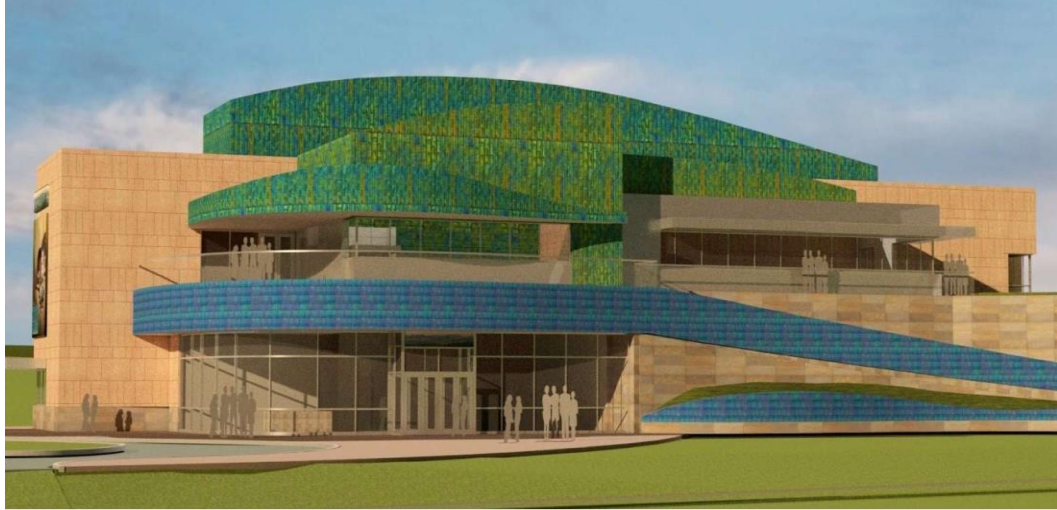




PREPARED FOR  
**Economic Development Authority of Waynesboro**



8/22/2023

# Economic Impact

**VMNH Waynesboro Campus in its  
Service Area**

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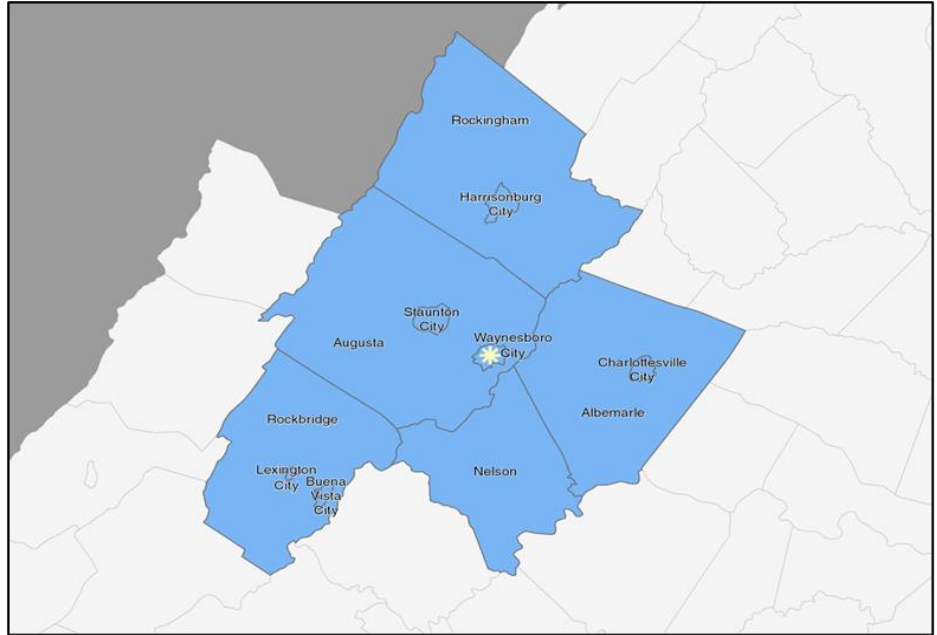
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## 1. Background

The Virginia Museum of Natural History (VMNH) is a state-supported museum headquartered in the City of Martinsville, serving all citizens of the Commonwealth of Virginia. The Virginia Museum of Natural History and the Economic Development Authority of Waynesboro are working to establish a branch museum of VMNH in the City of Waynesboro.<sup>1</sup>

In 2013, Chmura Economics & Analytics (Chmura)<sup>2</sup> completed a feasibility and economic impact study of the proposed Waynesboro campus of VMNH. This report provides an updated analysis of the economic impact of this campus in its core service area (Figure 1.1).<sup>3</sup>

**Figure 1.1: Core Service Area of the Waynesboro Campus**



Source: Economic Development Authority of Waynesboro

The economic impact of the museum’s Waynesboro campus will come from the following three sources:

- One-time construction impact

<sup>1</sup> This branch museum is referred to as the Waynesboro campus of VMNH in this study.

<sup>2</sup> Chmura provides economic software, consulting, and data to our clients that help them make informed decisions to benefit their communities. Chmura’s PhD economists, data scientists, and strategic planners guide clients through their local labor market. Over the past 24 years, Chmura has served hundreds of clients nationwide with thoroughness, accuracy, and objectivity.

<sup>3</sup> The core service area of the Waynesboro campus includes the following eleven localities: the cities of Waynesboro, Staunton, Harrisonburg, Lexington, Buena Vista, and Charlottesville; and the counties of Augusta, Nelson, Rockingham, Rockbridge, and Albemarle. This region is also referred to as the Waynesboro region in this report.

- Ongoing operations
- Visitor spending in the Waynesboro region

The three components identified above (construction, operations, and visitor spending) constitute the direct economic impact of the Waynesboro campus. The total economic impact also includes the economic ripple effects from the direct impact. For example, from visitor spending, indirect effects are benefits to businesses that supply regional hotels or restaurants patronized by museum visitors. Induced effects occur when workers hired by visitor-serving businesses spend their income in the Waynesboro region. Ripple effects are estimated using Chmura's JobsEQ® economic impact model.

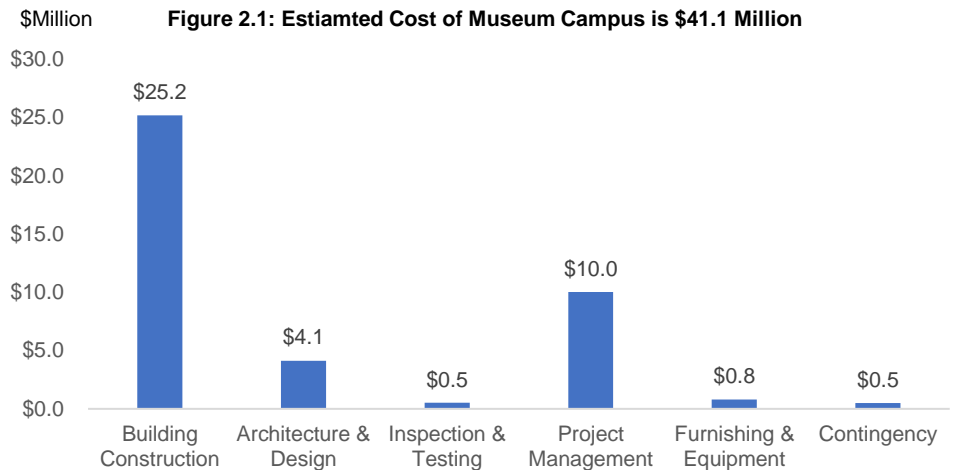
This study also provides the estimated fiscal benefit to the state and local governments from the Waynesboro campus of VMNH. Major state tax revenue sources include sales, individual income, and corporate income. Local governments in the Waynesboro region will benefit from sales, meals, and lodging taxes; business, professional and occupational license (BPOL) tax will also be imposed from construction, operations, and visitor spending.

## 2. Economic Impact of the Waynesboro Campus

### 2.1. Impact from Campus Construction

Construction of the museum will benefit the economy of the Waynesboro region. A variety of industries will be hiring for jobs in construction, architecture and engineering services, and other professional services.

The cost of construction is estimated to be \$41.1 million in 2023 dollars (Figure 2.1). The largest spending category will be building construction (\$25.2 million). Other spending categories include architecture and design; inspection and testing; project management; and furnishing and equipment. It is expected that construction will commence in 2024 and will last about eighteen months.



Source: Economic Development Authority of Waynesboro

Chmura entered the estimated project cost into the JobsEQ economic impact model to calculate the one-time impact of campus construction in the Waynesboro region. Table 2.1 shows that the cumulative economic impact (direct, indirect, and induced) of construction is estimated to be \$47.5 million from 2024 to 2025,<sup>4</sup> supporting 264 cumulative jobs in the Waynesboro region.<sup>5</sup> This includes approximately \$34.2 million directly spent in the region, and 175 cumulative jobs, mostly in construction.<sup>6</sup> The indirect impact is estimated to be \$3.9 million, creating 19 cumulative jobs in industries supporting construction, such as truck transportation and utilities. The induced impact is estimated to be \$9.4 million, supporting 70 cumulative jobs. Since the induced impact is derived from worker wages and salaries, the beneficiaries of this impact are mostly consumer service-related businesses such as retail, food service, and health care. On an annual average basis, construction of the Waynesboro campus of VMNH will inject an estimated \$23.8 million (direct, indirect, and induced impact) into the regional economy, and support 132 jobs in the region from 2024 to 2025.

Table 2.1: Annual Construction Impact is Estimated at \$23.8 Million in the Region (2024 – 2025)

		Direct	Indirect	Induced	Total Impact
Cumulative (2024-2025)	Spending (Million)	\$34.2	\$3.9	\$9.4	\$47.5
	Employment	175	19	70	264
Annual Average (2024-2025)	Spending (Million)	\$17.1	\$1.9	\$4.7	\$23.8
	Employment	87	9	35	132

Note: Numbers may not sum due to rounding.

Source: JobsEQ by Chmura

<sup>4</sup> All revenue and economic figures in this analysis are measured in current dollars unless otherwise noted. Chmura used the average consumer price index (CPI) to convert the impact from fixed-year values to current dollar values.

<sup>5</sup> Estimated jobs include both full-time and part-time positions and are based on the place of work.

<sup>6</sup> This figure is smaller than the total project cost of \$41.1 million because not all project spending will occur in the region.

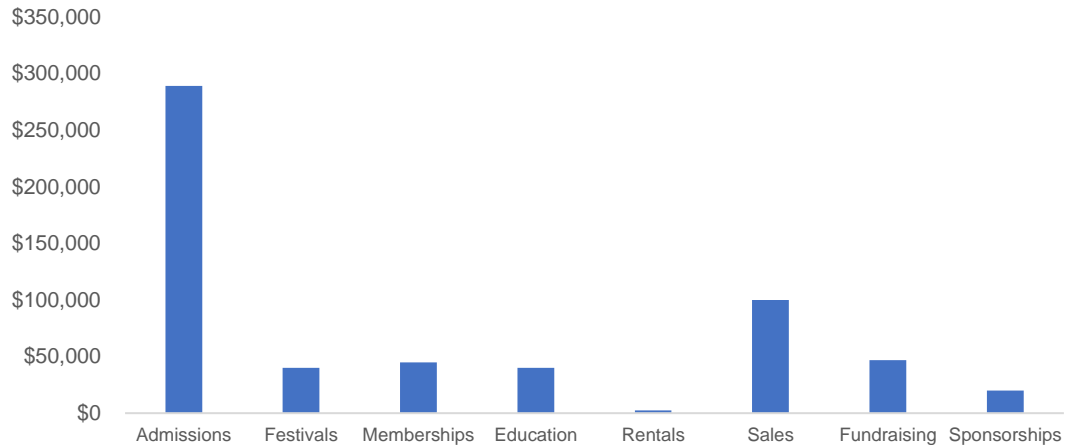
## 2.2. Impact of Museum Campus Operations

The ongoing operations of the Waynesboro campus of the VMNH will also benefit the regional economy. To maintain its operations, the museum campus will utilize various regional businesses in the areas such as security, facility maintenance, and marketing.

The direct impact of campus operations is measured by total revenue. After construction is completed, it is estimated that annual revenue of the campus will be \$583,750 in 2026. This figure comes from admissions, merchandise sales, memberships, and sponsorships, among other revenue sources.<sup>7</sup> The museum campus will also employ five staff members.<sup>8</sup>

Table 2.2 presents the estimated total economic impact of operations in the Waynesboro region in 2026. This is estimated to generate an annual economic impact (including direct, indirect, and induced) of \$1.0 million (in 2026 dollars), which will support eight jobs in the region. Of this total, \$0.6 million is the estimated direct impact in the region, which is equivalent to the total revenue of campus operations in 2026. The direct employment impact is five, which is the number of individuals employed by the museum. Those jobs include management, marketing, and educational staff. The indirect impact in the region is estimated at \$0.1 million in 2026, supporting one job. Examples of beneficiaries include regional businesses providing merchandise or facility services to the museum. The induced impact in the region is estimated at \$0.3 million in 2026, supporting two jobs.

Figure 2.2: Estimated Annual Revenue of the Museum is \$0.6 Million



Source: Economic Development Authority of Waynesboro

Table 2.2: Annual Operations Impact is Estimated at \$1.0 Million in the Region in 2026

	Direct	Indirect	Induced	Total Impact
Spending (Million)	\$0.6	\$0.1	\$0.3	\$1.0
Employment	5	1	2	8

Note: Numbers may not sum due to rounding.

Source: JobsEQ by Chmura

<sup>7</sup> Data provided by the Economic Development Authority of Waynesboro. Note that this number is conservative, and it does not include potential revenue from state appropriations.

<sup>8</sup> Ibid.

### 2.3. Economic Impact of Visitor Spending

The Waynesboro campus of VMNH is expected to attract 65,000 annual visitors after it is completed.<sup>9</sup> These visitors are also expected to patronize other businesses in the region, and this spending will generate sizeable economic impact in the area.

Average visitor spending is estimated based on visitor profile data collected by the Virginia Tourism Corporation (VTC).<sup>10</sup> The latest VTC survey data indicate that a typical leisure visitor in Virginia spent an average of \$49.30 per person per day in 2020. Assuming visitor spending in future years will increase according to the consumer price index,<sup>11</sup> total spending by campus visitors is estimated at \$3.3 million in 2026.

**Table 2.3: Annual Visitor Spending Impact is Estimated at \$3.2 Million in the Region in 2026**

	Direct	Indirect	Induced	Total Impact
<b>Spending (Million)</b>	\$2.4	\$0.3	\$0.5	\$3.2
<b>Employment</b>	23	1	4	28

*Note: Numbers may not sum due to rounding.*

*Source: JobsEQ by Chmura*

While the Waynesboro region is rather large, it is likely that not all VMNH associated visitor spending will occur within the region. Chmura assumes all visitor spending will occur within a one-hour drive of the museum campus. Under that assumption, Chmura estimated that 73% of total visitor spending will occur in the Waynesboro region. As a result, of the total \$3.3 million direct spending by campus visitors in 2026, \$2.4 million is estimated to be spent within the region. This amount excludes spending on tickets and merchandise at the museum campus, which is part of the operational impact. According to the VTC study, visitor spending is allocated to different sectors such as gasoline and parking; food and drink; lodging; and shopping.

Direct visitor spending will also generate ripple economic impacts in the region. The total annual economic impact (direct, indirect, and induced) of visitor spending is estimated to be \$3.2 million in the Waynesboro region, which can support 28 jobs in 2026 (Table 2.3). Of this total, \$2.4 million is the estimated direct impact, supporting 23 jobs in the regional tourism industry. The indirect impact is estimated at \$0.3 million in 2026, supporting one job in the region. The induced impact is estimated at \$0.5 million in 2026, supporting four jobs in the region.

### 2.4. Sustained Economic Impact Summary

Combining operations and visitor spending, Table 2.4 presents the overall sustained economic impact of the museum campus in 2026, after construction is complete. The annual total economic impact (including direct, indirect, and induced) is estimated to be \$4.2 million (in 2026 dollars) that can support 36 jobs in the Waynesboro region.

**Table 2.4: Annual Sustained Museum Impact is Estimated at \$4.2 Million in the Region in 2026**

	Direct	Indirect	Induced	Total Impact
<b>Spending (Million)</b>	\$3.0	\$0.5	\$0.7	\$4.2
<b>Employment</b>	28	2	6	36

*Note: Numbers may not sum due to rounding.*

*Source: JobsEQ by Chmura*

<sup>9</sup> Chmura Economics & Analytics, "Feasibility and Economic Impact Analysis of a Branch Museum of VMNH in Waynesboro", April 2013.

<sup>10</sup> Virginia Tourism Corporation, "Travel Data and Profiles", accessed December 12, 2022, <https://www.vatc.org/research/travel-data-and-profiles/>.

<sup>11</sup> Average CPI increase is assumed to be 2.65% per year, which is the annual average from 2010 to the first half of 2023.

### 3. State and Local Fiscal Impact

Construction of the museum campus in Waynesboro, along with operations and associated visitor spending, can generate tax revenue for local and state governments. Major sources of state tax revenue include sales, individual income, and corporate income. Local governments in the Waynesboro region may benefit from sales, meals, and lodging taxes as well as the business, professional and occupational license (BPOL) tax. To be conservative, only tax revenue from the direct impact was estimated.<sup>12</sup>

#### 3.1. One-Time Tax Revenue from Campus Construction

During the construction period of the museum campus, construction spending is subject to local BPOL tax. Chmura used the average BPOL rate of all localities in the Waynesboro region to estimate this tax. The cumulative BPOL tax for local governments is estimated to be \$42,412 from 2024 to 2025 (Table 3.1).

**Table 3.1: Construction is Estimated to Generate One-Time Revenue of \$0.8 Million (2024 – 2025)**

Tax Category	Local Governments in Service Area	State Government	Total
BPOL	\$42,412		\$42,412
Individual Income		\$657,254	\$657,254
Corporate Income		\$137,513	\$137,513
<b>Total</b>	<b>\$42,412</b>	<b>\$794,766</b>	<b>\$837,178</b>

*Note: Numbers may not sum due to rounding.*

*Source: Chmura*

The state government is expected to receive individual and corporate income taxes from construction spending.

Chmura first estimated the percentage of construction spending that will be wages and salaries and corporate profits, before applying respective state income tax rates.<sup>13</sup> It is estimated that the state government can receive \$657,254 in cumulative individual income tax and \$137,513 in cumulative corporate income tax from 2024 to 2025.

#### 3.2. Tax Revenue from Campus Operations

VMNH is a state agency and thus will be exempt from several state and local taxes. This includes taxes on property and corporate income.

**Table 3.2: Operations are Estimated to Generate \$22,013 Annual Revenue (2026)**

Tax Category	Local Governments in Service Area	State Government	Total
Sales	\$1,000	\$4,300	\$5,300
Individual Income		\$16,713	\$16,713
<b>Total</b>	<b>\$1,000</b>	<b>\$21,013</b>	<b>\$22,013</b>

*Note: Numbers may not sum due to rounding.*

*Source: Chmura*

However, retail sales at the museum gift shop will be subject to sales tax. Virginia charges 5.3% sales tax on retail items; 1% of retail sales is returned to the local government. Based on estimated sales at

the campus, the sales tax is estimated to be \$1,000 for the City of Waynesboro and \$4,300 for the state in 2026 (Table 3.2).

<sup>12</sup> This approach is recommended by Burchell and Listokin in *The Fiscal Impact Handbook*. Source: Burchell, R.W. and Listokin, D. 1978. *The Fiscal Impact Handbook: Estimating Local Costs and Revenues of Land Development*. Center for Urban Policy Research, New Brunswick, NJ; Rutgers, The State University of New Jersey.

<sup>13</sup> Based on regional average wages, the state individual income tax rate is 5.3%, while the state corporate income tax rate is 6.0%. This information is from the Virginia Department of Taxation.

In addition, the state government is estimated to receive \$16,713 in annual individual income tax, based on estimated wages of the individuals working at the Waynesboro campus.

### 3.3. Fiscal Impact from Visitor Spending

Visitor spending outside the museum campus will also generate tax revenue for the state and local governments in the Waynesboro region. To estimate local tax revenue, Chmura applied the average tax rate of all localities in the Waynesboro region to different spending items.

First, state and local sales taxes are applied to visitor spending on retail, food, and lodging. Sales tax revenue is estimated to be \$23,212 for local governments in the region, and \$99,812 for the state of Virginia (Table 3.3).

**Table 3.3: Visitor Spending is Estimated to Generate \$275,013 Annual Revenue (2026)**

Tax Category	Local Regional Governments	State Government	Total
Sales	\$23,212	\$99,812	\$123,024
Meals	\$40,211		\$40,211
Lodging	\$63,417		\$63,417
BPOL	\$3,801		\$3,801
Individual Income		\$37,396	\$37,396
Corporate Income		\$7,164	\$7,164
<b>Total</b>	<b>\$130,641</b>	<b>\$144,372</b>	<b>\$275,013</b>

*Note: Numbers may not sum due to rounding.*

*Source: Chmura*

Visitor spending in restaurants is subject to the local meals tax. The average meals tax rate is 6.20%.<sup>14</sup> As a result, the regional meals tax revenue is estimated to be \$40,211 in 2026. Similarly, visitor spending on accommodations is subject to the local lodging tax; the local rate averages 6.31%. The lodging tax is estimated to be \$63,417 in 2026. Finally, visitor spending is estimated to generate \$3,801 in BPOL tax for local governments in the Waynesboro region.

In addition, the state government is expected to receive \$37,396 annual individual income tax and \$7,164 corporate income tax from visitor spending in the region.

In summary, visitor spending is estimated to generate \$130,641 in tax revenue for local governments in the Waynesboro region, and \$144,372 in tax revenue for the state government in 2026.

### 3.4. Sustained Fiscal Impact Summary

After museum campus is constructed, campus operations and visitor spending will generate sustained tax revenue for local and state governments. Combining tax revenue from museum operations and visitor spending (adding those in Table 2 and Table 3), the Waynesboro campus of VMNH is estimated to generate \$297,026 annual tax in 2026, with \$131,641 to the local governments in Waynesboro region, and \$165,385 for the state government.

<sup>14</sup> Chmura collected data from various county and city websites.



## Appendix 1: Impact Analysis Glossary

*Input-Output Analysis*—an examination of business-business and business-consumer economic relationships capturing all monetary transactions in a given period, allowing one to calculate the effects of a change in an economic activity on the entire economy (impact analysis).

*Direct Impact*—economic activity generated by a project or operation. For construction, this represents the activity of the contractor; for operations, this represents activity by tenants of the property.

*Overhead*—construction inputs not provided by the contractor.

*Indirect Impact*—secondary economic activity that is generated by a project or operation. An example might be a new office building generating demand for parking garages.

*Induced (Household) Impact*—economic activity generated by household income resulting from direct and indirect impacts.

*Ripple Effect*—the sum of induced and indirect impacts. In some projects, it is more appropriate to report ripple effects than indirect and induced impacts separately.

*Multiplier*—the cumulative impacts of a unit change in economic activity on the entire economy.

