

# **A 2021 Update: The Economic Impact of a Great Wolf Lodge in Perryville, Maryland**

Submitted by:  
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Submitted to:  
The Town of Perryville

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# **The Economic Impact of a Great Wolf Lodge Resort in Perryville, Maryland**

## **Executive Summary**

The Town of Perryville (the Town) commissioned Sage Policy Group, Inc. (Sage) to conduct an economic and fiscal impact study of a prospective Great Wolf Lodge (GWL) in Perryville in January 2019. That initial analysis pertained to a planned 450-room GWL. This update examines the impacts associated with a 700-room GWL, using IMPLAN economic modeling software to produce estimates of jobs, labor income, and economic activity attributable to the resort's development and operations. These economic impacts produce fiscal impacts, which have also been re-computed. Note that all findings in this report are presented in 2021 dollars.

### ***Economic Impacts***

The construction phase of the new resort will support over 2,600 jobs in Cecil County and an additional 74 jobs in the balance of Maryland. Those jobs will be associated with more than \$132 million in labor income and more than \$350 million in economic activity. These impacts are supported over the course of the development/construction phase.

Once operational and stabilized, the resort will support approximately 770 full & part time jobs at the lodge itself and nearly 1,100 jobs in total once visitor spending and multiplier effects are considered. Those jobs, which would exist on an ongoing basis, would be associated with over \$33 million in annual labor income. The lodge's operations would directly and indirectly support more than \$100 million in annual economic impact.

### ***Fiscal Impacts***

The Town of Perryville and Cecil County are offering GWL a package of resources and incentives to establish a resort in Perryville via contributions, tax credits, grants, and fee reductions. This analysis accounts for these prospective contributions to what would effectively be a public-private partnership to drive more economic activity to Perryville and Cecil County. The Sage study team also accounts for the expanded demand for local government services that would be attributable to the lodge's presence in the community.

Based on our analysis, we conclude that through the lodge's initial twenty-five years of operations, Perryville's net revenues will be augmented by approximately \$25 million including impact fees. If one excludes impact fees, the net fiscal benefit to the Town will still exceed \$21 million over the initial 25 years of operations. Incremental fiscal benefits to the Town will be positive in all years, reaching their lowest level in the 5<sup>th</sup> year at roughly \$623,000 before increasing to more than \$1 million by the 25<sup>th</sup> year of operations.

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## Introduction

In January 2019, The Town of Perryville (Town) commissioned Sage Policy Group, Inc. (Sage) to conduct an economic and fiscal impact study of a prospective Great Wolf Lodge (GWL) in Perryville to be situated on approximately 44 acres along Chesapeake Overlook Parkway adjacent to Hollywood Casino. This report updates the initial findings from 2019 report to reflect the addition of 250 additional rooms, bringing what was initially planned as a 450-room Lodge to a 700-room lodge and increasing associated capital investment from approximately \$215 million to nearly \$305 million.

This update provides economic and fiscal impact estimates for the incremental 250 rooms as well as the entire 700-room facility and begins with the economic impact of the capital investment phase, which supports one-time economic and fiscal impacts that end once construction is complete. The study then turns to an assessment of the operational phase, which is associated with ongoing, annual support for economic and fiscal impacts.

As with the original impact assessment, Sage uses custom models generated using IMPLAN economic modeling software to generate estimates of employment, labor income, and output (which can broadly be understood as economic activity, or the value of goods and services sold). Appendix A at the end of this report supplies guidance regarding how to interpret economic impact findings.

The final section of this update examines the fiscal impacts of GWL on the Town. This analysis fully embodies the fiscal implications of an incentive package that has been designed and designated for GWL that includes contributions, performance-based tax credits, grants, and fee reductions, though not all of that is to be supplied by the Town. Note that these incentives are performance based and that without them, the Lodge would not be possible. Costs in the form of incentives and augmented local government costs of service are computed, as are offsetting tax revenue impacts. This allows the study team to determine whether the project would represent a net fiscal positive or negative for the Town over the course of two and a half decades. Note that this analysis concerns itself only with Town-level fiscal impacts and does not consider County-level finances.

## I. Construction Economic Impacts

Compared to the initial plans, capital expenditures associated with the additional 250 rooms will support an additional 770 jobs, \$38 million in employee compensation, and \$100 million in economic activity in Cecil County. Note that these impact estimates are all presented in 2021 dollars. Exhibit 1 presents the incremental impacts associated with the 250-room addition to the original plan.

Exhibit 1: Incremental Construction Phase Economic Impacts for Additional 250 Rooms

	Jobs	Employee Compensation	Value Added	Business Sales
<b><i>Cecil County</i></b>				
Direct effects	568	\$31,351,864	\$40,036,133	\$76,973,078
Indirect effects	78	\$2,758,256	\$4,543,923	\$8,798,006
Induced effects	126	\$4,195,600	\$8,621,947	\$15,043,479
<b>County Total</b>	<b>772</b>	<b>\$38,305,720</b>	<b>\$53,202,003</b>	<b>\$100,814,564</b>
<b><i>Remainder of Maryland</i></b>				
Direct effects	-	-	-	-
Indirect effects	13	\$1,015,631	\$1,418,900	\$2,879,575
Induced effects	8	\$428,491	\$727,398	\$1,204,841
<b>Remainder of MD Total</b>	<b>21</b>	<b>\$1,444,121</b>	<b>\$2,146,299</b>	<b>\$4,084,415</b>
<b>State Total</b>	<b>794</b>	<b>\$39,749,841</b>	<b>\$55,348,302</b>	<b>\$104,898,979</b>

Source: Sage, IMPLAN (all dollar estimates presented in this update measured in \$2021 unless specified otherwise).

In total, the expanded lodge will cost nearly \$305 million to build and will support more than 2,600 jobs, \$127 million in employee compensation, and \$340 million in economic activity in Cecil County. Exhibit 2 contains fully summary detail.

Exhibit 2: Total Construction Phase Economic Impacts

	Jobs	Employee Compensation	Value Added	Business Sales
<b><i>Cecil County</i></b>				
Direct effects	1,921	\$104,312,727	\$133,523,730	\$259,243,458
Indirect effects	277.4	\$9,603,880	\$15,729,549	\$30,565,490
Induced effects	422	\$14,012,300	\$28,795,487	\$50,241,852
<b>County Total</b>	<b>2,620</b>	<b>\$127,928,907</b>	<b>\$178,048,766</b>	<b>\$340,050,800</b>
<b><i>Remainder of Maryland</i></b>				
Direct effects	-	-	-	-
Indirect effects	47.4	\$3,526,481	\$4,906,145	\$9,864,352
Induced effects	26.7	\$1,467,041	\$2,493,922	\$4,128,883
<b>Remainder of MD Total</b>	<b>74.2</b>	<b>\$4,993,521</b>	<b>\$7,400,068</b>	<b>\$13,993,234</b>
<b>State Total</b>	<b>2,695</b>	<b>\$132,922,428</b>	<b>\$185,448,834</b>	<b>\$354,044,034</b>

Source: Sage, IMPLAN (all dollar estimates presented in this report measured in \$2018 unless specified otherwise).

## II. Operational Economic Impacts

Once the GWL is operational in Perryville, economic impacts will stem from two sources: 1) the GWL’s operations and 2) local spending by the approximately 778,000 visitors who will come to the area to visit GWL each year. This second parameter represents an increase from the 500,000 annual visitors expected to visit the previously planned 450-room facility. The expanded 700-room facility will employ an estimated 770 full and part time employees—compared to 600 employees that would have been employed at the 450-room facility—with additional staffing increases to assist during peak seasons.

There are several important considerations regarding estimates of operational phase impacts:

1. GWL is a destination resort, meaning virtually all of its customers will be coming from outside of the study area;
2. It is expected that customers will primarily spend monies at the resort as opposed to at other local businesses. This presumption could ultimately prove flawed, but these lodges are amenity rich and provide opportunities for eating, shopping, and staying overnight;
3. Even if one accepts premise number two, the associated direct jobs by themselves represent more than half of Perryville’s 2015 employment level according to U.S. Census Bureau data.

Once multiplier effects are considered, the 700-room GWL will support approximately 120 more jobs than the 450-room facility would have. Associated employee compensation will increase by more than \$3 million per annum while business sales will be bolstered by an incremental \$16 million. Exhibit 3 contains summary detail.

Exhibit 3: Incremental Operational Phase Economic Impacts (Year 3, Stabilized), 700-Room Facility v. 450-Room Facility

	Jobs	Employee Compensation	Value Added	Business Sales
<b><i>Cecil County</i></b>				
Direct effects	82	\$2,192,220	\$5,703,282	\$12,413,750
Indirect effects	25	\$820,727	\$1,205,269	\$2,308,654
Induced effects	13	\$370,550	\$770,040	\$1,308,996
<b>County Total</b>	<b>119</b>	<b>\$3,383,497</b>	<b>\$7,678,591</b>	<b>\$16,031,400</b>
<b><i>Remainder of Maryland</i></b>				
Indirect effects	2	\$104,377	\$149,620	\$270,428
Induced effects	1	\$41,731	\$71,782	\$116,120
<b>Remainder of MD Total</b>	<b>3</b>	<b>\$146,107</b>	<b>\$221,402</b>	<b>\$386,548</b>
<b>State Total</b>	<b>122</b>	<b>\$3,529,604</b>	<b>\$7,899,993</b>	<b>\$16,417,948</b>

Source: Sage, IMPLAN

In total, the 700-room GWL will support nearly 1,100 jobs in Cecil County—including the 770 at the GWL—associated with more than \$32 million in employee compensation on an annual basis (once operations stabilize in year 3). Countywide business sales (the sum of goods and services sold throughout the economy) will be augmented by more than \$100 million per annum as a result of the GWL. A small portion of impact will spill over into the balance of the state, with 15 jobs and about \$900,000 in employee compensation being supported elsewhere within Maryland. Exhibit 3 supplies summary detail for operational phase economic impacts.

Exhibit 4: Operational Phase Economic Impacts (Year 3, Stabilized), 700-Room Facility

	Jobs	Employee Compensation	Value Added	Business Sales
<b><i>Cecil County</i></b>				
Direct effects	847	\$24,017,365	\$44,936,899	\$73,465,670
Indirect effects	140	\$4,875,939	\$7,059,921	\$13,822,407
Induced effects	107	\$3,546,728	\$7,283,685	\$12,712,621
<b>County Total</b>	<b>1,094</b>	<b>\$32,440,032</b>	<b>\$59,280,505</b>	<b>\$100,000,698</b>
<b><i>Remainder of Maryland</i></b>				
Indirect effects	10	\$612,264	\$864,584	\$1,576,915
Induced effects	5	\$295,982	\$496,028	\$825,156
<b>Remainder of MD Total</b>	<b>15</b>	<b>\$908,246</b>	<b>\$1,360,612</b>	<b>\$2,402,071</b>
<b>State Total</b>	<b>1,109</b>	<b>\$33,348,278</b>	<b>\$60,641,117</b>	<b>\$102,402,769</b>

Source: Sage, IMPLAN

### III. Fiscal Impacts

The Town of Perryville and Cecil County are offering GWL a package of resources and incentives to establish a resort in Perryville. To the extent that the Town is prepared to supply incentives, those have been encapsulated in this analysis regarding fiscal implications for Perryville. Note that this update does not provide the incremental fiscal impacts associated with the expanded GWL due to changes in tax rates—both published and effective—that have occurred between authorship of the original report and the present. Because of changes in published and effective tax rates as well as the significant upscaling of the project, much of the prior fiscal assessment is no longer relevant.

#### *Impact Fees*

Absent assistance, GWL would owe Perryville more than \$7.12 million in impact fees, \$960,000 of which is generated by the incremental addition of 250 rooms. The Town, as part of its grant-incentive package, is prepared to provide an impact fee reduction totaling \$1.13 million. That brings the total impact fee liability to approximately \$5.99 million. The Town will also provide an estimated \$2.5 million in infrastructure improvements deemed necessary to accommodate the resort. Accounting for this infrastructure investment, the net impact fees accruing to the Town will total approximately \$3.5 million. Note that the water and sewer connection fees increased from \$5,000 to \$7,000 per equivalent dwelling unit (EDU) in November 2020, and GWL has agreed to pay the higher fee on the additional rooms (which equate to 64 EDUs). Exhibit 3 supplies relevant summary detail.

Exhibit 3: Impact Fee and Upfront Incentives, Town of Perryville

	Impact Fee	Incentive
Water Connection Fees	\$3,248,000	
Sewer Connection & Facility Fees	\$3,872,000	
<b>Subtotal Gross Impact Fees</b>	<b>\$7,120,000</b>	
Impact Fee Reduction		\$1,128,000
Total due to Town from GWL	<b>\$5,992,000</b>	
Improvements to Water and Sewer System		\$2,500,000
Total Net Impact Fees		<b>\$3,492,000</b>

Source: Town of Perryville

#### *Construction Phase Fiscal Impacts*

During the construction phase, GWL will pay a bit more than \$665,000 in direct property taxes to the Town.

***Real Property Taxes***

The Town of Perryville taxes real property at a rate of \$0.3597 per \$100 of assessed value (or 0.3597 percent). Cecil County applied to the State to designate the relevant property as a Maryland Enterprise Zone, and that application was approved, allowing GWL to receive a ten-year tax credit against local property taxes for a portion of real property improvements to the site. The real property tax credit will represent 80 percent of tax liability for the first five years and will then decrease by 10 percent annually to 30 percent during the final year of the tax credit.

The State of Maryland, per Maryland Tax Property Article §9-103(h), will refund 50 percent of property tax credits issued under an Enterprise Zone Designation. While this is subject to State Budgetary Appropriations, this analysis assumes Perryville will receive the full 50 percent remittance.

Over the ten-year period, GWL will receive a bit more than \$4.3 million in real property tax credits. Perryville will receive approximately \$2.4 million in real property tax revenues and another \$2.1 million in remittance from the State. Exhibit 4 provides summary detail for the ten years during which the tax credit would persist. The figures presented in Exhibit 4 do not account for inflation or appreciation.

Exhibit 4: Real Property Tax Credits and Payments

Year	GWL Real Property Tax Liability (To Perryville)	Real Property Tax Credits	Remittance from State	Real Property Tax Revenues to Town <sup>1</sup>
1	\$669,761	\$535,809	\$267,905	\$401,857
2	\$669,761	\$535,809	\$267,905	\$401,857
3	\$669,761	\$535,809	\$267,905	\$401,857
4	\$669,761	\$535,809	\$267,905	\$401,857
5	\$669,761	\$535,809	\$267,905	\$401,857
6	\$669,761	\$468,833	\$234,416	\$435,345
7	\$669,761	\$401,857	\$200,928	\$468,833
8	\$669,761	\$334,881	\$167,440	\$502,321
9	\$669,761	\$267,905	\$133,952	\$535,809
10	\$669,761	\$200,928	\$100,464	\$569,297
<b>Total</b>	<b>\$6,697,614</b>	<b>\$4,353,449</b>	<b>\$2,176,725</b>	<b>\$4,520,889</b>
<b>25 Year Total</b>	<b>\$16,744,035</b>	<b>\$4,353,449</b>	<b>\$2,176,725</b>	<b>\$14,567,310</b>

Source: Sage, Town of Perryville, Great Wolf Lodge

<sup>1</sup> Includes Remittance from State

***Personal Property Tax Grants***

The Town of Perryville taxes personal property at a rate of \$0.94 per \$100 of assessed value (or 0.94%). Perryville has agreed to provide GWL with a personal property grant of 50 percent of annual personal property taxes capped at \$1.5 million. According to projections supplied by GWL and the Town, that cap will be reached during the 24<sup>th</sup> year of the agreement. After the first 25 years of GWL operations, Perryville will have collected more than \$1.6 million in personal property tax revenues despite the grants – revenues that would not be collected absent Great Wolf Lodge development. See Exhibit 5 for summary statistical detail.

Exhibit 5: Personal Property Tax Credits and Payments

Year	Personal Property Taxes Liability	Personal Property Grants	Town Personal Property Tax Revenues
1	\$338,400	\$169,200	\$169,200
2	\$293,280	\$146,640	\$146,640
3	\$248,160	\$124,080	\$124,080
4	\$203,040	\$101,520	\$101,520
5	\$157,920	\$78,960	\$78,960
6	\$112,800	\$56,400	\$56,400
7	\$94,000	\$47,000	\$47,000
8	\$94,000	\$47,000	\$47,000
9	\$94,000	\$47,000	\$47,000
10	\$94,000	\$47,000	\$47,000
11	\$94,000	\$47,000	\$47,000
12	\$94,000	\$47,000	\$47,000
13	\$94,000	\$47,000	\$47,000
14	\$94,000	\$47,000	\$47,000
15	\$94,000	\$47,000	\$47,000
16	\$94,000	\$47,000	\$47,000
17	\$94,000	\$47,000	\$47,000
18	\$94,000	\$47,000	\$47,000
19	\$94,000	\$47,000	\$47,000
20	\$94,000	\$47,000	\$47,000
21	\$94,000	\$47,000	\$47,000
22	\$94,000	\$47,000	\$47,000
23	\$94,000	\$47,000	\$47,000
24	\$94,000	\$24,200	\$69,800
25	\$94,000	-	\$94,000
<b>Total</b>	<b>\$3,139,600</b>	<b>\$1,500,000</b>	<b>\$1,639,600</b>

Source: Sage, Town of Perryville, Great Wolf Lodge

## *Hotel Tax Grants*

Cecil County collects a 6 percent hotel tax on behalf of the Town of Perryville, but retains 5 percent of hotel tax collections (i.e., \$1 out of every \$20) for administrative costs. Under the incentive package, the Town of Perryville will supply a grant to GWL for 90 percent of its share of hotel tax collections for a period of 25 years. The Town will also supply a grant to GWL for 75 percent of the share remaining for the first ten years and 50 percent of the remaining share for the following 15 years. Put in simpler language, The Town of Perryville’s grant will effectively reimburse GWL for 97.5 percent of its share of hotel tax revenues for ten years and for 95 percent of its share of hotel tax revenues for the ensuing 15 years. Over the 25-year period, Perryville would forego approximately \$87.7 million in hotel tax collections and retain \$3.7 million. Exhibit 6 supplies summary detail, with a thicker horizontal line denoting the point at which tax forgiveness is cut from 97.5 percent to 95 percent.

Exhibit 6: Hotel Tax Liabilities, Collections, and Reimbursements (\$2021)

Year	GWL Hotel Tax Liability	Town Share of Hotel Tax Collections	Hotel Tax Grants from Town	Town Net Hotel Tax Revenues
1	\$2,530,757	\$2,404,219	\$2,344,114	\$60,105
2	\$2,910,370	\$2,764,852	\$2,695,731	\$69,121
3	\$3,265,436	\$3,102,164	\$3,024,610	\$77,554
4	\$3,531,895	\$3,355,300	\$3,271,418	\$83,883
5	\$3,746,634	\$3,559,303	\$3,470,320	\$88,983
6	\$3,845,452	\$3,653,179	\$3,561,850	\$91,329
7	\$3,946,723	\$3,749,387	\$3,655,652	\$93,735
8	\$4,025,658	\$3,824,375	\$3,728,765	\$95,609
9	\$4,025,658	\$3,824,375	\$3,728,765	\$95,609
10	\$4,025,658	\$3,824,375	\$3,728,765	\$95,609
11	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
12	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
13	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
14	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
15	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
16	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
17	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
18	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
19	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
20	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
21	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
22	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
23	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
24	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
25	\$4,025,658	\$3,824,375	\$3,633,156	\$191,219
<b>Total</b>	<b>\$96,239,105</b>	<b>\$91,427,149</b>	<b>\$87,707,330</b>	<b>\$3,719,819</b>

Source: Sage, Town of Perryville, Great Wolf Lodge

***Multiplier Effect Fiscal Impacts***

The indirect and induced economic activity generated by the 700-room GWL’s operations will increase Perryville’s tax revenues by approximately \$7.2 million over the first 25 years, mostly from increased property tax revenues. These impacts occur due to increased spending in the local economy by GWL, its visitors, and its employees, and stabilize in year 8 as the GWL reached its steady state level of operations. The study team used implicit fiscal impacts generated by IMPLAN and computations of effective local tax rates to produce these estimates. Exhibit 7 presents relevant summary detail.

Exhibit 7: Multiplier Effect Fiscal Impacts to Perryville (\$2021)

Year	Perryville Multiplier Effect Tax Revenues
1	\$236,997
2	\$250,096
3	\$263,623
4	\$270,999
5	\$278,564
6	\$284,136
7	\$289,819
8	\$295,615
9	\$295,615
10	\$295,615
11	\$295,615
12	\$295,615
13	\$295,615
14	\$295,615
15	\$295,615
16	\$295,615
17	\$295,615
18	\$295,615
19	\$295,615
20	\$295,615
21	\$295,615
22	\$295,615
23	\$295,615
24	\$295,615
25	\$295,615
<b>Total</b>	<b>\$7,195,300</b>

Source: Sage, Town of Perryville, Great Wolf Lodge

## *Cost of Services*

The Sage study team calculated a per hour cost of services based upon segmenting users of government services into four segments: 1) those who work and live in Perryville (intense users of local services on a potentially 24-hour basis); 2) those who work in Perryville but live elsewhere; 3) those who live in Perryville, but work elsewhere; and 4) those who live in Perryville, but who don't work (also intense users).

The study team assigned each segment a value for the number of hours they likely spend per day in Perryville from which a per hour cost of services parameter was calculated for each of the four discrete populations. This also allows for a division of service utilization between residents and non-residents.

Applying the estimate of hours spent in Perryville by GWL employees (as workers and potentially residents) to the per hour operating expenditures, the study team determined that GWL's location in Perryville will cost the Town roughly \$225,000 in annual service provisions. Note that this cost of services analysis does not encompass countervailing tax revenues, which are calculated in the following section of this report.

Note that this study assumes that GWL's water and sewer usage will be revenue neutral. After an audit in FY2016 revealed that the Water Fund unrestricted fund balance was roughly 4 percent below the required minimum, the Town contracted with the Maryland Center for Environmental Training (MCET) to conduct an analysis of water and sewer rates and rate structures during FY 2017. As a result of the MCET's study's recommendations, the Town increased water rates by 13 percent and sewer rates by 8 percent (with annual increases in FY 18 and FY 19 of 9 percent and 8 percent for water rates and sewer rates, respectively). Note that these rates are subject to change. Given these increases and the fact that GWL will pay the standard rates, this study assumes that water and sewer rates are now at levels that allow for usage to be revenue neutral. The estimated annual water and sewer charges that GWL will pay (and the associated expenses to the Town) are therefore excluded from this analysis.

Exhibit 8: Annual Cost of Services Estimate

	<b>Annual Cost of Services</b>
<i>Expenses</i>	
General Government	\$49,625
Planning & Zoning	\$15,106
Public Safety	\$81,842
Public Works	\$52,693
Parks & Recreation	\$25,372
Debt	\$413
<b>Total Cost of Services</b>	<b>\$225,051</b>

Source: Sage, Town of Perryville Financial Statements, GWL

## *Total Fiscal Impacts*

Exhibit 8 supplies total fiscal impacts through the first 25 years of operations. All revenue categories for which a corresponding incentive will be provided are presented on a net basis.

Annual revenues will remain positive during each of the 25 years, reaching their lowest point in Year 5 at roughly \$623,313 and peaking at more than \$1 million in Year 25. Including the \$3.5 million in net impact fees accruing to the Town during the construction phase, cumulative fiscal benefit will exceed \$25 million through 25 years of operations.

Exhibit 8: Total Fiscal Impacts (\$2021)

Year	Annual Total	Cumulative Total
Construction	\$4,157,000	\$4,157,000
1	\$643,108	\$4,800,108
2	\$642,663	\$5,442,771
3	\$642,063	\$6,084,834
4	\$633,208	\$6,718,042
5	\$623,313	\$7,341,355
6	\$642,159	\$7,983,514
7	\$674,336	\$8,657,850
8	\$715,494	\$9,373,344
9	\$748,982	\$10,122,326
10	\$782,470	\$10,904,796
11	\$978,544	\$11,883,340
12	\$978,544	\$12,861,884
13	\$978,544	\$13,840,428
14	\$978,544	\$14,818,972
15	\$978,544	\$15,797,516
16	\$978,544	\$16,776,060
17	\$978,544	\$17,754,604
18	\$978,544	\$18,733,148
19	\$978,544	\$19,711,692
20	\$978,544	\$20,690,236
21	\$978,544	\$21,668,780
22	\$978,544	\$22,647,324
23	\$978,544	\$23,625,868
24	\$1,001,344	\$24,627,212
25	\$1,025,544	\$25,652,756
<b>Total</b>	<b>\$25,652,756</b>	<b>\$25,652,756</b>

Source: Sage, IMPLAN, the Town of Perryville, GWL

## Appendix A: How to Interpret the Results from IMPLAN

### IMPLAN Economic Modeling Software

To quantify economic impacts, Sage uses IMPLAN economic modeling software and its embodied multipliers to generate estimates of employment, labor income, and output (also referred to as economic activity or business sales). What follows is a glossary of terms.<sup>2</sup>

#### *Employment*

In IMPLAN, the number of jobs in an industry is defined as the average annual monthly job total. This encompasses full- and part-time jobs, and represents the same definition used by the Bureau of Economic Analysis' Regional Economic Accounts and the Bureau of Labor Statistics' Covered Employment and Wages.

As defined by IMPLAN, one job that lasts twelve months equals one job; two jobs that last six months also equal one job; three jobs that last four months equal one job, etc. For construction or capital investment events (one-time-only) for which the economic or fiscal impacts occur only once, the stated number of jobs is the total number of job-years that will be supported over the duration of the event. For operational (ongoing) impacts, job figures are annual and will occur every year as long as the operational event persists.

Note that IMPLAN jobs aren't 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. The conversion rates are as high as 1 and as low as 0.68, although the vast majority of sectors are between 0.9 and 0.99 (the average among all sectors for 2015 was 0.95 and the median was 0.97).

#### *Labor Income*

Labor income encompasses wages, benefits, and proprietor income (money accruing to owners of businesses). This is summarized by the following equation:

$$\text{Labor income} = \text{all forms of employee compensation (wages \& benefits)} + \text{proprietor income}$$

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<sup>2</sup> These definitions are largely attributable to IMPLAN user Phil Cheney, who, as of this writing, has contributed over 300 articles to the IMPLAN Knowledge Base

### ***Output (Business Activity, Economic Activity)***

Output equals the value of industry production. 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 can be visualized by the following equation:

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

These figures are based on annual production estimates for the year of the dataset.

### ***Direct Effects***

Direct effects stem from outlays of resources. They do not account for multiplier effects like indirect or induced effects.

### ***Indirect Effects***

The easiest way to conceptualize indirect effects is as the impacts stemming from business-to-business spending activity within the study area that occurs as a result of direct effects. These can also be viewed as secondary supply chain effects.

### ***Induced Effects***

Induced effects reflect enhanced household spending due to the positive labor income effects stemming from the activity or event under consideration.