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Economics & Analytics

Return on Investment Analysis for a Proposed Business Park in Franklin County, Virginia

Prepared for Timmons Group. Inc.
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1. Executive Summary

Franklin County is in the process of master planning a major business park, which will require significant county investment over the next 10 to 20 years. This study makes some conservative assumptions regarding the project's potential and analyzes the return on investment (ROI) Franklin County may expect for the current and future investments in the business park.

The proposed business park will attract over three hundred million dollars of private investment to Franklin County.

- This study assumes the total county cost for the development of the proposed business park is \$42.2 million in 2016 dollars. These funds will be used to acquire land, develop infrastructure such as roads, sewer and water systems, and construct public facilities such as parks, recreation fields, and public safety facilities. These assumptions will be validated as part of the master planning process currently underway.
- Aside from the county investment, the proposed business park is also expected to attract private investment, estimated at \$320.4 million in 2016 dollars, for building construction and equipment acquisition. This study assumes that the park will be planned to allow for approximately 3.27 million square feet of industrial and commercial space. These assumptions will be validated by the master plan.

The construction and the ongoing operation of the proposed business park will generate significant economic impact in Franklin County. The economic impact can be measured in three ways—impact from county investment without any business investment, impact from potential business capital investment, and impact from the anticipated ongoing operations of businesses located in the park.

- During the 20-year development phase, the county's investment in infrastructure alone is expected to generate a total of \$37.4 million (in 2016 dollars) in economic impact (direct, indirect, and induced) in Franklin County. This figure excludes the land costs, and adds indirect and induced impacts from the county expenditure of \$28.9 million within the county. On an annual average basis, the economic impact of the county's infrastructure investment alone is estimated to reach \$1.9 million (direct, indirect, and induced) that can support 14 jobs in the county from 2016 to 2035. These jobs represent only the impact from infrastructure development, assuming no businesses locating in the park.
- Private capital investment, for the construction of buildings and purchase/installation of new equipment, is expected to generate a total of \$271.8 million (in 2016 dollars) in economic impact (direct, indirect and induced) in Franklin County from 2016 to 2035. This figure may be conservative because it excludes business investment that might be spent at out-of-county businesses, and adds indirect and induced impacts from direct business investment in the county (\$216.5 million in 2016 dollars). On an annual average basis, the economic impact of the private capital investment is estimated to be \$13.6 million (direct, indirect, and induce) that can support 125 county jobs each year, such as construction and retail workers.

- For the purpose of this study, we assumed the proposed business park is expected to have light manufacturing facilities, facilities to serve logistics companies, and data centers. These assumptions will be validated by the current master plan process. When fully developed and occupied, the park is expected to be home to approximately 1,562 employees. It is estimated that all businesses located at the park will have combined annual revenues of \$277.7 million in 2016 dollars.
- Adding indirect and induced impact from business operation, the total annual economic impact (direct, indirect and induced) from the ongoing operations of all businesses located at the proposed park will reach \$351.4 million (2016 dollars) that can support 2,221 jobs in Franklin County from 2036 onward, when the park is fully occupied.

The total county taxes are estimated to be \$2.0 million (2016 dollars) per year after the proposed business park is fully occupied.

- The largest county revenue source will be real estate tax from land and buildings in the park, estimated at \$1.4 million (2016 dollars) in 2036, after the park is fully occupied.
- The annual revenues from the machinery and tools tax and business personal property tax are estimated to be \$85,339 and \$508,285 (2016 dollars), respectively, after the park is fully occupied in 2036. This figure was calculated by assuming total original cost of \$25.1 million for manufacturing equipment, \$27.5 million for equipment in logistic services companies, and \$30.0 million for equipment in data centers. This estimate also recognizes that Franklin County assesses machinery and tools and business personal property tax on a declining schedule. For example, assessment for business personal property is 50% of original cost in year one and 20% of original cost in year 7 and beyond.
- During the intermediary years, the annual county tax revenues are estimated to be \$264,213 (2016 dollars) in 2021, \$557,598 (2016 dollars) in 2026, and \$839,970 (2016 dollars) in 2031.

The ROI analysis for the county investment indicates that each dollar spent by Franklin County can support \$8.30 of annual economic impact in the county when the park is fully occupied.

- The ROI analysis of the proposed business park focuses on the county costs only (land purchase, sewer, water, roads, etc.), and the benefit is measured as the broad economic impact of the business park in Franklin County.
- The total county cost is \$42.2 million in 2016 dollars, while the total annual benefit is estimated to be \$351.4 million after the park is fully occupied, resulting in an annual benefit and cost ratio of 8.3.
- During the intermediary years, the annual benefit and cost ratio is estimated to be 3.6 in 2021, 4.7 in 2026, and 6.4 in 2031.

Table 1.1 summarizes the investment, economic impact, and ROI of the proposed business park in Franklin County, Virginia. These figures do not account for any grants Franklin County may secure for roads, nor

the fact that a portion of the funds for sanitary sewer and water may be paid by the Western Virginia Water Authority.

Table 1.1: Cost and Benefit Analysis (2016 Dollars)

	Cumulative County Cost (\$Million)	Cumulative Private Cost (\$Million)	Cumulative County Tax Revenue (\$Million)	Annual Economic Impact (\$Million)	Benefit/ County Cost Ratio
After Year 5 (2021)	\$27.6	\$46.4	\$0.8	\$100.5	3.6
After Year 10 (2026)	\$37.3	\$99.0	\$3.0	\$176.6	4.7
After Year 15 (2031)	\$42.1	\$151.6	\$6.6	\$268.8	6.4
After Year 20 (2036)	\$42.2	\$320.4	\$14.3	\$351.4	8.3

Source: Chmura

2. Background

Timmons Group is currently working on developing a master plan for Franklin County's newest business park to be located along the U.S. Route 220 between the towns of Boones Mill and Rocky Mount. In 2012, Chmura Economics & Analytics (Chmura) performed a market analysis to assist with the initial site selection and evaluation that was conducted for this park, and identified potential target industries the park could attract based on the projected growth in Franklin County and surrounding areas, including regions of Roanoke and Martinsville.¹

Since 2012, Franklin County has made steady progress in securing the funds to option, control, and purchase part of the acreage necessary for developing the business park. The county has completed diligence work on a number of properties and now controls land parcels totaling 550 acres. The County is currently in the process of master planning the project, including conducting public input sessions and stakeholder meetings. The focus of the master plan is to help guide the necessary infrastructure construction, including gas, roads, water, and sewer lines necessary to attract tax paying economic development to the county. This study assumes the infrastructure investment is expected to be undertaken by Franklin County, although other potential funding sources for the roads, sewer, and water have been identified.

Before committing the necessary resources, the county needs to understand the return on investment (ROI) of the proposed business park. Chmura is contracted to perform the ROI analysis.

The rest of the report is organized as follows:

- Section 3 explains the Chmura methodology of economic impact and ROI analysis.
- Section 4 presents the broad economic impact of the proposed business park in Franklin County.
- Section 5 summarizes the potential county tax revenues from the proposed business park.
- Section 6 evaluates the return on investment of the proposed business park.

¹ Source: Franklin County Business Park Market Analysis, prepared by Chmura Economics & Analytics for Timmons Group, October 30, 2012.

3. Methodology

3.1. ROI Methodology

For the ROI analysis of the proposed business park in Franklin County, the investment needs to be clearly defined. It is the amount of investment by the county to develop the business park, including infrastructure and utility construction, as well as planned public facilities such for recreation and/or public safety facilities. In the ROI analysis, only the county expenditures are counted as the cost. Although the goal of economic development is to attract private business, their investments (costs) are excluded from the ROI analysis.

The benefits (return) of the proposed business park can be measured in different ways. A narrow definition of benefits only includes the county tax revenues that can be generated from the business park development. However, that narrow definition ignores other county businesses and residents that are poised to benefit from the proposed business park. For example, county residents can be employed by businesses in the park, improving their income or reducing out-commuting. In addition, other county businesses can become suppliers and vendors to businesses in the park, increasing their revenues and profits.

Thus, Chmura chooses to use a broader definition of the benefit of the proposed business park in the ROI analysis, which is defined as the total economic impact of the business park in Franklin County. Since the development of the business park is expected to take 20 years, Chmura will also estimate ROI for intermediary years of 5-years, 10-years, and 15-years after the project starts, in addition to the ROI analysis for a fully occupied business park.

The ROI measure will be expressed as a benefit and cost ratio, so it can be easily compared with other investment instruments and projects.

3.2. Economic Impact Methodology

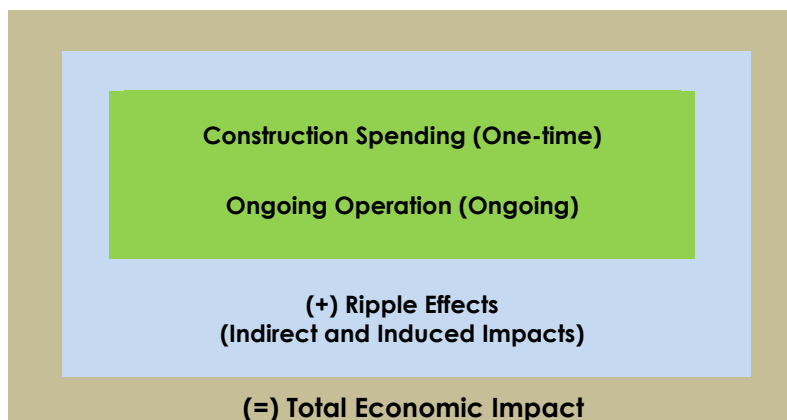
Since the benefit of the proposed business park is defined as the broader economic impact of the proposed business park in Franklin County, this section briefly summarizes Chmura's approach to the economic impact analysis.

The economic impact resulting from the proposed business park will occur in two phases:

- One-time economic impact from development and construction of the business park: the impact includes activities such as infrastructure development, construction of new facilities, and equipment acquisition and installation. Both county and private investments will be used in the development of the business park.
- Ongoing operation of the business park: economic impact comes primarily from revenues or sales generated by businesses located in the park.

While the two components above constitute the direct economic impact of the proposed business park in Franklin County, the total economic impact also includes ripple effects from the direct impact. Ripple effects, categorized as indirect and induced impacts,² measure the secondary benefits that can be generated by both the construction and ongoing operations of the park. Using the operation of a manufacturing business as an example, the indirect impact is increased sales and employment that occur for any local businesses that sell supplies and services, such as raw materials, utilities, and equipment rentals, to the manufacturing business. The induced impact is the increased sales and employment that occur in local communities when the manufacturing firm's employees spend their wages. Beneficiaries of the induced impact are primarily consumer-related businesses such as retail stores, restaurants, and hospitals. Figure 3.1 summarizes the framework that Chmura used to estimate the direct and ripple effects of the proposed business park.

Figure 3.1: Economic Impact Analysis Framework



Background data for the direct impact, such as the size of the proposed park and estimated capital expenditures, were provided by Timmons Group. Indirect and induced impacts were estimated with IMPLAN Pro[®] software after the direct impact was identified.³ Total operational and capital expenditures were input into the various IMPLAN model sectors to estimate the indirect and induced impacts for each sector. These impacts were aggregated to yield the estimates of the overall economic impact of the proposed business park in Franklin County.

In addition to the economic impact, this study also estimates the fiscal impact of the proposed business park to Franklin County government. The tax revenue for the county will come from ongoing operation of the park.⁴ Franklin County will collect real estate, machinery and tools, and business personal property

² Please see Appendix 1 for terms and definitions.

³ *IMPLAN Professional* (IMPLAN Pro[®]) is an economic impact assessment modeling system developed by the Minnesota IMPLAN Group that is often used by economists to build economic models that estimate the impacts of economic changes in local economies.

⁴ Franklin County does not have a Business, Professional, and Occupational License (BPOL) tax.

taxes on the structure and equipment of businesses located at the park. Current tax rates for the county are used to estimate tax revenue, though tax rates may change in the future.

4. Economic Impact of the Proposed Business Park

4.1. One-time Economic Impact of Capital Investment

There are two types of capital expenditures for the proposed business park. The first is the investment by Franklin County for land acquisition, site development, roads, and utility construction. The second type of capital expenditure is the building construction and equipment acquisition and installation, which is typically done by private businesses attracted to the park. Chmura analyzes the impact of those two types of investment separately.

4.1.1. One-time Economic Impact of County Capital Investment

The total county investment to develop the proposed business park is estimated to be \$42.2 million in 2016 dollars (Table 4.1). The county investment will be used to develop infrastructure such as roads (\$11.6 million), the sewer system (\$8.1 million), and the water system (\$3.6 million). In addition, the county is currently proposing to build a public safety facility and/or recreational park on the site. These assumptions will be validated in the current master planning process. Another major county cost is \$10.7 million for land acquisition.⁵ For the purpose of this analysis, the total development phase of the park is assumed to last 20 years from 2016 to 2035; this study assumes that approximately 50% of the county investment (\$20.3 million) will occur in the first two years of the development phase. It is understood that the county has identified potential sources of funding for much of this infrastructure which is not reflected in the table below.

Table 4.1: Estimated County Development Costs (\$Million, 2016 Dollars)

	Year 1-2	Year 3-5	Year 6-10	Year 11-15	Year 16-20	Total
Water	\$0.5	\$1.5	\$1.1	\$0.6	\$0.0	\$3.6
Sewer	\$5.9	\$0.7	\$1.1	\$0.3	\$0.0	\$8.1
Roads	\$2.0	\$2.5	\$4.7	\$2.4	\$0.0	\$11.6
Landscaping/Maintenance	\$0.0	\$0.3	\$0.1	\$0.4	\$0.1	\$0.9
Public Safety/Recreations	\$0.0	\$0.8	\$0.5	\$0.0	\$0.0	\$1.2
Grading	\$0.3	\$0.3	\$0.8	\$0.5	\$0.0	\$1.9
Professional Services	\$0.9	\$0.8	\$1.0	\$0.5	\$0.0	\$3.2
Wetland Permitting and Mitigation	\$0.0	\$0.5	\$0.5	\$0.0	\$0.0	\$1.0
Land Acquisition	\$10.7	\$0.0	\$0.0	\$0.0	\$0.0	\$10.7
Total	\$20.3	\$7.3	\$9.7	\$4.8	\$0.1	\$42.2

Note: Numbers may not sum due to rounding

Source: Timmons Group

⁵ According to impact study best practices, it is assumed that the money to acquire land does not have local economic impact.

The economic impact of the construction activities associated with the county's investment is summarized in Table 4.2. This economic impact is a direct result of the proposed infrastructure development and assumes no businesses have located in the park. In addition to the total impact for the entire development phase, the economic impacts are also presented for five-year intervals. For example, by Year 5 (2020), a total of \$15.6 million (in 2016 dollars) will have been directly spent in Franklin County to develop the business park.⁶ This spending will support 116 cumulative jobs in 5 years, mostly in the construction trades. The indirect impact is estimated to result in \$2.9 million in additional sales and 27 cumulative jobs in Franklin County, in industries supporting construction, such as truck transportation, utilities, and site services. The induced impact is projected to total \$1.7 million and 14 cumulative jobs in Franklin County in the first five years of construction. The induced jobs, which are generated when construction workers spend their income in the county, will be concentrated in consumer service-related industries such as restaurants, healthcare, and retail.

Overall, during the 20-year development phase, the county's investment is expected to generate a total economic impact (direct, indirect, and induced) of \$37.4 million (in 2016 dollars) in Franklin County. That spending will support 286 cumulative jobs. On an annual average basis, the economic impact of the county capital investment is estimated to be \$1.9 million that can support 14 jobs in the county on average each year from 2016 to 2035.

Table 4.2: Estimated Economic Impact of County Cost (2016 Dollars)

		Direct	Indirect	Induced	Total
5-Year Cumulative (2016-2020)	Spending (\$Million)	\$15.6	\$2.9	\$1.7	\$20.1
	Employment	116	27	14	158
10-Year Cumulative (2015-2025)	Spending (\$Million)	\$24.4	\$4.5	\$2.6	\$31.6
	Employment	179	42	22	243
15-Year Cumulative (2016-2030)	Spending (\$Million)	\$28.8	\$5.4	\$3.1	\$37.2
	Employment	209	50	26	285
20-Year Cumulative (2016-2035)	Spending (\$Million)	\$28.9	\$5.4	\$3.1	\$37.4
	Employment	210	50	26	286
Annual Average (2016-2035)	Spending (\$Million)	\$1.4	\$0.3	\$0.2	\$1.9
	Employment	10	2	1	14

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2014, Timmons, and Chmura

4.1.2. One-time Economic Impact of Private Investment

The proposed business park in Franklin County is also expected to bring in private investment, as businesses choose to locate in the park and invest in buildings and equipment. This analysis assumes the plan for the park includes 11 buildings with a total of 3.27 million square feet (SF) of commercial and industrial space (Table 4.3). The total private investment is estimated to be \$320.4 million in 2016 dollars to

⁶ This amount does not include land acquisition costs.

be used for buildings, equipment and professional services. The buildings of the park will be used for light industry/flex space, logistics services, and data centers. It is assumed that the construction of the project will last 20 years, from 2016 to 2035.⁷

Table 4.3: Plan and Private Cost Estimates for Franklin County Business Park (2016 Dollars)

		Industry	Size (Square Feet)	Total Cost (\$Million)
Phase 1	Building 1	Flex/Light Manufacturing	200,000	\$20.6
	Building 2	Flex/Light Manufacturing	120,000	\$12.4
	Building 3	Logistics	300,000	\$20.6
	Building 4	Logistics	300,000	\$20.6
	Building 5	Flex/Light Manufacturing	250,000	\$25.8
	Building 6	Flex/Light Manufacturing	150,000	\$12.4
	Building 7	Flex/Light Manufacturing	200,000	\$20.6
	Building 8	Data Center	300,000	\$66.0
Phase 2	Building 9	Distribution/Logistics	1,000,000	\$75.0
	Building 10	Distribution/Logistics	250,000	\$25.8
	Building 11	Flex/Light Manufacturing	200,000	\$20.6
Total			3,270,000	\$320.4

Source: Timmons

The economic impact of the construction activities from private investment is summarized in Table 4.4. As with the impacts of county costs, the economic impacts of private investment were estimated for 5-year intervals. For example, by Year 5 (2020), a total of \$34.7 million (in 2016 dollars) will have been directly spent in Franklin County to support building construction and equipment purchases. This spending will directly support 324 cumulative jobs in 5 years, mostly in the construction trades.⁸ The indirect impact is estimated to be \$4.3 million in spending and 39 cumulative jobs, while the induced impact is projected to total \$4.6 million and 39 cumulative jobs in Franklin County in the first five years of construction.

⁷ Timmons provided information on when each building will be constructed.

⁸ Direct impacts are expected mostly in the construction trades because the expenditures for equipment will be paid to businesses outside the county.

Table 4.4: Estimated Economic Impact of Private Investment in Franklin County (2016 Dollars)

		Direct	Indirect	Induced	Total
5-Year Cumulative (2016-2020)	Spending (\$Million)	\$34.7	\$4.3	\$4.6	\$43.5
	Employment	324	39	39	403
10-Year Cumulative (2016-2025)	Spending (\$Million)	\$74.0	\$9.1	\$9.8	\$92.9
	Employment	692	84	83	859
15-Year Cumulative (2016-2030)	Spending (\$Million)	\$113.3	\$14.0	\$15.0	\$142.2
	Employment	1,060	128	127	1,316
20-Year Cumulative (2016-2035)	Spending (\$Million)	\$216.5	\$27.0	\$28.3	\$271.8
	Employment	2,008	242	241	2,490
Annual Average	Spending (\$Million)	\$10.8	\$1.4	\$1.4	\$13.6
	Employment	100	12	12	125

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2014, Timmons, and Chmura

Overall, during the 20-year development phase, private investment is expected to generate an economic impact (direct, indirect, and induced) of \$271.8 million (in 2016 dollars) in Franklin County.⁹ That spending will support 2,490 cumulative jobs in 20 years. On an annual average basis, the economic impact of the private investment is estimated to be \$13.6 million that can support 125 jobs in the county per year from 2016 to 2035.

4.2. Economic Impact of Business Park Operations

In 2012, Chmura Economics & Analytics (Chmura) performed a market analysis for a potential business park in Franklin County, and identified target industries the park could attract. This study helped the County in the initial site selection and evaluation study that led to purchasing the above referenced properties.

Chmura re-evaluated the economic trends of the past three years. In addition, Chmura interviewed the county economic development staff on the current development priorities of the county. As a result of the above information, Chmura includes the following industries in this ROI analysis: logistics services, data centers, and light manufacturing. These proposed uses, and the anticipated building and equipment values provide a conservative estimate of potential private investment. Specifically, Chmura uses the average of the following industries to simulate the economic impact of light manufacturing: medical

⁹ Please note that the direct impact of \$216.5 million is smaller than \$320.4 million because not all of the products and services needed can be purchased from Franklin County businesses. For example, much of the spending on equipment will benefit out-of-county businesses. Chmura uses the IMPLAN Pro model to estimate the percentage of spending within the county.

equipment manufacturing; bakery/ food manufacturing; printing; apparel manufacturing; and semiconductor manufacturing.¹⁰

For direct operational revenue and employment of the proposed business park, Chmura uses the following estimating approach. Based on the size of industrial or commercial space, Chmura first estimates the number of employees that typically occupy those spaces. For example, the latest data from the Department of Energy¹¹ indicate that for industrial businesses, each worker will occupy 1,789 square feet of space. For warehouse and logistics industries, each worker will typically occupy 2,048 SF. Using those assumptions, it is estimated that the proposed business park can have 1,562 workers when it is fully occupied. Using the IMPLAN Pro model's estimate of the average revenue per worker for the different industries, Chmura is able to estimate that the total revenue of all businesses located in the park can reach \$277.7 million in 2016 dollars, when the park is fully occupied.

Table 4.5 presents the economic impact from the ongoing operations of businesses located at the proposed business park in Franklin County. When all buildings in the park are in operation in 2036, all businesses combined are estimated to have a direct output (total revenues or sales) of \$277.7 million (in 2016 dollars). Those businesses will directly employ 1,562 workers. The annual indirect impacts of \$53.0 million and 483 jobs represent increased spending and employment for businesses in the county which support the businesses in the park. The induced impacts of \$20.6 million and 175 jobs are the result of increased spending by local consumers who are working in the proposed business park. The total annual economic impact (direct, indirect and induced) of the business park can reach \$351.4 million (2016 dollars) that can support 2,221 jobs in Franklin County from 2036 onward.

Table 4.5: Estimated Economic Impact Business Park Operation (2016 Dollars)

		Direct	Indirect	Induced	Total
After Year 5 (2021)	Spending (\$Million)	\$72.4	\$11.4	\$4.4	\$88.3
	Employment	252	100	38	389
After Year 10 (2026)	Spending (\$Million)	\$133.9	\$22.8	\$8.9	\$165.6
	Employment	577	202	75	854
After Year 15 (2031)	Spending (\$Million)	\$195.5	\$34.1	\$13.3	\$242.8
	Employment	902	304	113	1,319
After Year 20 (2036)	Spending (\$Million)	\$277.7	\$53.0	\$20.6	\$351.4
	Employment	1,562	483	175	2,221

Note: Numbers may not sum due to rounding

Source: IMPLAN Pro 2014, Timmons, and Chmura

During the intermediary years, when only part of the proposed business park is in operation, the annual economic impact is smaller. For example, after the fifth year of construction, the total economic impact of business park operation is estimated to be \$88.3 million (including direct, indirect, and induced, in 2016

¹⁰ The listed industries are the light manufacturing industries that currently have a presence in the county.

¹¹ Source: Commercial Building Energy Consumption Survey, Department of Energy
<http://www.eia.gov/consumption/commercial/>.

dollars) in 2021, supporting 389 county jobs. The operational impact is projected to increase to \$165.6 million and 854 county jobs in 2026, and \$242.8 million and 1,319 jobs in 2031.

5. County Fiscal Impact

The construction and operation of the proposed business park will also bring in tax revenue to the government of Franklin County. In order to make a conservative estimate, only tax revenue from the direct impact was estimated in this section.¹²

During the construction phase, Virginia localities that have a Business, Professional, and Occupational License (BPOL) tax can collect BPOL tax revenue from various types of construction spending. However, Franklin County does not have a BPOL tax. As a result, Franklin County will not collect any tax from the construction activities.

After the businesses in the proposed business park are in operation, Franklin County can collect real estate tax from the land and the buildings located in the park. Currently, the county real estate tax rate is 0.55% of the assessed value.¹³ It is assumed that the assessed property value (in 2016 dollars) is the value of the land plus the construction cost of buildings. As a result, after the park is fully occupied, the annual real estate tax for Franklin County is estimated to be \$1.4 million (in 2016 dollars) in 2036.

Table 4.6: Annual County Tax from Operation (2016 Dollars)

	Real Estate Tax	Machinery & Tool Tax	Personal Property Tax	Total
After Year 5 (2021)	\$216,963	\$47,250	\$0	\$264,213
After Year 10 (2026)	\$464,842	\$57,356	\$35,400	\$557,598
After Year 15 (2031)	\$712,722	\$73,264	\$53,985	\$839,970
After Year 20 (2036)	\$1,367,080	\$85,339	\$508,285	\$1,960,704

Note: Numbers may not sum due to rounding

Source: Chmura

Equipment in manufacturing businesses is subject to the county's machinery and tools tax. The tax rate is 0.70% of the assessed value of equipment. The assessment ratio (the percentage of assessed value in original cost) is 100% for Year 1, 90% for Year 2, 80% for Year 3, 70% for Year 4, 60% for Year 5, 50% for Year 6, and 40% for Year 7 and onward.¹⁴ The total original cost of manufacturing equipment is assumed to be \$25.1 million, which will be installed in the business park at different times. Using the assumptions of the original cost, the county's assessment schedule and the assumed construction schedule, it is estimated that the county's machinery and tools tax will reach \$85,339 (in 2016 dollars) in 2036.

Equipment in data centers and logistics businesses is subject to the business personal property tax. The statutory tax rate is 2.36% of the assessed value. The assessment ratio is 50% for Year 1, 45% for Year 2, 40% for Year 3, 35% for Year 4, 30% for Year 5, 25% for Year 6, and 20% for Year 7 and onward.¹⁵ The total original cost of equipment in logistic businesses is assumed to be \$27.5 million while the total original cost

¹² This approach is recommended by Burchell and Listokin in *The Fiscal Impact Handbook*.

¹³ Source: Franklin County website, available at: <http://www.franklincountyva.gov/cor-tax-rates>.

¹⁴ Source: Franklin County.

¹⁵ Ibid.

of equipment in data centers is assumed to be \$30.0 million. Using the assumptions of the original cost, the county's assessment schedule and the assumed construction schedule, it is estimated that the business personal property tax will reach \$508,285 (in 2016 dollars) in 2036.

In summary, the total annual county tax is estimated to be \$2.0 million (2016 dollars) in 2036 after the business park is fully occupied. During the intermediary years, the annual county tax is estimated to be \$264,213 in 2021, \$557,598 in 2026, and \$839,970 in 2031.

6. Return on Investment of the Proposed Business Park

The return on investment (ROI) is defined as the ratio of the economic benefit to the county investment, as presented in Table 6.1.

Table 6.1: Cost and Benefit Analysis (2016 Dollars)

	Cumulative County Cost (\$Million)	Cumulative Private Cost (\$Million)	Cumulative County Tax Revenue (\$Million)	Annual Economic Impact (\$Million)	Benefit/ County Cost Ratio
After Year 5 (2021)	\$27.6	\$46.4	\$0.8	\$100.5	3.6
After Year 10 (2026)	\$37.3	\$99.0	\$3.0	\$176.6	4.7
After Year 15 (2031)	\$42.1	\$151.6	\$6.6	\$268.8	6.4
After Year 20 (2036)	\$42.2	\$320.4	\$14.3	\$351.4	8.3

Source: Chmura

In this analysis, Chmura uses a broader definition of the benefit of the business park, which is defined as the total economic impact of the business park in Franklin County. Using this definition, the total county cost is \$42.2 million in 2016 dollars, while the total annual benefit of the business park is estimated to be \$351.4 million after the park is fully occupied. As a result, each dollar spent by Franklin County can generate \$8.30 of annual economic benefit in the county.

During the intermediary years, the benefit and cost ratios are smaller, as the county cost is front loaded with close to half of the costs spent in the first two years. The annual benefit and cost ratio is estimated to be 3.6 in 2021, 4.7 in 2026, and 6.4 in 2031.

Appendix 1: Impact Study Glossary

IMPLAN Professional is an economic impact assessment modeling system. It allows the user to build economic models to estimate the impact of economic changes in states, counties, or communities. It was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific events on the overall economy.

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

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

Overhead—construction inputs not provided by the contractor.

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

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

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