

# Economic and Fiscal Impacts of the SGI Charmian Quarry and Processing Facility in Hamiltonban Township, Adams County, PA

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## Executive Summary

Specialty Granules LLC (SGI) is a national manufacturer of mineral granules for the residential and commercial roofing markets. The Charmian plant was established in 1923 in Hamiltonban Township, Adams County, and as shown in this report, contributes significantly to the local economy. Most of the granules SGI produces are used to manufacture asphalt-based roofing shingles. The Charmian plant produces enough granules to protect approximately 1 million homes (both new and re-roofing) per year with asphalt shingles.

Two-thirds of the single-family homes in the U.S. are protected with asphalt shingles. However, in the Northeast market (the primary market served by the Charmian plant), 95 percent of the homes are protected with asphalt shingles.

The Charmian plant is the only granule production facility serving asphalt shingle manufacturers in the Northeast. The next-closest plants to that market are in Wisconsin and North Carolina. Transporting granules from farther away has a significant impact on final product cost, as well as potential impacts related to the environment and transportation safety.

As SGI pursues extending the life of the Charmian operation, it is a useful moment to consider the economic and fiscal impacts of SGI current operations within the County and the Commonwealth. SGI is a major employer within the County, and its presence within the County generates additional spillover impacts throughout the County and the Commonwealth (See Table ES.1).

**Table ES.1 – Estimated Annual Economic and Fiscal Impacts from SGI’s Charmian Plant (Based on 2018 Operations)**

	Adams County	Commonwealth of Pennsylvania
Total Expenditures (\$M)	\$40.2	\$60.9
Total Employment	264	476
Total Wages and Salaries (\$M)	\$19.2	\$35.0
State Tax Revenue (\$M)		\$1.2

Source: SGI (2019), Econsult Solutions, Inc. (2019)

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This report analyzes data based on SGI’s operations between 2016 and 2018. Based on its 2018 operations, SGI generated \$40.2 million in total economic impacts within the County and supported 264 jobs (both direct and indirect/induced) and \$19.2 million in wages and salaries. Within the Commonwealth, SGI generated \$60.9 million in total economic impacts and supported 476 jobs (both direct and indirect/induced), \$35 million in wages and salaries, and \$1.2 million in annual tax payments to the state.

Importantly for the County and the Commonwealth, a significant proportion of SGI’s customers are located outside the County and Commonwealth; export activity is particularly beneficial for a jurisdiction because it represents the importation of purchasing power from outside the jurisdiction to support economic activity, employment, and tax revenues within the jurisdiction.

These figures do not account for the additional economic and fiscal impacts associated with SGI’s capital expenditures, which are treated separately from operations for reasons outlined later in this report (see Table ES.2). In 2018, SGI’s capital investments generated \$6.9 million in total economic activity in the County and supported 37 total jobs and \$1.7 million in wages and salaries. Within the Commonwealth, these investments generated \$10.5 million in total economic activity and supported 58 total jobs, \$2.6 million in wages and salaries, and \$130,000 in tax revenue.

**Table ES.2 – Estimated Economic Impacts within the County and the Commonwealth Resulting from Annual Capital Expenditures at SGI’s Charmian Plant (Based on 2018 Investments)**

	Adams County	Commonwealth of Pennsylvania
Total Expenditures (\$M)	\$6.9	\$10.5
Total Employment	37	58
Total Wages and Salaries (\$M)	\$1.7	\$2.6
State Tax Revenue (\$000)		\$130

*Source: SGI (2019), Econsult Corporation (2019)*

Finally, the ability of SGI to sustain similar economic and fiscal impacts in the future assumes the successful completion of its efforts to extend the life of the Charmian plant.

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## About Econsult Solutions, Inc.

This report was prepared by Econsult Solutions, Inc. (“ESI”). ESI is a Philadelphia-based economic consulting firm that provides businesses and public policy makers with economic consulting services in urban economics, real estate economics, transportation, public infrastructure, development, public policy and finance, community and neighborhood development, planning, as well as expert witness services for litigation support. Its principals are nationally recognized experts in urban development, real estate, government and public policy, planning, transportation, non-profit management, business strategy and administration, as well as litigation and commercial damages. Staff members have outstanding professional and academic credentials, including active positions at the university level, wide experience at the highest levels of the public policy process and extensive consulting experience.

# 1. Introduction and Methodology

Specialty Granules LLC (SGI), formerly known as ISP Minerals, is a national manufacturer of mineral granules for the residential and commercial roofing markets. Founded in 1923 within the Commonwealth of Pennsylvania, it now has manufacturing locations in California, Missouri, and Wisconsin. Its Charmian plant, in Hamiltonban Township, Adams County, produces enough granules to protect approximately 1 million homes with asphalt shingles, mostly for the Northeast market.

As SGI pursues various activities that would enable it to increase its mineral reserves and extend the life of its operations, it is a useful moment to consider the positive and significant economic and fiscal impacts that SGI generates within the County and the Commonwealth. SGI is a major employer in the region, whose average wages were \$29.21 an hour in 2018. According to the US Bureau of Labor Statistics, that compares with average hourly wages of \$20.86 for Adams County, \$21.79 for Franklin County and \$27.81 statewide.<sup>1</sup> Its presence within the County generates additional beneficial spillover impacts in the County and the Commonwealth.

Spillover impacts come in two forms. Indirect expenditures are generated as local vendors increase production in response to the initial expenditures.<sup>2</sup> Induced expenditures are generated as employees spend their earnings within the local economy.<sup>3</sup> These direct, indirect, and induced expenditures support a certain amount of employment and earnings within the County and the Commonwealth, and they result in the generation of new tax revenues for the Commonwealth.

Standard input-output methodologies were employed to estimate the composition and scale of these economic and fiscal impacts (for further explanation of economic impact methodology, please see Appendix A). Specifically, the total economic and fiscal impacts of the annual operating expenditures of the Charmian plant for the past three years were modeled, using input-output multiplier data from the US Department of Commerce to translate direct expenditures within the County into total impacts within the County and the Commonwealth. Annual economic impacts were expressed in the form of

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<sup>1</sup> US Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) <https://www.bls.gov/cew/> (Accessed June 27, 2019).

<sup>2</sup> New expenditures on inputs and services (e.g. equipment, materials, professional services) cause suppliers of those inputs and services to ramp up production, and to acquire additional inputs and services from their suppliers, who themselves will do the same. The sum of these economic activities is known as the indirect expenditures, and they support additional employment and earnings beyond the employment and earnings supported by the direct expenditures.

<sup>3</sup> New expenditures on people (i.e. salaries) provide those people with additional spending power. Some of that spending power is exercised within the region, supporting local providers of various goods and services (e.g. food, entertainment, lodging, transportation). The sum of these economic activities is known as the induced expenditures, and they also support additional employment and earnings beyond the employment and earnings supported by the direct expenditures.

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expenditures and of the employment and earnings supported by them. Annual fiscal impacts, in the form of personal income, sales, and corporate net income tax revenues to the Commonwealth, were also estimated.<sup>4</sup>

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<sup>4</sup> Any expenditure generates additional economic activity in a particular geographic area via the mechanism of the Keynesian consumption multiplier, an established behavioral characterization of the nature of economic activity in a market economy. In other words, in measuring the total economic impact of an initiative, one must account for the complex inter-industry relationships within a region, and specifically the manner in which an increase in output in a particular industry results in increases in outputs by other industries.

The economic impact model uses the US Department of Commerce's Regional Input-Output Modeling Systems (RIMS II) to produce estimates of the distribution of economic impact at the county and state level, which in turn yields the familiar multipliers used in economic impact analyses. The fiscal impact model estimates the tax revenue implications to the Commonwealth of that scale and composition of economic impact.

See Appendix A for more information on Econsult Solution, Inc's economic and fiscal impact methodology.



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## 2. Direct Operating Expenditures

Over the past three years, SGI has averaged \$38 million in annual operating expenditures. However, for purposes of estimating economic impact, two sets of expenditures were conservatively excluded from this analysis:<sup>5</sup>

1. First, manufacturing expenses, raw materials, utilities, and capital investments purchased outside of the Commonwealth were excluded, since the vast majority of the spillover impacts of those expenditures occur elsewhere.
2. Second, depreciation of past years' capital expenditures was excluded, for though they represent operating expenditures booked for a particular year, they do not represent actual expenditures that took place in that year. And they do not generate any economic impacts.

Excluding these two sets of expenditures from analysis yields operating expenditures of \$26.4 million in 2018 and \$24.9 million over the past three years (see Table 2.1). The plant directly employed 157 total employees, with many of the employees living in the local community. These expenditures and employment, in turn, generate spillover impacts within the County and the Commonwealth, through indirect and induced expenditures, supporting additional employment and earnings, which are discussed in the next section.

**Table 2.1 – Annual Expenditures at SGI's Charmian Plant by Year (in \$M)<sup>6</sup>**

	2018	3-Year Average
Wages and Benefits	\$16.3	\$15.5
Other Manufacturing Costs	\$10.1	\$9.4
Operating Expenditures	\$26.4	\$24.9
Facility Employment	157	153
Capital Expenditures	\$6.7	\$8.6

Source: SGI (2019)

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<sup>5</sup> This is a doubly conservative approach to estimating economic impact. First, multiplier data assumes some out-of-state purchases, so to only model in-state purchases understates SGI's true economic impact. Second, while depreciation amounts booked in a particular year do not represent expenditures made that year, they do represent expenditures made in the past, so to exclude them understates SGI's true economic impact.

<sup>6</sup> Throughout the report, figures may not sum exactly due to rounding.

### 3. Economic Impact from Operating Expenditures

Based on the input-output multiplier data from the US Department of Commerce, ongoing annual operations of SGI’s Charmian plant are estimated to have a significant economic impact within the County and the Commonwealth (see Table 3.1). It is estimated that the \$24.9 million average annual operating expenditures of SGI’s Charmian plant generated \$37.9 million in total annual expenditures within the County, supporting 258 total jobs, including 157 individuals directly employed by SGI, and \$18.3 million in wages and salaries each year. It is also estimated that these operations generated \$57.5 million in total annual expenditures within the Commonwealth, supporting 464 total jobs and \$33.3 million in total wages and salaries each year.<sup>7</sup>

**Table 3.1 – Estimated Economic Impacts within the County and the Commonwealth Resulting from Annual Operating Expenditures at SGI’s Charmian Plant (Based on Annual Average from 2016 to 2018)**

	Adams County	Commonwealth of Pennsylvania
Direct Expenditures (\$M)	\$24.9	\$24.9
Indirect and Induced Expenditures (\$M)	\$13.0	\$32.5
Total Expenditures (\$M)	\$37.9	\$57.5
Total Employment	258	464
Total Wages and Salaries (\$M)	\$18.3	\$33.3

*Source: SGI (2019), Econslt Solutions, Inc. (2019)*

Importantly for the County and the Commonwealth, a significant proportion of SGI’s customers are located outside the County and Commonwealth. Export activity is particularly beneficial for a jurisdiction because it represents the importation of purchasing power from outside the jurisdiction to support economic activity, employment, and tax revenues within the jurisdiction.

Estimating annual economic impacts for SGI’s operating expenditures based on a three-year average from 2016 to 2018 understates SGI’s likely annual economic impact in upcoming years. Modeling total economic impact based solely on 2018 operating expenditures yields higher estimates (see Table 3.4). It is estimated that the \$26.4 million in operating expenditures in 2018 of SGI’s Charmian plant generated \$40.2 million in total annual expenditures within the County, supporting about 264 total jobs, including 157 individuals directly employed by SGI, and \$19.2 million in wages and salaries each year. It is also estimated that these operations generated \$60.9 million in total annual expenditures within the

<sup>7</sup> Because the County is contained completely within the Commonwealth, the County figures represent a subset of the Commonwealth figures.

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Commonwealth, supporting about 476 jobs and \$35 million in wages and salaries each year.<sup>8</sup>

**Table 3.4 – Estimated Economic Impacts within the County and the Commonwealth Resulting from Annual Operating Expenditures at SGI’s Charmian Plant (Based on 2018 Operations)**

	Adams County	Commonwealth of Pennsylvania
Direct Expenditures (\$M)	\$26.4	\$26.4
Indirect and Induced Expenditures (\$M)	\$13.8	\$34.5
Total Expenditures (\$M)	\$40.2	\$60.9
Total Employment	264	476
Total Wages and Salaries (\$M)	\$19.2	\$35.0

*Source: SGI (2019), Econsult Solutions, Inc. (2019)*

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<sup>8</sup> Because the County is contained completely within the Commonwealth, the County figures represent a subset of the Commonwealth figures.

## 4. Fiscal Impacts from Operating Expenditures

The composition and scale of economic impacts discussed above translate into fiscal impacts, in the form of tax revenues generated for the Commonwealth (see Table 4.1). It is estimated that the economic impacts from the ongoing annual operations of SGI’s Charmian plant will generate about \$1.1 million in state tax revenues, using a three-year average of operating expenditures from 2016 to 2018. Similar to the economic impacts, estimating annual fiscal impacts for its operating expenditures based on a three-year average from 2016 to 2018 understates SGI’s likely annual fiscal impact in upcoming years.

Based on 2018 operating expenditures, the estimated fiscal impact is about \$1.2 million. As noted above, these fiscal impacts are particularly beneficial to the Commonwealth because they are derived from export activity (i.e. the sale of goods to customers from outside the Commonwealth) and has the effect of importing this tax revenue from other states.

**Table 4.1 – Estimated Annual State Tax Revenues Generated to the Commonwealth from the Total Economic Impact Resulting from Annual Operating Expenditures at SGI’s Charmian Plant (in \$M)**

	Based on 2016-2018 Average	Based on 2018 Operations
Personal Income (\$M)	\$0.7	\$0.7
Sales (\$M)	\$0.3	\$0.3
Corporate Net Income (\$M)	\$0.1	\$0.1
<b>Total Commonwealth Tax Revenue (\$M)</b>	<b>\$1.1</b>	<b>\$1.2</b>

*Source: SGI (2019), Econsult Solutions, Inc. (2019)*

The fiscal impact estimates in Table 4.1 do not include tax revenues to local jurisdictions. SGI’s Charmian plant directly pays local property taxes, its employees pay local earned income tax, and the economic activity generated by its existence also leads to additional local tax revenues. For example, SGI’s Charmian plant paid over \$732,000 in property taxes in the past three years, including over \$254,000 in 2018. The Fairfield School District (which includes Hamiltonban Township) assesses an earned income tax on residents of 1.5% of wages and salaries, and other school districts in the area assess a similar earned income tax at rates ranging from 1.0 to 1.7%. Based upon 2018 annual salary and wages paid to Charmian plant employees of \$12.6 million, and applying an assumed average tax rate of 1.25%, those employees paid an estimated \$157,500 in earned income taxes to area school districts.

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## 5. Economic and Fiscal Impact from Capital Expenditures

Over the past three years, SGI has averaged over \$8.6 million in capital expenditures and \$6.7 million during the most recent year (2018). As with operating expenditures, capital expenditures made outside of the Commonwealth were conservatively excluded, yielding investments of about \$4.5 million in 2018 and a three-year annual average of about \$5.8 million.

These expenditures are treated separately from operating expenditures for two reasons. First, capital expenditures are inherently large and variable in nature, so it is uncertain whether the annual average of \$5.8 million over the past three years is indicative of an annual amount going forward. Second, the role of capital expenditures is usually to make ongoing operations more efficient, leading to increased profitability and growth, and therefore the impact of capital expenditures is already partially reflected in the historical operating expenditure figures, which grow over time.<sup>9</sup>

These capital investments by SGI's Charmian plant are estimated to have a significant economic impact within the County and the Commonwealth (see Table 5.1). It is estimated that the \$5.8 million average annual capital expenditures of SGI's Charmian plant generated \$8.9 million in total annual expenditures within the County, supporting 48 jobs and \$2.2 million in wages and salaries each year. It is also estimated that these operations generated \$13.4 million in total annual expenditures within the Commonwealth, supporting 75 jobs and \$3.3 million in wages and salaries earnings each year,<sup>10</sup> and generating \$167,000 in state tax revenues annually.

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<sup>9</sup> This is a doubly conservative approach to estimating economic impact. First, a significant proportion of SGI's capital expenditures are relatively consistent from year to year (e.g. replacement of machinery on a rolling multi-year basis). Second, since depreciation amounts booked in a particular year were not included in the estimates of economic impact from operating expenditures, also excluding capital expenditures understates SGI's true economic impact.

<sup>10</sup> Because the County is contained completely within the Commonwealth, the County figures represent a subset of the Commonwealth figures.

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**Table 5.1 – Estimated Economic Impacts within the County and the Commonwealth Resulting from Annual Capital Expenditures at SGI’s Charmian Plant (Based on Annual Average from 2016 to 2018)**

	Adams County	Commonwealth of Pennsylvania
Direct Expenditures (\$M)	\$5.8	\$5.8
Indirect and Induced Expenditures (\$M)	\$3.0	\$7.6
Total Expenditures (\$M)	\$8.9	\$13.4
Total Employment	48	75
Total Earnings (\$M)	\$2.2	\$3.3
Total Commonwealth Tax Revenue (\$000)	\$106	\$167

*Source: SGI (2019), Econsult Corporation (2019)*

As discussed above, capital investments are inherently large and variable in nature. In 2018, the capital spending, \$4.5 million, was lower than the 3-year average of \$5.8 million. It is uncertain whether the annual average of \$5.8 million over the past three years is indicative of an annual amount going forward or if the more recent \$4.5 million from 2018 is a better estimate. The planned expansion of the quarry, involving development of the Northern Tract, will likely require significant capital investments,<sup>11</sup> over and above the annual capital investments made by SGI. As such it is likely that last year’s capital spending will be a lower-bound estimate of future investments. Modeling total economic impact based solely on 2018 capital expenditures will provide a lower-bound estimate of the likely economic impacts going forward estimates (see Table 5.2).

It is estimated that the \$4.5 million in capital investments in 2018 generated about \$6.9 million in total annual expenditures within the County, supporting about 37 jobs and about \$1.7 million in earnings each year. It is also estimated that these operations generated \$10.5 million in total annual expenditures within the Commonwealth, supporting 58 total jobs and \$2.6 million in earnings each year,<sup>12</sup> and generating \$130,000 in Commonwealth tax revenues annually.

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<sup>11</sup> This includes over \$2.5 million in erosion and sediment controls in phases over the first ten years, as well as \$3 to \$10 million in additional equipment necessary to transport material to the processing facilities.

<sup>12</sup> Because the County is contained completely within the Commonwealth, the County figures represent a subset of the Commonwealth figures.

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**Table 5.2 – Estimated Economic Impacts within the County and the Commonwealth Resulting  
from Annual Capital Expenditures at SGI’s Charmian Plant (Based on 2018 Investments)**

	Adams County	Commonwealth of Pennsylvania
Direct Expenditures (\$M)	\$4.5	\$4.5
Indirect and Induced Expenditures (\$M)	\$2.4	\$5.9
Total Expenditures (\$M)	\$6.9	\$10.5
Total Employment	37	58
Total Wages and Salaries (\$M)	\$1.7	\$2.6
Total Commonwealth Tax Revenue (\$000)	\$83	\$130

*Source: SGI (2019), Econsult Corporation (2019)*

## Appendix - Economic Impact Model Methodology

### Economic Impact Model

The methodology and input-output model used in this economic impact analysis are considered standard in the field of economic development for estimating such expenditure impacts, and the results are typically recognized as reasonable and plausible effects, based on the assumptions (including data) used to generate the impacts. In general, one can say that any economic activity can be described in terms of the total output generated from every dollar of direct expenditures. If an industry in a given region sells \$1 million of its goods, there is a direct infusion of \$1 million into the region. These are referred to as *direct expenditures*.

However, the economic impact on the region does not stop with that initial direct expenditure. Regional suppliers to that industry have also been called upon to increase their production to meet the needs of the industry to produce the \$1 million in goods sold. Further, suppliers of these same suppliers must also increase production to meet their increased needs as well. These are referred to as *indirect expenditures*. In addition, these direct and indirect expenditures require workers, and these workers must be paid for their labor. These wages and salaries will, in turn, be spent in part on goods and services produced locally, engendering another round of impacts. These are referred to as *induced expenditures*.

Direct expenditures are fed into a model constructed by Econsult Solutions, Inc. (ESI) and based on data provided by the US Department of Commerce's Bureau of Economic Analysis through its Regional Input-Output Modeling System (RIMS II). The model then produces a calculation of the total expenditure effect on the regional economy. This total effect includes the initial direct expenditure effect, as well as the ripple effects described, the indirect and induced expenditure effects.

Part of the total expenditure effect is actually the increase in total wages and salaries (usually referred to as earnings), which the model can separate from the expenditure estimates. Direct payroll estimates are fed into the "household" industry of the input-output model. Impacts of this industry are estimated using the personal consumption expenditure breakdown of the national input-output table and are adjusted to account for regional consumption spending and leakages from personal taxes and savings. The direct, indirect, and induced earnings represent a component of the total economic impact attributable to wages and salaries. Finally, the model calculates the total expenditures affecting the various industries and translates this estimate into an estimate of the total labor (or jobs) required to produce this output.<sup>13</sup>

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<sup>13</sup> In the input-output model, the estimate of increased employment will always be in terms of the employment required for a given level of production, usually referred to as person-years of employment. As such, these estimates cannot be interpreted as specifying permanent jobs.



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In short, the input-output model estimates the total economic activity in a region that can be attributed to the direct demand for the goods or services of various industries. This type of approach is used to estimate the total economic activity attributable to the expenditures associated with various types of spending in the region.

## **Fiscal Impact Model**

The RIMS II model provides estimates of the economic impact of a project or program on the regional economy. It does not, however, estimate the fiscal impact of the increased economic activity on state and local governments. ESI has constructed a model that takes the output from the RIMS II model and generates detailed estimates of the increases in state and local tax collections that arise from the project. Those revenues are in fact a part of the total economic impact of a project that is often ignored in conventional economic impact analyses.

The RIMS II model provides estimates of direct, indirect, and induced expenditures, earnings, and employment within the defined region. The fiscal model can then estimate the increase in earned income taxes by county and for the state as a whole resulting from the project. For complex cases, like Philadelphia, the model can differentiate between residents and nonresidents and apply the proper wage tax rate. Pennsylvania state business and sales taxes, as well as business taxes in Philadelphia, are estimated based on the most recent data on average sales tax base per employee by major industry, as contained in publications from the Pennsylvania Department of Revenue.

Figure A.1 – Glossary of Terms for Input-Output Models

**Multiplier Effect** – the notion that initial outlays have a ripple effect on a local economy, to the extent that direct expenditures lead to indirect and induced expenditures.

**Economic Impacts** – total expenditures, employment, and earnings generated.

**Fiscal Impacts** – local and/or state tax revenues generated.

**Direct Expenditures** – initial outlays usually associated with the project or activity being modeled; examples: one-time upfront construction and related expenditures associated with a facility, annual expenditures associated with ongoing facility maintenance and/or operating activity.

**Direct Employment** – the full time equivalent jobs associated with the direct expenditures.

**Direct Earnings** – the salaries and wages earned by employees and contractors as part of the direct expenditures.

**Indirect Expenditures** – indirect and induced outlays resulting from the direct expenditures; examples: vendors increasing production to meet new demand associated with the direct expenditures, workers spending direct earnings on various purchases within the local economy.

**Indirect Employment** – the full time equivalent jobs associated with the indirect expenditures.

**Indirect Earnings** – the salaries and wages earned by employees and contractors as part of the indirect expenditures.

**Total Expenditures** – the sum total of direct expenditures and indirect expenditures.

**Total Employment** – the sum total of direct employment and indirect employment.

**Total Earnings** – the sum total of direct earnings and indirect earnings.

