in any specific jurisdiction. Our estimates are for illustration only. These are underestimates of total tax revenue because the construction and operation of the data center and its employees would generate other direct tax revenue. Moreover, we do not estimate the additional tax revenue generated by the additional indirect and induced economic activity that the data center will create. Additionally, data centers would be subject to other taxes, such as the state corporate income tax. However, we only have information to estimate these three sources of revenue.

GENESEE COUNTY

In Genesee County, we have hypothesized a location in Gaines Township in the Linden Community School District. During its ongoing operational phase, the hypothetical data center would provide local taxing authorities in Genesee County with tax revenue from two primary revenue sources – real property tax and personal property tax. The energy tax on electricity consumption would contribute to state revenues. Table 4 shows our estimates of those annual tax revenues from a hyperscale data center in Genesee County.

Table 4: Estimated Annual Tax Revenues in Genesee County from the Ongoing Operation of a Hypothetical Hyperscale Data Center

Revenue Source	Assessed Value	Taxable Value	Rate ³	Annual Revenue
Real Estate	\$375,000,000	\$187,500,000	4.88621%	\$9,161,644
Personal Property	\$375,000,000	\$187,500,000	3.68621%	\$6,911,644
Energy	\$60,000,000	\$60,000,000	6%	\$3,600,000
Total Annual Revenue				\$19,673,288

¹ [2019 Total Property Tax Rates](#).

² *Michigan State Tax Commission, Property Classification, November 2018.*

³ [2019 Total Property Tax Rates](#), p. 45.

JACKSON COUNTY

In Jackson County, we have hypothesized a location in Waterloo Township in the Stockbridge Community School District. During its ongoing operational phase, the hypothetical data center would provide local taxing authorities in Jackson County with tax revenue from two primary revenue sources – real property tax and personal property tax. The energy tax on electricity consumption would contribute to state revenues. Table 5 shows our estimates of those annual tax revenues from a hyperscale data center in Jackson County.

Table 5: Estimated Annual Local Authority Revenues in Jackson County from the Ongoing Operation of a Hypothetical Hyperscale Data Center

Revenue Source	Assessed Value	Taxable Value	Rate ⁴	Annual Revenue
Real Estate	\$375,000,000	\$187,500,000	4.64630%	\$8,711,813
Personal Property	\$375,000,000	\$187,500,000	3.44630%	\$6,461,813
Energy	\$60,000,000	\$60,000,000	6%	\$3,600,000
Total Annual Revenue				\$18,773,626

KALAMAZOO COUNTY

In Kalamazoo County, we have hypothesized a location in Climax Township in the Climax-Scotts Community School District. During its ongoing operational phase, the hypothetical data center would provide local taxing authorities in Kalamazoo County with tax revenue from two primary revenue sources – real property tax and personal property tax. The energy tax on electricity consumption would contribute to state revenues. Table 6 shows our estimates of those annual tax revenues from a hyperscale data center in Kalamazoo County.

Table 6: Estimated Annual Local Authority Revenues in Kalamazoo County from the Ongoing Operation of a Hypothetical Hyperscale Data Center

Revenue Source	Assessed Value	Taxable Value	Rate ⁵	Annual Revenue
Real Estate	\$375,000,000	\$187,500,000	5.09093%	\$9,545,494
Personal Property	\$375,000,000	\$187,500,000	3.89093%	\$7,295,494
Energy	\$60,000,000	\$60,000,000	6%	\$3,600,000
Total Annual Revenue				\$20,440,988

⁴ [2019 Total Property Tax Rates](#), p. 75.

⁵ [2019 Total Property Tax Rates](#), p. 76.