

JANUARY 21, 2022

# SHENANDOAH VALLEY REGION

## ECONOMIC IMPACT OF FILLING VACANCIES



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## About Mangum Economics, LLC

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Mangum Economics, LLC is a Glen Allen, 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, and Economic Development. 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 businesses and other enterprises make to their localities.

### WORKFORCE ANALYSIS

Project the demand for, and supply of, qualified workers.

### CLUSTER ANALYSIS

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

## The Project Team

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



## Introduction

This memo provides an assessment of the economic impact of filling 3,105 vacant positions in the Shenandoah Valley region. This assessment was commissioned by the Shenandoah Valley Partnership and produced by Mangum Economics.

## Shenandoah Valley Vacancies

According to the Shenandoah Valley Partnership, the Shenandoah Region currently has approximately 3,105 unfilled positions in its manufacturing and distribution sectors (see Table 1).

**Table 1: Unfilled Positions in the Shenandoah Valley by 2-digit NAICS<sup>1</sup>**

2-digit NAICS Code	Unfilled Positions	Average Hourly Wage
31 – Food, Textile, and Related Products Manufacturing	1,245	\$18.21
32 – Wood, Chemical, Mineral, and Related Products Manufacturing	525	\$21.81
33 – Metal, Electronic, and Related Products Manufacturing	985	\$22.67
42 – Wholesale Trade	350	\$17.71
<b>Total</b>	<b>3,105</b>	<b>\$20.18</b>

## Economic Impact of Filling Shenandoah Valley Vacancies

In estimating the economic impact of these unfilled positions, the analysis employs a regional economic impact model called IMPLAN.<sup>2</sup> Like all economic impact models, the IMPLAN model uses economic multipliers to quantify economic impact. Economic multipliers measure the ripple effects that an expenditure generates as it makes its way through the economy. For example, when a company purchases goods and services – or when employees of the facility use their salaries and wages to make household purchases – thereby generating income for someone else, which is in turn spent, thereby becoming income for yet someone else, and so on, 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, which are then

<sup>1</sup> Data Source: Shenandoah Valley Partnership. Please note that although the unfilled positions and economic impact results are provided at a 2-digit NAICS Code level, the analysis was performed based on 21 industry specific NAICS codes and industry sectors.

<sup>2</sup> IMPLAN is produced by IMPLAN Group, LLC.

further adjusted to reflect anticipated actual spending patterns within the specific geographic study 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 study area, being evaluated.

In the analysis that follows, these impact estimates are divided into three categories. First-round direct impact measures the direct economic contribution of the entities being evaluated (e.g., additional employment, wages paid, goods and services purchased). Second round indirect impact measures the economic ripple effects of this direct impact in terms of business-to-business transactions, while the induced impact measures the household (employee) to business transactions. Total impact is simply the sum of the three. These categories of impact are then further defined in terms of employment (the jobs that are created), labor income (the wages and benefits associated with those jobs), and economic output (the total amount of economic activity that is created in the economy).

Applying the assumptions stated in Table 1 results in the economic impact summarized in Tables 2 through 6.

### Total Economic Impact

As shown in Table 2, filling the 3,105 current vacancies could provide a direct impact of approximately \$183.6 million in labor income and \$1.4 billion in economic output to the Shenandoah Valley Region.

Taking into account the economic ripple effects, filling the current vacancies in the Shenandoah Valley would support a total of approximately: 1) 6,623 jobs, 2) \$336.5 million in labor income, 3) \$2.0 billion in economic output (in 2022 dollars).

**Table 2: Economic Impact of Filling Vacancies in Shenandoah Valley (in 2022 dollars)**

	Jobs	Labor Income	Output
Direct Impact	3,105	\$183,552,675	\$1,420,524,862
Indirect Impact	2,254	\$101,812,391	\$399,192,097
Induced Impact	1,264	\$51,156,503	\$181,820,358
<b>Total</b>	<b>6,623</b>	<b>\$336,521,569</b>	<b>\$2,001,537,317</b>

### Impact of NAICS Sector 31 – Food, Textile, and Related Products Manufacturing

**Table 3: Economic Impact of Filling Vacancies in the NAICS 31 Sector in Shenandoah Valley (in 2022 dollars)**

	Jobs	Labor Income	Output
Direct Impact	1,245	\$66,428,170	\$512,881,861
Indirect Impact	1,102	\$41,658,363	\$200,897,597
Induced Impact	476	\$19,252,019	\$68,422,376
<b>Total</b>	<b>2,823</b>	<b>\$127,338,552</b>	<b>\$782,201,834</b>

## Impact of NAICS Sector 32 – Wood, Chemical, Mineral, and Related Products Manufacturing

**Table 4: Economic Impact of Filling Vacancies in the NAICS 32 Sector Shenandoah Valley (in 2022 dollars)**

	Jobs	Labor Income	Output
Direct Impact	525	\$33,543,661	\$228,844,398
Indirect Impact	253	\$13,482,032	\$48,534,502
Induced Impact	209	\$8,458,973	\$30,066,382
<b>Total</b>	<b>987</b>	<b>\$55,484,666</b>	<b>\$307,445,281</b>

## Impact of NAICS Sector 33 – Metal, Electronic, and Related Products Manufacturing

**Table 5: Economic Impact of Filling Vacancies in the NAICS 33 Sector in Shenandoah Valley (in 2022 dollars)**

	Jobs	Labor Income	Output
Direct Impact	985	\$65,417,464	\$568,231,869
Indirect Impact	614	\$33,566,661	\$109,491,511
Induced Impact	440	\$17,806,798	\$63,291,029
<b>Total</b>	<b>2,039</b>	<b>\$116,790,923</b>	<b>\$741,014,408</b>

## Impact of NAICS Sector 42 – Wholesale Trade

**Table 6: Economic Impact of Filling Vacancies in the NAICS 42 Sector in Shenandoah Valley (in 2022 dollars)**

	Jobs	Labor Income	Output
Direct Impact	350	\$18,163,380	\$110,566,735
Indirect Impact	285	\$13,105,335	\$40,268,488
Induced Impact	139	\$5,638,713	\$20,040,571
<b>Total</b>	<b>774</b>	<b>\$36,907,428</b>	<b>\$170,875,793</b>