



Indiana National Guard

A Detailed Analysis of the 2017 Economic Impact on the State's Economy



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2017 Economic Impact on
the State's Economy

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Table of Contents

Executive Summary	1
Key Findings	1
Indiana National Guard Economic Profile.....	2
Employment and Payroll	2
Contracting, Training Exercises and Additional Benefits	4
Indiana National Guard's Economic Impact.....	6
Indiana National Guard's Statewide Economic Impact	6
Indiana National Guard's Economic Impact by Region.....	8
Conclusion	10
Appendix.....	11
Key Terms.....	11

Index of Figures

Figure 1: Number of Guardsmen by State, 2017	2
Figure 2: Indiana National Guard Payroll, 2017	2
Figure 3: Indiana's U.S. Congressional Districts and the Atterbury-Muscatatuck Region ...	3
Figure 4: The Indiana National Guard's Impact on Government Revenues, 2017	7

Index of Tables

Table 1: Summary of the Indiana National Guard's Economic Impact in Indiana, 2017	1
Table 2: Indiana National Guard Employment, 2017	2
Table 3: Indiana National Guard Employment and Payroll by Region.....	3
Table 4: Indiana National Guard's Federal and State Contracts Awarded to Indiana Companies by Industry, 2017	4
Table 5: Additional Spending in Indiana Generated by the Indiana National Guard, 2017....	4
Table 6: Additional Indiana National Guard Spending by Region, 2017 (\$ thousands)	5
Table 7: Indiana National Guard's Statewide Economic Impact, 2017	6
Table 8: The Indiana National Guard's Economic Ripple Effects by Spending Type, 2017 ...	7
Table 9: Indiana National Guard's Total Employment Impacts by Region, 2017	8
Table 10: Indiana National Guard's Total GDP Impacts by Region, 2017	8
Table 11: Indiana National Guard's Total Government Revenue Impacts by Region, 2017 ..	9

Executive Summary

The motto “Always Ready, Always There” neatly summarizes the National Guard’s mission of maintaining highly trained and well-equipped units that can mobilize quickly to serve at home or abroad. The Indiana National Guard employs 13,540 Guardsmen—one of the largest memberships in the nation—and maintains a network of bases, training facilities and armories around the state to ensure that it meets this mission. In fact, with unique facilities like the Muscatatuck Urban Training Center, the Indiana Guard helps to draw units from other states, as well as a variety of other organizations, to Indiana for training exercises. In the course of fulfilling this core mission, the Indiana National Guard provides a secondary benefit to the state by stimulating considerable economic activity.

This report focuses on that secondary benefit by summarizing the results of a detailed analysis of the Indiana National Guard’s full impact on the state’s economy. This study considers how the more than \$420 million that the Guard spent in the state in 2017 on its operating budget and construction projects create economic opportunities for other Hoosier workers and businesses. These so-called ripple effects created by the Guard are measured both in the amount of gross domestic product (GDP) generated and the number of jobs supported by this spending.

This report will also consider how the Guard’s economic activities

contribute to state and local government revenues in Indiana. Finally, the analysis will highlight the Guard’s economic impacts in the state’s U.S. congressional districts, as well as for a three-county region that is home to Camp Atterbury and the Muscatatuck Urban Training Center.

Key Findings

- In addition to its 13,540 Guardsmen, the Indiana National Guard employed another 500 workers in 2017. This total of approximately 14,000 employees earned more than \$300 million in compensation from the Guard. Along with these employment and payroll totals, the Guard was responsible for an additional \$122.9 million in operating expenses and construction expenditures in the state in 2017.
- This direct spending by the Indiana National Guard generated additional economic ripple effects throughout the state. For instance, the economic activity initiated by the Guard supported an additional 3,220 jobs in Indiana and generated nearly \$230 million in GDP for other businesses in the state.
- All told, combining both the direct effects and ripple effects brings the Indiana National Guard’s full economic footprint in the state to an estimated 17,270 jobs, \$439.3 million in employee compensation and a \$530.7

million contribution to Indiana’s GDP (see **Table 1**).

- The ratio of the Guard’s direct employment in the state to its total jobs impact yields a multiplier of 1.23, which means that every Guard employee creates an additional 0.23 jobs at other businesses in the state (or every 100 Guard workers supports approximately 23 additional ripple effect jobs). The GDP multiplier of 1.76 suggests that every dollar of GDP directly produced by the Indiana National Guard generates an additional \$0.76 in economic activity in the state.
- The Indiana National Guard is largely federally funded, with State of Indiana appropriations totaling \$12.6 million in 2017. Comparing this funding level with the Guard’s \$530.7 million contribution to Indiana’s GDP shows that every dollar of state appropriation translates to \$42 in economic activity for the Hoosier economy.
- The Indiana Guard’s activities also created an estimated \$27.5 million in state and local government revenues in the state, as well as an additional \$46.1 million in federal tax revenue.

Table 1: Summary of the Indiana National Guard’s Economic Impact in Indiana, 2017

	Indiana National Guard Direct Effects	Economic Ripple Effects	Total Economic Effects	Multipliers
Employment	14,050	3,220	17,270	1.23
Compensation (\$ thousands)	\$300,760.2	\$138,573.0	\$439,333.2	1.46
GDP (\$ thousands)*	\$300,760.2	\$229,977.5	\$530,737.7	1.76

Source: IBRC, using data from the USDA and the IMPLAN economic modeling software

Indiana National Guard Economic Profile

Employment and Payroll

The Guard's economic impact begins with employment. More than 13,500 Guardsmen served with the Indiana National Guard (INNG) in 2017, which ranks as the seventh-largest National Guard state in the nation (see **Figure 1**). Looking at the Army National Guard alone, Indiana's 11,700 members of this branch ranks as the fourth-largest Army Guard among states, trailing only Texas, Pennsylvania and California. Given that Indiana's total population is considerably smaller than these states, and is only the 17th most populous state overall, it is fair to say the Guard has an outsized economic impact in Indiana.

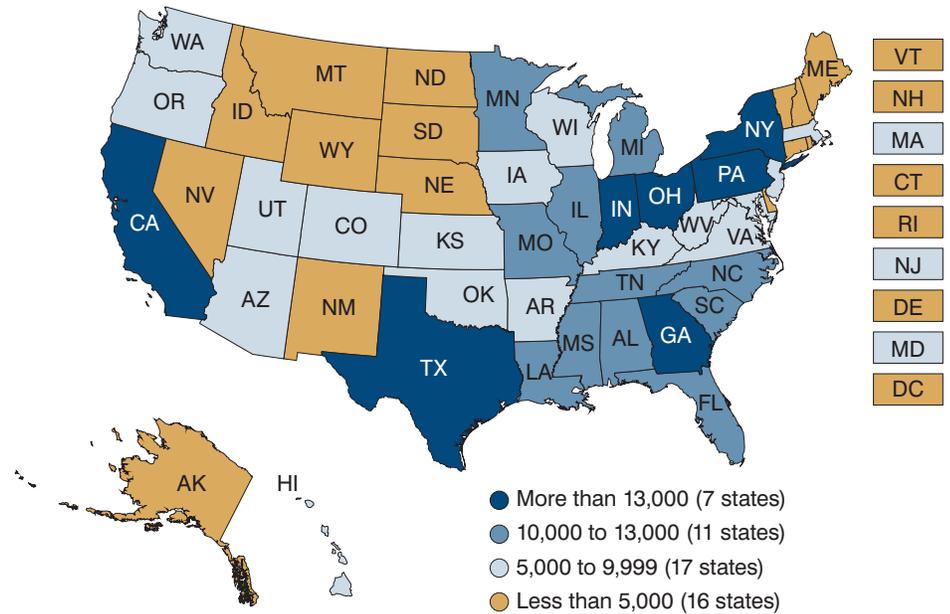
In addition to these Guardsmen, more than 500 state employees and non-dual status federal technicians work with the Guard. All told, INNG employed 14,050 people in 2017, with more than 13,000 of these Guardsmen and workers residing in Indiana (see **Table 2**).¹

These 14,050 INNG employees combined to earn roughly \$300 million in pay in 2017 (see **Figure 2**). The lion's share of this payroll went to Indiana residents, meaning that the state's economy received the full benefit of the household spending associated with these earnings. The 970 INNG employees who reside outside Indiana earn roughly \$20 million. This pay to out-of-state residents is not a complete loss for the Indiana economy, however, as these Guardsmen spend roughly 40 days per year in the state for training and will spend a portion of their pay locally during these training stays.

In addition to considering INNG's economic impact statewide, this analysis will examine the Guard's contributions in Indiana's regions as

¹ This employment count does not include approximately 225 employees who work with INNG on a contract basis. The economic contributions of these workers are included later in this report under INNG's spending on contracts.

Figure 1: Number of Guardsmen by State, 2017



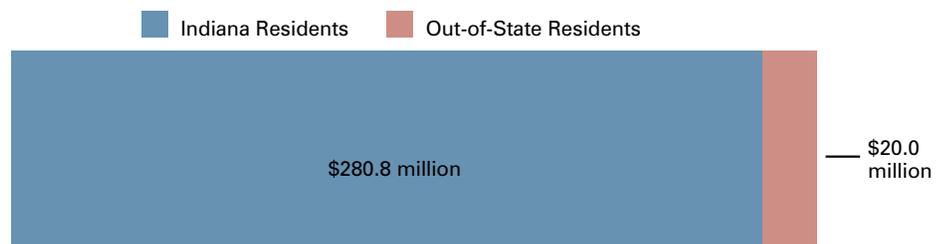
Source: Department of Defense, Defense Manpower Data Center

Table 2: Indiana National Guard Employment, 2017

	Indiana Residents	Out-of-State Residents	Total
Army National Guardsmen	10,965	758	11,723
Air National Guardsmen	1,606	207	1,813
State Employees	465	5	470
Non-Dual Status Federal Technicians	44	0	44
Total	13,080	970	14,050

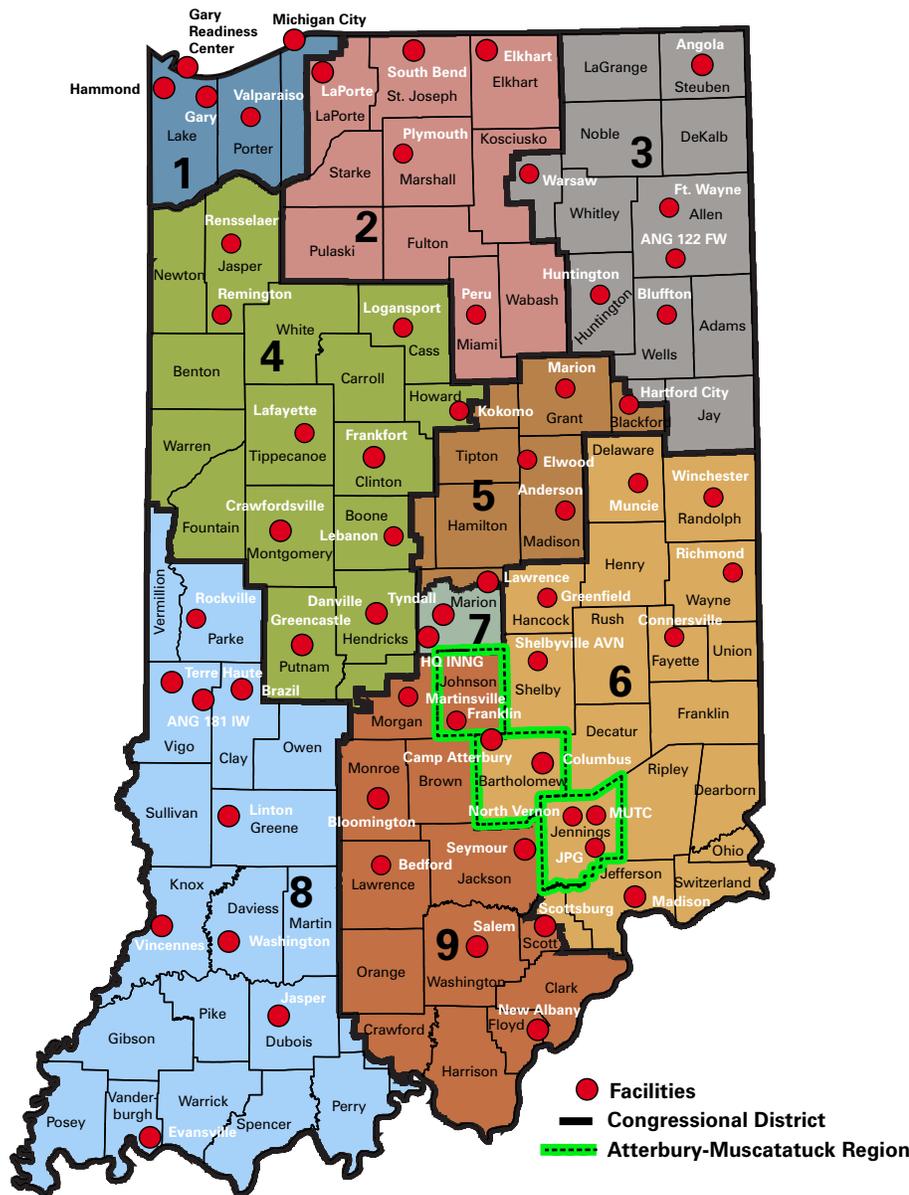
Source: Indiana National Guard

Figure 2: Indiana National Guard Payroll, 2017



Source: Indiana National Guard

Figure 3: Indiana’s U.S. Congressional Districts and the Atterbury-Muscatatuck Region



Source: Indiana National Guard

well. This regional analysis will focus on the state’s U.S. congressional districts, as well as a three-county portion of south-central Indiana (Bartholomew, Jennings and Johnson counties) that is home to two key INNG facilities: Camp Atterbury and Muscatatuck Urban Training Center (see Figure 3).

Of course, congressional districts combine to cover the entire state, so a sum of INNG employment by congressional district will be equal

to the state total. The focus on the Atterbury-Muscatatuck region is distinct from, and in addition to, the congressional district analysis. The additional spotlight on this three-county area underscores the importance of this region where so much of INNG’s critical and unique activities take place. In order to streamline this report, values for the Atterbury-Muscatatuck region will be listed along with those for congressional districts in the tables

that follow; however, values for the Atterbury-Muscatatuck region should not be added to congressional district values.

As Table 3 highlights, INNG employment and payroll is distributed throughout the state.² Among Indiana’s U.S. congressional districts, the 3rd district—which features Fort Wayne and the 122nd Fighter Wing—can claim the largest number of INNG employees. Meanwhile, INNG’s employees residing in Indiana’s 9th congressional district—home to Camp Atterbury—combined for the largest earnings total. Nearly 1,000 INNG employees live in the three-county Atterbury-Muscatatuck region with a combined payroll of roughly \$23.7 million.

Table 3: Indiana National Guard Employment and Payroll by Region

	Employment	Payroll (\$ thousands)
Congressional District 1	1,074	\$11,964.1
Congressional District 2	894	\$10,424.4
Congressional District 3	1,812	\$41,356.0
Congressional District 4	1,608	\$32,183.5
Congressional District 5	1,313	\$29,561.3
Congressional District 6	1,521	\$38,987.5
Congressional District 7	1,660	\$36,495.2
Congressional District 8	1,480	\$36,680.2
Congressional District 9	1,718	\$43,108.6
Total	13,080	\$280,760.9
Atterbury-Muscatatuck Region	990	\$23,677.8

Source: Indiana National Guard

² INNG payroll is distributed to congressional districts and the Atterbury-Muscatatuck region based on the residence of employees, not place of employment.

Contracting, Training Exercises and Additional Benefits

While payroll represents the single largest piece of INNG’s contribution to the Indiana economy, the Guard generates additional economic activity in the state with various other types of spending. Chief among these are the contracts—supported by both federal and state funding sources—for the operation, maintenance and construction of INNG’s facilities around the state. For instance, INNG activities led to roughly \$55.2 million in federal contracts awarded to Indiana businesses in 2017. Add in another \$22.3 million in state-funded awards to Hoosier firms, and total INNG contracting with Indiana entities in 2017 climbs to more than \$77 million.

Construction activities accounted for the largest share of INNG’s contracts with more than \$20 million in expenditures to Indiana-based firms in 2017 (see **Table 4**). The Guard also



spent more than \$10 million apiece with local administrative and support service providers and professional, scientific and technical service firms in 2017.

The Guard contributes to the state’s economy in a variety of other ways beyond its payroll and contracts. Camp Atterbury, for instance, triggers additional economic activity by hosting other defense-related entities at its facilities. The majority of the dollars associated with these “Additional Camp Atterbury Activities” is the salaries of employees with tenants on the base.

INNG and the research team were careful to consider only Camp Atterbury tenants that it felt were operating in the state only because of the existence of Camp Atterbury, and excluded those tenants that would likely locate elsewhere in Indiana if Camp Atterbury did not exist. For example, the Indiana Department of Corrections and the Indiana Department of Natural Resources have offices at Camp Atterbury, but the economic activity associated with these offices does not factor into this analysis. Other activities included in the “Additional Camp Atterbury Activities” category are recreational facilities that are accessible to the public, some timber logging on the base, and retail and food service establishments. In total, the activities in this category combine to account for more than \$27 million in direct economic activity in the state in 2017 (see **Table 5**).

Table 4: Indiana National Guard’s Federal and State Contracts Awarded to Indiana Companies by Industry, 2017

Industry	Total Contracts (\$ thousands)
Construction	\$20,337.1
Administrative and Support Services	\$12,487.1
Professional, Scientific, and Technical Services	\$10,173.6
Petroleum Refineries	\$8,422.2
Utilities	\$7,360.2
Educational Services	\$6,643.2
Food Services and Drinking Places	\$2,755.3
Computer and Electronic Product Manufacturing	\$1,753.8
All Other	\$7,505.0
Total	\$77,437.5

Source: Indiana National Guard

Table 5: Additional Spending in Indiana Generated by the Indiana National Guard, 2017

Type of Spending	Amount (\$ thousands)
Federal Contracts	\$55,167.3
State Contracts	\$22,269.4
Additional Camp Atterbury Activities	\$27,416.3
Additional Guardsman Compensation and Spending	\$18,080.9
Total	\$122,933.9

Source: Indiana National Guard

“Additional Guardsman Compensation and Spending” is the final category of INNG economic impact. These activities—which total more than \$18 million in spending—include education benefits, enlistment bonuses, and an estimate of dollars spent on food, lodging, gasoline and other incidentals by attendees of training exercises. Spending related to training exercises includes both training for Indiana Guardsmen and for other organizations—often from out-of-state—that take advantage of the unique training opportunities available at Atterbury-Muscatatuck.

All told, this \$122.9 million in additional activity, when coupled with the \$300.8 million in payroll, brings the INNG’s total direct economic contribution to the state’s economy to nearly \$424 million.

Table 6 presents how these additional sources of spending are spread throughout the state. With significant activity centered on Camp Atterbury, Indiana’s 9th congressional district claimed more than half of these dollars in 2017, with nearly \$65 million in INNG contracts and other forms of economic activity. The state’s

6th and 7th congressional districts each benefitted from more than \$12 million in spending as a result of INNG contracts and training exercises.

Meanwhile, these additional types of spending in the three-county Atterbury-Muscatatuck region, which includes portions of Indiana’s 6th and 9th congressional districts, totaled nearly \$70.8 million in 2017. Add in the \$23.7 million in pay to INNG employees in this area, and the Guard’s total spending in this region climbed to nearly \$95 million in 2017.

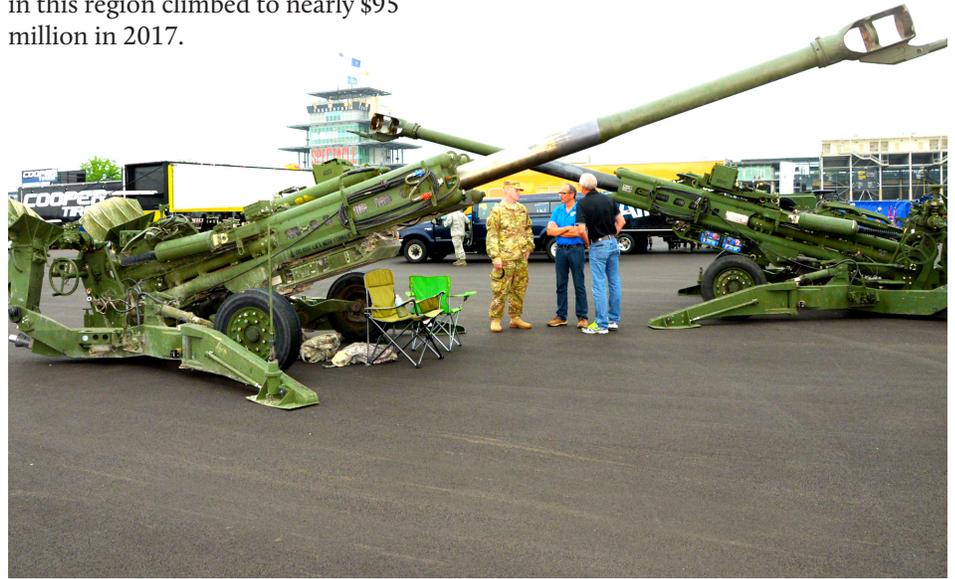


Table 6: Additional Indiana National Guard Spending by Region, 2017 (\$ thousands)

	Federal Contracts	State Contracts	Additional Camp Atterbury Activities	Additional Guardsman Compensation and Spending*	Total
Congressional District 1	\$716.7	\$1,280.3			\$1,997.0
Congressional District 2	\$223.0	\$1,349.0			\$1,572.0
Congressional District 3	\$7,334.0	\$986.1			\$8,320.1
Congressional District 4	\$613.0	\$1,474.7			\$2,087.7
Congressional District 5	\$491.4	\$152.9			\$644.3
Congressional District 6	\$4,296.1	\$4,984.7		\$3,487.3	\$12,768.1
Congressional District 7	\$8,992.0	\$3,675.3		\$1,096.8	\$13,764.1
Congressional District 8	\$3,032.2	\$524.7			\$3,556.9
Congressional District 9	\$29,469.0	\$7,841.6	\$27,416.3	\$141.8	\$64,868.7
Total	\$55,167.4	\$22,269.4	\$27,416.3	\$18,080.9	\$122,933.9
Atterbury-Muscatatuck Region	\$32,525.1	\$7,180.9	\$27,416.3	\$3,629.2	\$70,751.5

* INNG was not able to assign some forms of spending in this category to specific congressional districts or the Atterbury-Muscatatuck region. Therefore, the state’s “Total” value in this category is larger than the sum of the congressional district values.
Source: Indiana National Guard

Indiana National Guard's Economic Impact

In the terminology of economic impact analysis, the details provided in the previous section describe the “direct effects” of the Indiana National Guards’ contributions to the state’s economy. The economic activity generated by these direct effects—the purchase of goods and services from other businesses in the state along with the household spending of Guardsmen and other employees—cascade throughout the state’s economy. In order to estimate these so-called economic ripple effects, the Indiana Business Research Center (IBRC) research team used the IMPLAN economic modeling software to conduct an input-output analysis of INNG’s activities.

The IMPLAN model draws from a variety of secondary data sources to provide a detailed account of the Indiana economy. For instance, when the INNG awards a contract to an Indiana-based construction company, the IMPLAN model estimates that 36 percent of the goods and services required by the company to fulfill the contract (measured in dollars) are provided by other Indiana firms. Additionally, Guardsmen and other INNG employees—as well as workers throughout the Guard’s supply chain—spend their earnings on food, clothing, health care, entertainment, etc. Nearly all of this spending will occur in the state. The contributions from both of these spending streams—INNG’s supply chain purchases and the household spending of their employees—are



referred to as the economic “ripple effects” of INNG’s activities in the following text and tables.

Indiana National Guard’s Statewide Economic Impact

As referenced in the previous section of this report, the INNG injected roughly \$420 million into the state’s economy in 2017 through its payroll, contracts to Indiana businesses, training exercises and a variety of other activities. These dollars support an estimated 3,220 jobs

at other Indiana businesses (see **Table 7**). Add these employment ripple effects to the INNG’s 14,050 Guardsmen and other workers, and the Guard’s full employment footprint in Indiana rises to 17,270 jobs. These jobs combine to produce more than \$439 million in employee compensation.

A useful way to interpret the economic ripple effects of INNG’s activities is to look at the multiplier. The ratio of the Guard’s total employment effect to its direct

Table 7: Indiana National Guard’s Statewide Economic Impact, 2017

	Indiana National Guard	Economic Ripple Effects	Total Economic Effects	Multipliers
Employment	14,050	3,220	17,270	1.23
Compensation (\$ thousands)	\$300,760.2	\$138,573.0	\$439,333.2	1.46
GDP (\$ thousands)*	\$300,760.2	\$229,977.5	\$530,737.7	1.76

* GDP—or gross domestic product—consists of four components: employee compensation, proprietor income, other property income and indirect business tax. For an entity such as INNG, its payroll is its GDP.

Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software

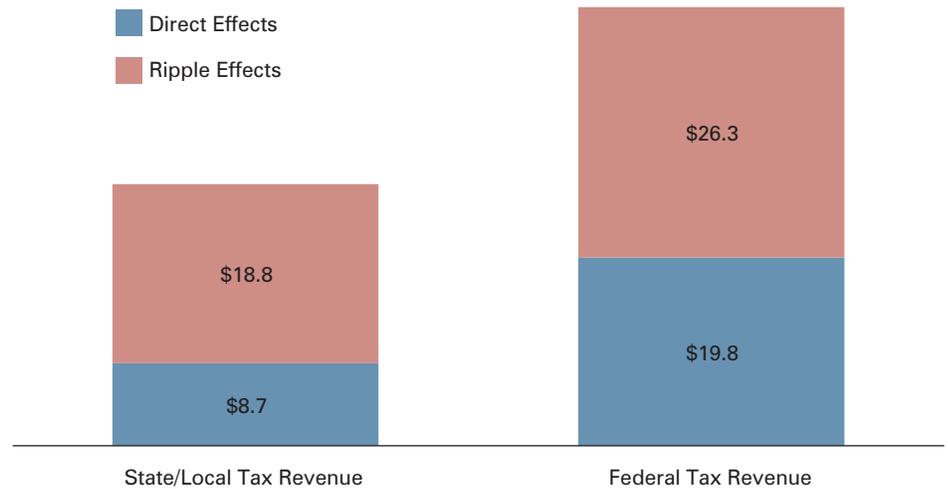
employment yields a multiplier of 1.23, meaning that every INNG employee supports an additional 0.23 jobs in other industries in the state (or every 100 INNG employees supports approximately 23 additional ripple effect jobs). Likewise, the compensation multiplier of 1.46 suggests that every dollar of INNG payroll generates \$0.46 in employee compensation for other workers in the state.

In terms of broader economic activity, the combined effects of INNG’s activities contribute nearly \$531 million to Indiana’s gross domestic product—or GDP (GDP is a measure of the value of the total sales of an industry or a state after subtracting the costs of production inputs). The multiplier of 1.76 indicates that every dollar of GDP directly generated by INNG spurs an additional \$0.76 in economic activity in Indiana.

In addition to the various contributions to employment and GDP, the economic activity initiated by the INNG also generates local, state and federal government revenues. The taxes paid by Guardsmen and the economic ripple effects initiated by the INNG combined to produce an estimated \$27.5 million in state and local government revenues in Indiana in 2017, as well as \$46.1 million in federal revenues. (see **Figure 4**).

Among the various types of spending associated with the INNG, its payroll generates the largest economic impact (see **Table 8**). The household spending from Guardsmen and other INNG

Figure 4: The Indiana National Guard’s Impact on Government Revenues, 2017



Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software



Table 8: The Indiana National Guard’s Economic Ripple Effects by Spending Type, 2017

Spending Type	Employment	Compensation (\$ thousands)	GDP (\$ thousands)	State/Local Tax Revenue (\$ thousands)	Federal Tax Revenue (\$ thousands)
Payroll	1,730	\$72,256.4	\$132,347.0	\$12,170.0	\$18,108.2
Federal Contracts	790	\$33,631.0	\$49,473.5	\$3,026.7	\$3,497.2
State Contracts	290	\$16,269.8	\$21,406.5	\$1,262.4	\$1,326.6
Additional Camp Atterbury Activities	240	\$9,247.2	\$15,259.9	\$1,383.5	\$1,872.6
Additional Guardsman Compensation/Spending*	170	\$7,168.6	\$11,490.7	\$1,000.1	\$1,507.3
Total	3,220	\$138,573.0	\$229,977.5	\$18,842.6	\$26,311.9

Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software

employees supports an estimated 1,730 jobs at other Indiana businesses, which accounts for more than half of the Guard's employment ripple effect in the state. INNG payroll accounts for a similar share of the Guard's total compensation and GDP ripple effects, while it is responsible for approximately 70 percent of its total contribution to local, state and federal government revenues.

Federal and state contracts awarded by the INNG together support an estimated 1,080 additional jobs in the state, and contribute roughly \$71 million to the state's GDP. Meanwhile, the INNG's remaining economic activities combine to support 410 ripple effect jobs and generate nearly \$27 million in GDP for the state.

Indiana National Guard's Economic Impact by Region

As home to Camp Atterbury, a large share of the INNG's contracts for goods and services go to businesses in Indiana's 9th congressional district. As a result, this region enjoys the largest employment ripple effects from the INNG's activities at an estimated 1,050 jobs (see Table 9). When combined with the INNG employees living in the same area, the Guard's total employment footprint in this congressional district is an estimated 2,768 jobs.

Other regions with relatively large employment ripple effects include Congressional District 6 (which includes Muscatatuck), Congressional District 7 (Stout Field/Headquarters), Congressional District 3 (Fort Wayne/122nd Fighter Wing) and Congressional District 8 (Terre Haute/181st Intelligence Wing). In terms of the total employment effect, the 3rd district has the second-largest impact with an estimated 2,122 jobs, followed by the 7th district (1,960 jobs) and the 6th district (1,881 jobs).

The INNG's activities in the Atterbury-Muscatatuck region support an estimated 540 ripple effect jobs in the area, which brings the Guard's total employment impact in that three-county region to 1,530 jobs.

The INNG's total GDP impact by region follows a similar pattern as employment effects. As Table 10 highlights, the Guard's economic activity in the 9th congressional district contributes nearly \$105 million in total GDP to the region's economy. Meanwhile, the 6th, 3rd and 7th congressional districts are each responsible for more than \$60 million

in total economic activity in their respective regions.

The Guard's activities in the Atterbury-Muscatatuck region sparked nearly \$36 million in GDP ripple effects in Bartholomew, Jennings and Johnson counties, bringing its total economic footprint in this region to more than \$59 million in GDP.

Table 9: Indiana National Guard's Total Employment Impacts by Region, 2017

	INNG Direct Employment	Ripple Effect Employment	Total Employment Effect
Congressional District 1	1,074	80	1,154
Congressional District 2	894	80	974
Congressional District 3	1,812	310	2,122
Congressional District 4	1,608	200	1,808
Congressional District 5	1,313	160	1,473
Congressional District 6	1,521	360	1,881
Congressional District 7	1,660	300	1,960
Congressional District 8	1,480	240	1,720
Congressional District 9	1,718	1,050	2,768
Total	13,080	*	*
Atterbury-Muscatatuck Region	990	540	1,530

*Ripple effects and total effects by congressional districts do not sum to the state totals reported previously because some of the economic impacts initiated in any given congressional district will occur elsewhere in the state, outside of that congressional district. Therefore, a sum of congressional districts' ripple effects or total effects does not provide a meaningful number. Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software

Table 10: Indiana National Guard's Total GDP Impacts by Region, 2017

	INNG Direct GDP (\$ thousands)	Ripple Effect GDP (\$ thousands)	Total GDP Effect (\$ thousands)
Congressional District 1	\$11,964.1	\$6,197.3	\$18,161.4
Congressional District 2	\$10,424.4	\$5,733.8	\$16,158.2
Congressional District 3	\$41,356.0	\$21,438.5	\$62,794.5
Congressional District 4	\$32,183.5	\$14,741.2	\$46,924.7
Congressional District 5	\$29,561.3	\$12,772.5	\$42,333.8
Congressional District 6	\$38,987.5	\$24,224.0	\$63,211.5
Congressional District 7	\$36,495.2	\$23,756.3	\$60,251.5
Congressional District 8	\$36,680.2	\$18,533.0	\$55,213.2
Congressional District 9	\$43,108.6	\$61,463.9	\$104,572.5
Total	\$280,760.9	*	*
Atterbury-Muscatatuck Region	\$23,677.8	\$35,694.5	\$59,372.3

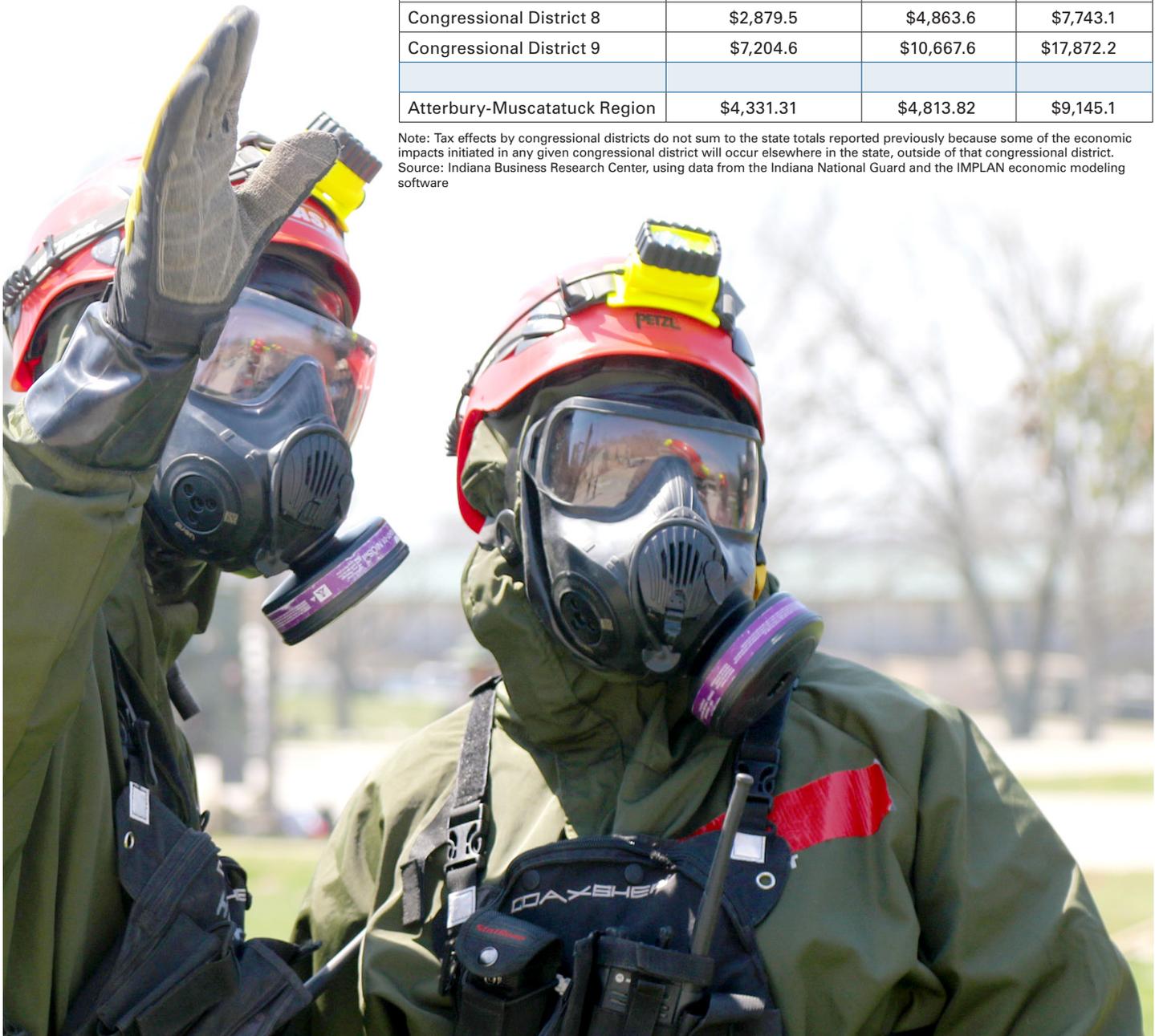
*Ripple effects and total effects by congressional districts do not sum to the state totals reported previously because some of the economic impacts initiated in any given congressional district will occur elsewhere in the state, outside of that congressional district. Therefore, a sum of congressional districts' ripple effects or total effects does not provide a meaningful number. Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software

Table 11 presents the INNG's impact on local, state and federal government revenues by region. Not surprisingly, Indiana's 9th congressional district provides the largest impact on government revenues in 2017 at nearly \$18 million in total. The three counties of the Atterbury-Muscatatuck region alone generate more than \$9 million in tax impact.

Table 11: Indiana National Guard's Total Government Revenue Impacts by Region, 2017

	State/Local Tax Revenue (\$ thousands)	Federal Tax Revenue (\$ thousands)	Total Tax Revenue (\$ thousands)
Congressional District 1	\$960.2	\$1,639.1	\$2,599.4
Congressional District 2	\$854.7	\$1,455.5	\$2,310.2
Congressional District 3	\$3,427.0	\$5,635.5	\$9,062.5
Congressional District 4	\$2,531.9	\$4,037.5	\$6,569.3
Congressional District 5	\$2,365.6	\$3,709.9	\$6,075.6
Congressional District 6	\$3,638.8	\$5,816.6	\$9,455.4
Congressional District 7	\$2,852.5	\$5,362.7	\$8,215.2
Congressional District 8	\$2,879.5	\$4,863.6	\$7,743.1
Congressional District 9	\$7,204.6	\$10,667.6	\$17,872.2
Atterbury-Muscatatuck Region	\$4,331.31	\$4,813.82	\$9,145.1

Note: Tax effects by congressional districts do not sum to the state totals reported previously because some of the economic impacts initiated in any given congressional district will occur elsewhere in the state, outside of that congressional district. Source: Indiana Business Research Center, using data from the Indiana National Guard and the IMPLAN economic modeling software



Conclusion

The Indiana National Guard plays a critical role in both defending the country and supporting Indiana's communities in times of need. Furthermore, with such a large number of Guardsmen compared to other states, as well as unique training facilities that draw trainees from around the country, Hoosiers can proudly boast that the Indiana National Guard plays an outsized role in our national defense. In addition to this core mission, this analysis demonstrates that the Guard also boosts the Indiana economy.

All told, the combined effects of INNG's activities support nearly 17,300 jobs in Indiana and contributes approximately \$531 million to the state's GDP. The INNG's GDP multiplier of 1.76 indicates that every dollar spent by the Guard spurs an additional \$0.76 in economic activity for other businesses in the state. Moreover, the INNG's activities are largely federally funded, with State of Indiana appropriations totaling \$12.6 million in 2017. Comparing this appropriation to the INNG's full impact on Indiana's GDP shows that every dollar of state funding for the Guard translates into roughly \$42 in economic activity.

These numbers highlight the fact that not only is INNG an important cog in the U.S. Armed Forces and an indispensable institution here in Indiana, but it also provides an economic spark for the state.

Economic Impact of Training Exercises

One unique way in which the INNG provides a boost to the Indiana economy is through regular training exercises held in the state. Not only do Indiana Guardsmen utilize INNG training facilities, but members of all branches of the military come to Indiana for training exercises, as well as a variety of civilian agencies from around the country.

The facilities at Atterbury-Muscatatuck headline the INNG's training options. These facilities offer the ability for trainees to prepare for a variety of real-world environments and situations, as well as cyber range capabilities that allow for simulating a host of additional scenarios.

Statewide, the INNG conducted 118 training exercises in 2017 that drew nearly 14,000 participants. These exercises provide an economic impact both through spending on operating expenses, as well as spending by trainees on lodging, meals, gasoline, etc. in local communities while attending exercises.

While it is difficult to know precisely how much each participant spent in the local area during these exercises, and it's also a challenge to disentangle operating expenditures for training exercises from general INNG spending, the research team conservatively estimates that the combined effects of INNG training exercises supported 180 jobs in Indiana in 2017 and contributed nearly \$21 million to the state's GDP.

Note: These values are part of the economic impacts reported elsewhere in this report. Do not add these values to those economic impacts.



Appendix

Key Terms

- **Direct Effects:** Refers to the change in GDP or employment in the state that can be attributed specifically to the INNG's economic activities.
- **Ripple Effects:** A combination of the indirect and induced effects generated by the direct effects. Indirect effects measure the change in GDP or employment caused when the INNG increases its purchase of goods and services from suppliers and, in turn, those suppliers purchase more inputs and so on throughout the economy. Induced effects reflect the changes—whether in GDP or employment—that result from the household spending of employees directly linked to the INNG, along with the employees of its suppliers.
- **Total Effects:** The sum of the direct effects and ripple effects.
- **Government Revenue:** The IMPLAN model also tracks the tax effects associated with all the transactions and economic activity associated with the direct and ripple effects. For example, household spending at retailers generates state sales tax. In addition, those retailers also pay property taxes to local governments. As a result, this analysis was also able to estimate the state and local government tax flows.
- **Multiplier:** The multiplier is the magnitude of the economic response in a particular geographic area associated with a change in the direct effects. The multiplier equals the total effect divided by the direct effect.
- **GDP:** Also known as value added, GDP is a measure of the economic activity generated by a given industry. GDP is the

difference between an industry's total output and the cost of its production inputs. GDP consists of four components: employee compensation, proprietor income, other property income and indirect business tax.

About IMPLAN Economic Impact Modeling Software

IMPLAN is built on a mathematical input-output (I-O) model that expresses relationships between sectors of the economy in a chosen geographic location. In expressing the flow of dollars through a regional economy, the input-output model assumes fixed relationships between producers and their suppliers based on demand. It also omits any dollars spent outside of the regional economy—say, by producers who import raw goods from another area, or by employees who commute and do their household spending elsewhere.

The idea behind input-output modeling is that the inter-industry relationships within a region largely determine how that economy will respond to economic changes. In an I-O model, the increase in demand for a certain product or service causes a multiplier effect, layers of effect that come in a chain reaction. Increased demand for a product affects the producer of the product, the producer's employees, the producer's suppliers, the supplier's employees, and so on—ultimately generating a total effect in the economy that is greater than the initial change in demand. For instance, say demand for Andersen Windows' wood window products increases. Sales grow, so Andersen has to hire more people, and the company may buy more from local vendors, and those vendors in turn have to hire more people ... who in turn buy more groceries. The ratio of that overall effect to the initial change

is called a regional multiplier and can be expressed like this:

$$\frac{(\text{Direct Effect} + \text{Indirect Effects} + \text{Induced Effects})}{(\text{Direct Effect})} = \text{Multiplier}$$

Multipliers are industry- and region-specific. Each industry has a unique output multiplier, because each industry has a different pattern of purchases from firms inside and outside of the regional economy. (The output multiplier is in turn used to calculate income and employment multipliers.)

Estimating a multiplier is not the end goal of IMPLAN users. Most wish to estimate other numbers and get answers to questions such as: How many jobs will this new firm produce? How much will the local economy be affected by this plant closing? What will the effects be of an increase in product demand? Based on those user choices, IMPLAN software constructs "social accounts" to measure the flow of dollars from purchasers to producers within the region. The data in those social accounts will set up the precise equations needed to finally answer those questions users have—about the impact of a new company, a plant closing or greater product demand—and yield the answers.

IMPLAN constructs its input-output model using aggregated production, employment and trade data from local, regional and national sources, such as the U.S. Census Bureau's annual County Business Patterns report and the U.S. Bureau of Labor Statistics' annual report called Covered Employment and Wages. In addition to gathering enormous amounts of data from government sources, the company also estimates some data where they haven't been reported at the level of detail needed (county-level production data, for instance), or where detail is omitted in government reports to protect the confidentiality of individual companies whose data would be easily recognized

due to a sparse population of businesses in the area.

The IBRC's analysts have attended advanced training in the use of the IMPLAN modeling software. The estimates that the IBRC analysts generate are scrutinized closely to ensure that they are accurate and reflect the most trustworthy application of the modeling software. In all instances, the most conservative estimation assumptions and procedures are used to produce the IMPLAN results.

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