



**SCHENECTADY METROPLEX DEVELOPMENT AUTHORITY**

ALCO Redevelopment Project  
Economic Output Analysis

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Prepared by

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## **ALCO Redevelopment Project Economic Output Analysis**

This analysis presents economic output estimates for the ALCO redevelopment project. The analysis covers a 15-year period commencing with the start of Phase 1 construction. The study covers all three construction phases (scheduled to begin in five-year intervals) and post-construction operations at ALCO associated with the completion of each construction phase.

This study looks at the effect of the project on the Schenectady County economy. It presents economic outputs that both begin (as inputs) and terminate in Schenectady County (by means of wages for labor, cash receipts, taxes, and so forth). The analysis does not cover that portion of project-related economic output that migrates beyond Schenectady County.

This study utilizes the U.S. Department of Commerce's Bureau of Economic Analysis Regional Input-Output Modeling (RIMS) framework. This proven method provides an objective, transparent, reproducible, and well-respected means of assessing overall economic activity linked to a given economic-development investment.

This study uses the RIMS endogenous model, which produces the aggregate primary, secondary, and consumer spending associated with each phase of the project. The endogenous model is termed RIMS Type II or RIMS-II.<sup>1</sup>

This study is in five sections:

1. A listing of the assumptions and input sources used to develop the various economic output models used to develop output estimates.
2. A summary of key project outputs.
3. The year-to-year and cumulative economic output associated with the project's three construction phases and each phases post-construction operations, presented in a range of one through 15 years.
4. Calculation of the Return on Public Investment (ROPI) associated with project's inputs and outputs, focusing on a ratio of the estimated value of

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<sup>1</sup> As opposed to using the RIMS exogenous model, which includes the direct and indirect effects only. This model is termed the RIMS Type I or RIMS-I model.

identified public investment to the economic output associated with the project over 15 years.

5. An appendix presenting an overview of the RIMS-II method.

Note: While this study tracks economic inputs and outputs for the ALCO project over a 15-year period, and some degree of economic inflation, stagflation, or deflation will inevitably occur over time, *all dollar figures presented in this study are constant dollars*. Given the relative instability of both the Capital Region's monthly Consumer Price Index and up- and down-swing volatility in the East Coast's construction materials market over the past 10 years, it is not possible to accurately predict an inflation curve for the 15 years under study.<sup>2</sup>

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<sup>2</sup> US Commerce Department data covering the Capital Region shows marked instability in the region's Consumer Price Index (CPI), the Regional CPI being the primary means of assessing a general inflation rate for a given domestic microeconomy. Over the past 10 years the Capital Region's CPI has an annualized growth rate of 2.46%, with an overall weak downward trend—the year-to-year increase shrinking an average of -0.19% over the period. However, there is virtually no linear correlation over time in the month-to-month or annual figures. In fact, a Pearson's Product of Moment calculation on a dataset covering the past 120 months of Capital Region CPI figures produces an  $R^2$  of 0.005676, meaning that less than 1% of the month-to-month CPI trend is linear, thus evidencing great instability. This lack of linear stability makes it impossible to forecast the region's future CIP, hence inflation, with a reasonable degree of accuracy.

Parenthetically, we note that the US domestic CPI and virtually all regional CPI rates (including the Capital District) have traditionally followed strong linear trends. In fact, the bulk of the instability in the region's 10-year month-to-month CPI occurred over the past 48 months, with individual month-to-month swings ranging -1.9% to 0.8%. This marked instability tracks precisely a period of national economic crisis. It is very likely that once the national economy stabilizes and begins to grow again, the Capital Region CPI will regain the linear predictability that marked the region's post-Great Depression experience through the year 2000.

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## I. Study Assumptions

This economic output analysis of the ALCO redevelopment project opportunity assumes the following:

- An estimated overall development budget of \$152,212,500.
  - Construction Phase 1, set to commence in Year 1 of the ALCO project: initial site preparation, \$4,000,000; environmental remediation, \$10,000,000; 150,000 square feet of commercial construction @\$125/sf, \$18,750,000; 25,000 square feet of retail construction @\$175/sf, 7,375,000; 75 residential housing units @\$100,000/each, \$7,500,000; construction soft costs @10% of the phase construction budget, \$4,462,500; \$49,087,800 overall.
  - Construction Phase 2, set to commence in Year 6 of the ALCO project: environmental remediation, \$10,000,000; 150,000 square feet of commercial construction @\$125/sf, \$18,750,000; 25,000 square feet of retail construction @\$175/sf, 7,375,000; 75 residential housing units @\$100,000/each, \$7,500,000; construction of a 125-room hotel, \$15,000,000; construction soft costs @10% of the phase construction budget, \$5,562,500; \$61,187,500 overall.
  - Construction Phase 3, set to commence in Year 11 of the ALCO project: environmental remediation, \$10,000,000; 150,000 square feet of commercial construction @\$125/sf, \$18,750,000; 25,000 square feet of retail construction @\$175/sf, 7,375,000; 50 residential housing units @\$100,000/each, \$5,000,000; construction soft costs @10% of the phase construction budget, \$3,812,500; \$41,937,500 overall.
- Planned construction outcomes include:
  - 450,000 square feet of commercial space, both office and R&D (150,000 square feet in each of three project phases)
  - 75,000 square feet of retail space, including restaurants (25,000 square feet in each of three project phases)
  - A hotel with 125 rooms (planned for construction in project Phase 2)

- Construction of 200 residential housing units, including 50 townhomes, 50 condos, and 100 apartments (75 units in project Phase 1, 75 units in Phase 2, and 50 units in Phase 3)
- The project will benefit from an estimated \$16,253,100 in public investment from various sources:
  - Restore NY Award: \$4 million grant for site demolition and existing building façade restoration
  - Schenectady Metroplex Development Authority: \$1 million grant
  - A PILOT agreement with the Schenectady County Industrial Development Agency: estimated value \$500,000 (over five years)
  - Sales tax exemption on construction purchasing: estimated value \$3,653,100 (assuming that 30% over the overall construction budget is subject to sales tax and an 8% sales tax rate)
  - Mortgage recording tax exemption providing a 1% exemption on financing of 50% of total project cost: estimated value \$500,000
  - NYS DEC Brownfield tax credit program: estimated \$6,600,000 (22% of the \$30,000,000 environmental remediation portion of the construction budget—\$10,000,000 in each phase)
- The output estimates developed in this study derive from various US Bureau of Economic Affairs RIMS-II (January 2010 series) industry categories with a dataset encompassing Schenectady County, New York. Categories include:
  - 11.0800, office, industrial, and commercial construction
  - 11.0900, specialized construction
  - 71.0201, real estate agents, managers, and operators
  - An aggregate of finance, insurance, professional services, engineering services, (covering office building occupancy)
  - An aggregate of retailing categories (covering retail-space occupancy)
  - An aggregate of engineering, architectural, surveying, and construction consulting services (covering the construction soft costs)

## II. Key Outputs

- Once all three phases of construction are completed (after Year 11 of the project), the overall project construction budget of \$152,212,500 will have generated \$219,935,993 of overall final-demand economic output within Schenectady County. This includes construction-related payrolls of \$41,307,705, creating 976.8 one-year full time equivalent (FTE) jobs, with an average annual wage of \$42,288.
- Once all construction is complete (after Year 11), ongoing operations at the ALCO properties will generate \$770,506,945 of final-demand economic output within Schenectady County *annually*. This includes \$132,279,663 of payrolls, sustaining 2,849.6 permanent FTE jobs.
- Given that ongoing operations will commence in each phase upon completion of construction, the project will start generating long-term economic output in Year 2 (with \$266,483,341 of final-demand economic output within Schenectady), and increasing in steps until the project enters its fully operational phase after Year 11. The amount of annual payroll and associated permanent FTE jobs will likewise rise in steps as the project's construction phases complete.
- Once fully operations, the ARCO site will house 2725.2 permanent FTE permanent mixed-use office jobs.<sup>3</sup> With this, the site will house 81.6 permanent FTE permanent retail jobs<sup>4</sup> and 42.5 hotel jobs.

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<sup>3</sup> The estimate of ongoing mixed-use office employment is derived by dividing 475,000 square feet of combined office/retail space by the US General Services Administration benchmark of 230 square feet per employee (200 usable square feet plus 30 square feet of common space), and multiplying the result by an occupancy rate of 85%.

<sup>4</sup> Ongoing retail employment is derived by dividing 75,000 square feet of retail space by the US Energy Information Administration's benchmark for retail space of 945 square feet per employee, and multiplying the result by an occupancy rate of 85%.

- The project will develop 200 new housing units, divided between townhomes, condos, and apartments.<sup>5</sup> Given conservative targets of 75% occupancy of each phase one year after construction and an 8% annual turnover rate, the project will generate a peak of \$12,450,000 in real estate sales. Annual turnover-related sales will run about \$3,200,000 after all three phases are constructed and reach their initial 75% occupancy levels.
- After one year, the project will produce final-demand economic output within Schenectady County at a ratio of \$10.38 to each dollar of public investment (including grants, sales tax abatement, tax credits, and so forth).
- After five years, given the cumulative value of the final-demand economic output within Schenectady County derived from the ongoing operations at the completed portion of the project, this ratio increases to \$123.55 to \$1. After 10 years, with five additional years of cumulative economic output, the ratio increases to \$278.94 to \$1. And after 15 years, with five further years of cumulative economic output, the ratio rises to \$444.08 to \$1.

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<sup>5</sup> Note, as of the time this study was undertaken, there are no firm targets set regarding the division of rental verses owner-occupancy among the housing units. Accordingly, it is impossible to estimate related future employment or ongoing property-management costs. However, it is self-evident that 200 units of residential housing will generate economic activity. In trying to balance many factors, we've taken what we believe is a conservative approach: An initial sale/occupancy rate of 75% at the end of the first year after construction of each project phase, with later year sales assuming an 8% annual turnover rate, with all sales averaging \$200,000.

### III. ALCO Redevelopment Project RIMS-II Input-Output Tables

#### Annual Output Tables

The following 15 tables present what we believe is the value of economic input derived from the ALCO project, and the associated economic outputs terminating within Schenectady County. Each table lists six values and identifies the project phases from which they derive:

- *Input*. The input values are either a direct budget figure (in the case of construction line items) or RIMS-II based economic activity calculations based on the employment associated with each of the various operational activities (commercial, retail, hospitality, and residential).<sup>6</sup>
- *Output*. This figure represents the overall economic activity within Schenectady County generated by the line item.<sup>7</sup>
- *Wages*. This represents the gross wages portion of the overall output paid to people residing within Schenectady County.
- *Jobs*. This represents the number of individual full time equivalent (FTE) jobs within Schenectady County that the wages support.
- *Average Wage*. This is the average salary of each FTE job.
- *Value Added*. This is the value-added US Gross Domestic Product (GDP) derived from the input and terminating within Schenectady County.<sup>8</sup>

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<sup>6</sup> Estimating input economic activity based on level of employment by industrial sector is integral to the RIMS-II method. The accuracy of this aspect of the RIMS-II method is based on the US Bureau of Economic Affairs use of aggregate data gathered from corporate income tax returns and employer employee tax filings within a given micro economy (such as a county), sorted by industry sector. Given that ratios of employees to economic activities are highly correlated within individual industry sectors, estimates derived from this method are considered highly accurate. Studies undertaken by the BEA find that 95% of such estimates fall within a range of  $\pm 5\%$  of the actual values generated from project economic activities, as derived by traditional audit methods.

<sup>7</sup> The output listed here is formally termed “final demand output” and represents the sum of all primary and secondary purchasing, employment, taxes, fees, and other business activity within Schenectady County associated with the value of the economic input from which it is derived.

<sup>8</sup> For the purposes of the report, *value-added output* refers to the estimate of the dollar volume of the US Gross Domestic Product originating from the project (or project component) and

*Table 1: Year 1 Input-Output Summary*

<b>Year 1 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Construction						
General Site Prep	\$4,000,000	\$14,598,000	\$2,738,000	65.1	\$42,027	\$7,217,000
Environmental Remediation	\$10,000,000	\$27,371,250	\$5,133,750	122.2	\$42,027	\$13,531,875
Commercial Construction	\$18,750,000	\$6,386,625	\$1,197,875	28.5	\$42,027	\$3,157,438
Retail Construction	\$4,375,000	\$10,948,500	\$2,053,500	48.9	\$42,027	\$5,412,750
Residential Construction	\$7,500,000	\$21,897,000	\$4,107,000	97.7	\$42,027	\$10,825,500
Construction Soft Costs	\$4,462,500	\$7,210,113	\$1,375,050	30.3	\$45,405	\$4,981,219
<b>Year 1 Totals</b>	<b>\$49,087,500</b>	<b>\$88,411,488</b>	<b>\$16,605,175</b>	<b>392.7</b>	<b>\$42,288</b>	<b>\$45,125,781</b>

*Table 2: Year 2 Input-Output Summary*

<b>Year 2 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$11,250,000	\$12,706,875	\$333,000	9.6	\$34,803	\$9,315,000
<b>Year 2 Totals</b>	<b>\$205,518,026</b>	<b>\$266,483,341</b>	<b>\$43,985,118</b>	<b>944.3</b>	<b>\$46,582</b>	<b>\$157,267,487</b>

*Table 3: Year 3 Input-Output Summary*

<b>Year 3 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
<b>Year 3 Totals</b>	<b>\$195,468,026</b>	<b>\$255,131,866</b>	<b>\$43,687,638</b>	<b>935.7</b>	<b>\$46,689</b>	<b>\$148,946,087</b>

terminating (that is, is spent, collected, or otherwise distributed) within Schenectady County. In concept, a project's value-added output is equal to its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) less the value of its intermediate inputs (consumption of goods and services purchased from other US industries or imported). As such, a project's value-added output is a true measure of economic growth, as opposed to economic "churn"—the recycling of economic activity within a given local economy.

Table 4: Year 4 Input-Output Summary

<b>Year 4 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
<b>Year 4 Totals</b>	<b>\$195,468,026</b>	<b>\$255,131,866</b>	<b>\$43,687,638</b>	<b>935.7</b>	<b>\$46,689</b>	<b>\$148,946,087</b>

Table 5: Year 5 Input-Output Summary

<b>Year 5 Input-Outputs</b>	<i>inputs</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
<b>Year 5 Totals</b>	<b>\$195,468,026</b>	<b>\$255,131,866</b>	<b>\$43,687,638</b>	<b>935.7</b>	<b>\$46,689</b>	<b>\$148,946,087</b>

Table 6: Year 6 Input-Output Summary

<b>Year 6 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 2 Construction						
Environmental Remediation	\$10,000,000	\$14,598,000	\$2,738,000	65.1	\$42,027	\$7,217,000
Commercial Construction	\$18,750,000	\$27,371,250	\$5,133,750	122.2	\$42,027	\$13,531,875
Retail Construction	\$4,375,000	\$6,386,625	\$1,197,875	28.5	\$42,027	\$3,157,438
Residential Construction	\$7,500,000	\$10,948,500	\$2,053,500	48.9	\$42,027	\$5,412,750
Hotel Construction	\$15,000,000	\$21,897,000	\$4,107,000	97.7	\$42,027	\$10,825,500
Construction Soft Costs	\$5,562,500	\$7,210,113	\$1,375,050	30.3	\$45,405	\$4,981,219
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
<b>Year 6 Totals</b>	<b>\$256,655,526</b>	<b>\$343,543,353</b>	<b>\$60,292,813</b>	<b>1328.4</b>	<b>\$45,388</b>	<b>\$194,071,869</b>

Table 7: Year 7 Input-Output Summary

<b>Year 7 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$11,250,000	\$12,706,875	\$333,000	9.6	\$34,803	\$9,315,000
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
<b>Year 7 Totals</b>	<b>\$405,092,303</b>	<b>\$527,178,354</b>	<b>\$88,901,345</b>	<b>1922.4</b>	<b>\$46,244</b>	<b>\$309,877,171</b>

Table 8: Year 8 Input-Output Summary

<b>Year 8 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
<b>Year 8 Totals</b>	<b>\$395,042,303</b>	<b>\$515,826,879</b>	<b>\$88,603,865</b>	<b>1913.9</b>	<b>\$46,295</b>	<b>\$301,555,771</b>

Table 9: Year 9 Input-Output Summary

<b>Year 9 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
<b>Year 9 Totals</b>	<b>\$395,042,303</b>	<b>\$515,826,879</b>	<b>\$88,603,865</b>	<b>1913.9</b>	<b>\$46,295</b>	<b>\$301,555,771</b>

Table 10: Year 10 Input-Output Summary

Year 10 Input-Output	input	output	wages	jobs	avg wage	value-add
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	\$1	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
<b>Year 10 Totals</b>	<b>\$395,042,303</b>	<b>\$515,826,879</b>	<b>\$88,603,865</b>	<b>1913.9</b>	<b>\$46,295</b>	<b>\$301,555,771</b>

Table 11: Year 11 Input-Output Summary

Year 11 Input-Output	input	output	wages	jobs	avg wage	value-add
Phase 3 Construction						
Environmental Remediation	\$10,000,000	\$27,371,250	\$5,133,750	122.2	\$42,027	\$13,531,875
Commercial Construction	\$18,750,000	\$6,386,625	\$1,197,875	28.5	\$42,027	\$3,157,438
Retail Construction	\$4,375,000	\$10,948,500	\$2,053,500	48.9	\$42,027	\$5,412,750
Residential Construction	\$7,500,000	\$21,897,000	\$4,107,000	97.7	\$42,027	\$10,825,500
Construction Soft Costs	\$4,462,500	\$7,210,113	\$1,375,050	30.3	\$45,405	\$4,981,219
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
<b>Year 11 Totals</b>	<b>\$440,129,803</b>	<b>\$589,640,367</b>	<b>\$102,471,040</b>	<b>2241.4</b>	<b>\$45,717</b>	<b>\$339,464,552</b>

Table 12: Year 12 Input-Output Summary

<b>Year 12 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
Phase 3 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$7,500,000	\$8,471,250	\$222,000	6.4	\$34,803	\$6,210,000
<b>Year 12 Totals</b>	<b>\$596,810,329</b>	<b>\$778,074,595</b>	<b>\$132,477,983</b>	<b>2855.0</b>	<b>\$46,403</b>	<b>\$455,718,258</b>

Table 13: Year 13 Input-Output Summary

<b>Year 13 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
Phase 3 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$800,000	\$903,600	\$23,680	0.7	\$34,803	\$662,400
<b>Year 13 Totals</b>	<b>\$590,110,329</b>	<b>\$770,506,945</b>	<b>\$132,279,663</b>	<b>2849.3</b>	<b>\$46,426</b>	<b>\$450,170,658</b>

Table 14: Year 14 Input-Output Summary

<b>Year 14 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
Phase 3 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$800,000	\$903,600	\$23,680	0.7	\$34,803	\$662,400
<b>Year 14 Totals</b>	<b>\$590,110,329</b>	<b>\$770,506,945</b>	<b>\$132,279,663</b>	<b>2849.3</b>	<b>\$46,426</b>	<b>\$450,170,658</b>

Table 15: Year 15 Input-Output Summary

<b>Year 15 Input-Output</b>	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Phase 1 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Phase 2 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$1,200,000	\$1,355,400	\$35,520	1.0	\$34,803	\$993,600
Hotel	\$4,106,250	\$5,563,148	\$1,228,590	42.5	\$28,931	\$3,663,596
Phase 3 Operations						
Commercial Space	\$191,516,777	\$249,929,393	\$42,918,910	907.5	\$47,293	\$145,646,115
Retail Space	\$2,751,250	\$3,847,073	\$733,208	27.2	\$26,973	\$2,306,373
Residential Space	\$800,000	\$903,600	\$23,680	0.7	\$34,803	\$662,400
<b>Year 15 Totals</b>	<b>\$590,110,329</b>	<b>\$770,506,945</b>	<b>\$132,279,663</b>	<b>2849.3</b>	<b>\$46,426</b>	<b>\$450,170,658</b>

**Input-Output Summary for Years 1-15***Table 17: Input-Output Summary*

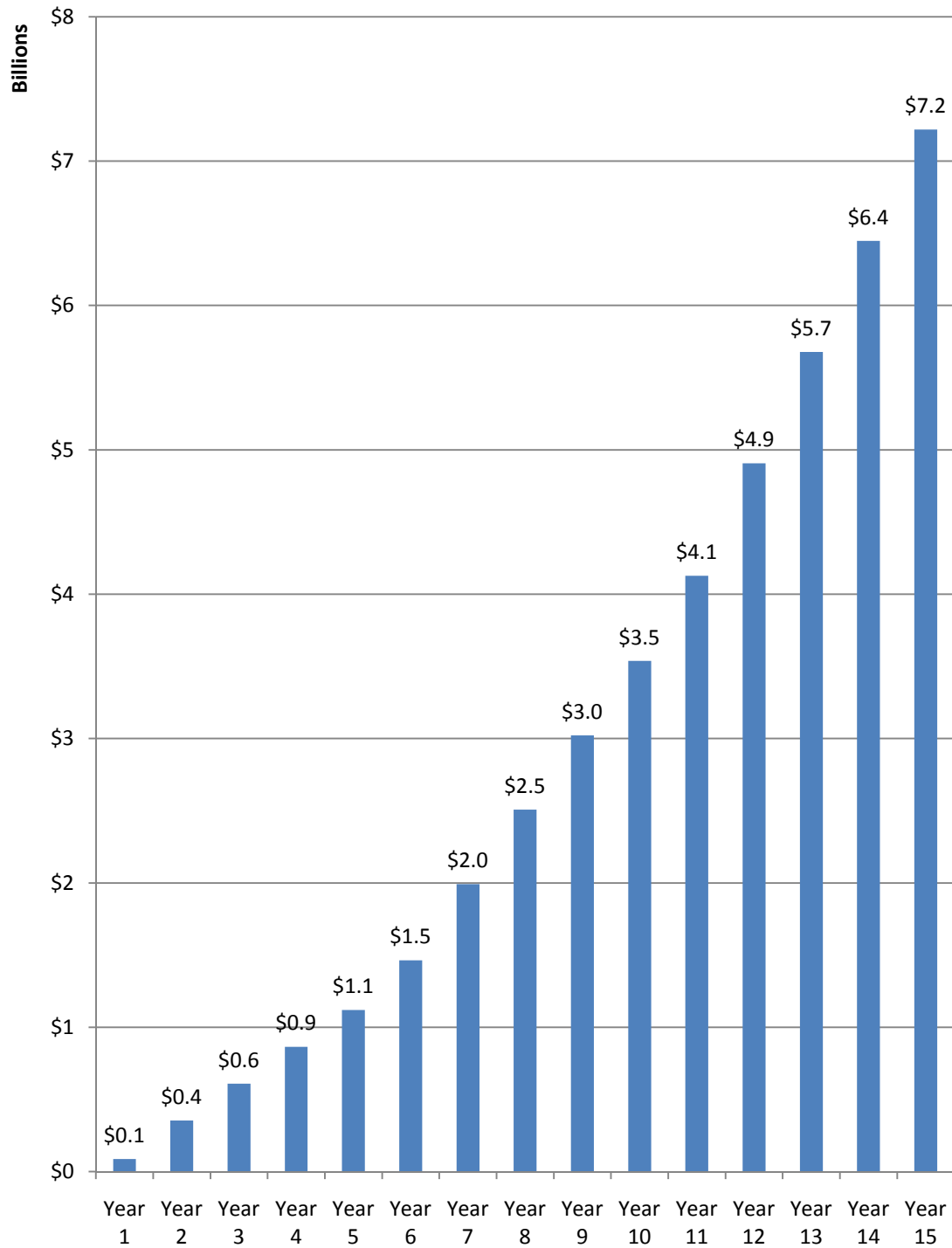
	<i>input</i>	<i>output</i>	<i>wages</i>	<i>jobs</i>	<i>avg wage</i>	<i>value-add</i>
Year 1	\$49,087,500	\$88,411,488	\$16,605,175	392.7	\$42,288	\$45,125,781
Year 2	\$205,518,026	\$266,483,341	\$43,985,118	944.3	\$46,582	\$157,267,487
Year 3	\$195,468,026	\$255,131,866	\$43,687,638	935.7	\$46,689	\$148,946,087
Year 4	\$195,468,026	\$255,131,866	\$43,687,638	935.7	\$46,689	\$148,946,087
Year 5	\$195,468,026	\$255,131,866	\$43,687,638	935.7	\$46,689	\$148,946,087
Year 6	\$256,655,526	\$343,543,353	\$60,292,813	1328.4	\$45,388	\$194,071,869
Year 7	\$405,092,303	\$527,178,354	\$88,901,345	1922.4	\$46,244	\$309,877,171
Year 8	\$395,042,303	\$515,826,879	\$88,603,865	1913.9	\$46,295	\$301,555,771
Year 9	\$395,042,303	\$515,826,879	\$88,603,865	1913.9	\$46,295	\$301,555,771
Year 10	\$395,042,303	\$515,826,879	\$88,603,865	1913.9	\$46,295	\$301,555,771
Year 11	\$440,129,803	\$589,640,367	\$102,471,040	2241.4	\$45,717	\$339,464,552
Year 12	\$596,810,329	\$778,074,595	\$132,477,983	2855.0	\$46,403	\$455,718,258
Year 13	\$590,110,329	\$770,506,945	\$132,279,663	2849.3	\$46,426	\$450,170,658
Year 14	\$590,110,329	\$770,506,945	\$132,279,663	2849.3	\$46,426	\$450,170,658
Year 15	\$590,110,329	\$770,506,945	\$132,279,663	2849.3	\$46,426	\$450,170,658
<b>TOTAL</b>	<b>\$5,495,155,460</b>	<b>\$7,217,728,569</b>	<b>\$1,238,446,972</b>	<b>26780.7</b>	<b>\$46,244</b>	<b>\$4,203,542,666</b>

**Final-Demand Economic Output Years 1-15**

*Table 18: Fifteen-year annual and cumulative overall final-demand economic output in Schenectady County derived from the project.*

Period	<i>output</i>	<i>cumulative</i>
Year 1	\$88,411,488	\$88,411,488
Year 2	\$266,483,341	\$354,894,828
Year 3	\$255,131,866	\$610,026,694
Year 4	\$255,131,866	\$865,158,560
Year 5	\$255,131,866	\$1,120,290,426
Year 6	\$343,543,353	\$1,463,833,779
Year 7	\$527,178,354	\$1,991,012,134
Year 8	\$515,826,879	\$2,506,839,013
Year 9	\$515,826,879	\$3,022,665,892
Year 10	\$515,826,879	\$3,538,492,772
Year 11	\$589,640,367	\$4,128,133,138
Year 12	\$778,074,595	\$4,906,207,734
Year 13	\$770,506,945	\$5,676,714,679
Year 14	\$770,506,945	\$6,447,221,624
Year 15	\$770,506,945	\$7,217,728,569

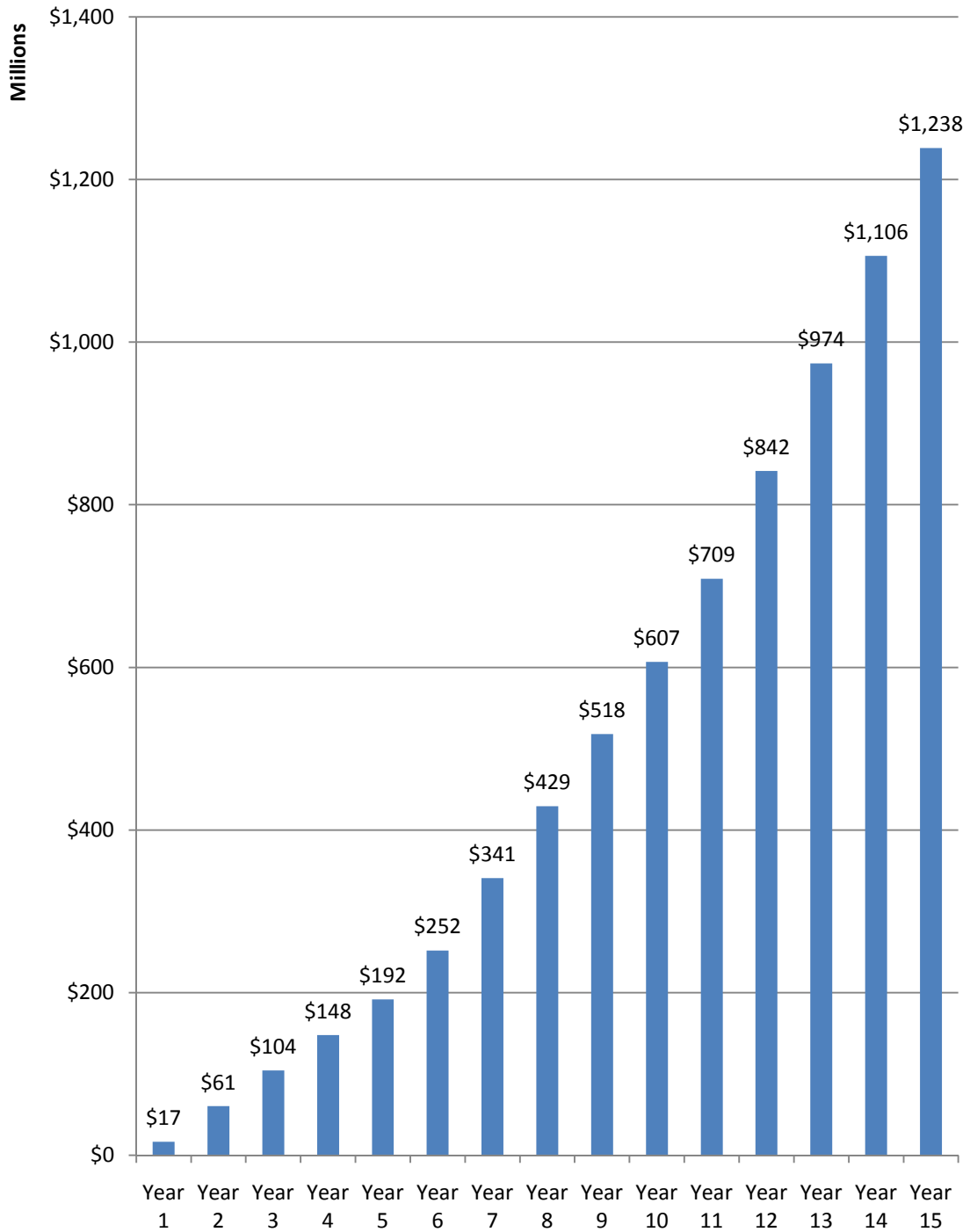
*Chart 1: Fifteen-year overall final-demand economic output in Schenectady County derived from the project.*



**Wages Output Years 1-15***Table 18: Fifteen-year annual and cumulative wages output in Schenectady County derived from the project.*

Period	<i>wages</i>	<i>cumulative</i>
Year 1	\$16,605,175	\$16,605,175
Year 2	\$43,985,118	\$60,590,293
Year 3	\$43,687,638	\$104,277,930
Year 4	\$43,687,638	\$147,965,568
Year 5	\$43,687,638	\$191,653,206
Year 6	\$60,292,813	\$251,946,018
Year 7	\$88,901,345	\$340,847,364
Year 8	\$88,603,865	\$429,451,229
Year 9	\$88,603,865	\$518,055,094
Year 10	\$88,603,865	\$606,658,960
Year 11	\$102,471,040	\$709,130,000
Year 12	\$132,477,983	\$841,607,983
Year 13	\$132,279,663	\$973,887,646
Year 14	\$132,279,663	\$1,106,167,309
Year 15	\$132,279,663	\$1,238,446,972

Chart 2: Fifteen-year wages output in Schenectady County derived from the project.

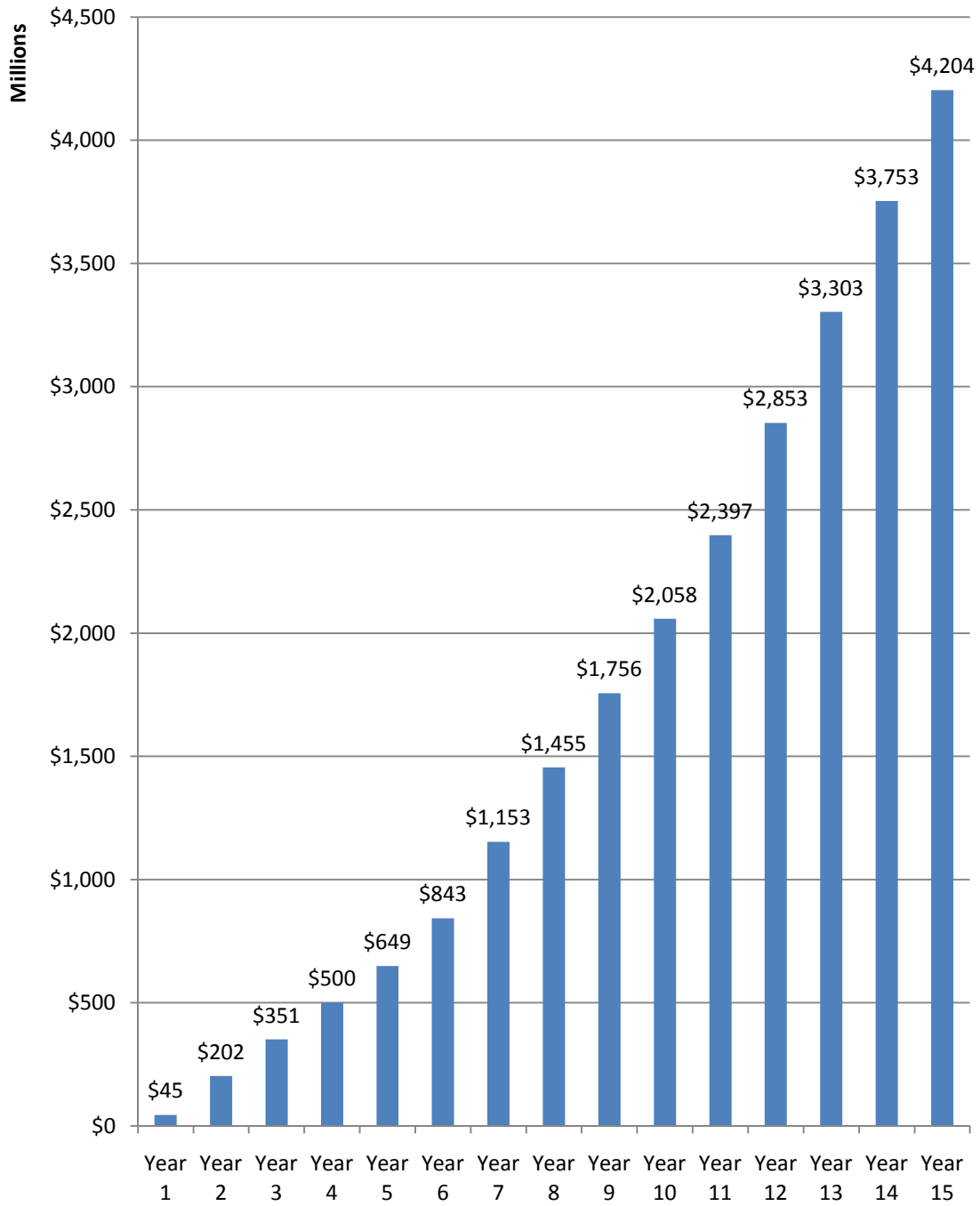


**Value-Add Output Years 1-15**

*Table 19: Fifteen-year annual and cumulative value-added output in Schenectady County derived from the project.*

Period	<i>value-add</i>	<i>cumulative</i>
Year 1	\$45,125,781	\$45,125,781
Year 2	\$157,267,487	\$202,393,269
Year 3	\$148,946,087	\$351,339,356
Year 4	\$148,946,087	\$500,285,443
Year 5	\$148,946,087	\$649,231,530
Year 6	\$194,071,869	\$843,303,399
Year 7	\$309,877,171	\$1,153,180,570
Year 8	\$301,555,771	\$1,454,736,340
Year 9	\$301,555,771	\$1,756,292,111
Year 10	\$301,555,771	\$2,057,847,882
Year 11	\$339,464,552	\$2,397,312,434
Year 12	\$455,718,258	\$2,853,030,692
Year 13	\$450,170,658	\$3,303,201,350
Year 14	\$450,170,658	\$3,753,372,008
Year 15	\$450,170,658	\$4,203,542,666

*Chart 3: Fifteen-year value-added output in Schenectady County derived from the project.*



#### IV. ALCO Redevelopment Project Return on Public Investment (ROPI)

##### Summary of Public Investment

Table 20: Sources of public investment into the ALCO Redevelopment project.

ALCO Public Source	Amount
Restore NY Award	\$4,000,000
Metroplex Grant	\$1,000,000
Schenectady County IDA PILOT	\$500,000
Construction Sales Tax Exemption	\$3,653,100
Mortgage Recording Tax Exemption	\$500,000
NYS DEC Brownfield Tax Credit	\$6,600,000
<b>TOTAL</b>	<b>\$16,253,100</b>

Table 21: Schedule of Public Investment into the ALCO Redevelopment project over Year 1 through Year 15.

Period	Restore NY Award	Metroplex Grant	SC-IDA PILOT	Construction Sales Tax Abatement	Mortgage Recording Tax Exemption	NYS DEC Brownsfield tax credit	Annual Total	Cumulative Total
Year 1	\$4,000,000	\$1,000,000	\$100,000	\$1,217,700		\$2,200,000	\$8,517,700	\$8,517,700
Year 2			\$100,000		\$150,000		\$250,000	\$8,767,700
Year 3			\$100,000				\$100,000	\$8,867,700
Year 4			\$100,000				\$100,000	\$8,967,700
Year 5			\$100,000				\$100,000	\$9,067,700
Year 6				\$1,217,700			\$1,217,700	\$10,285,400
Year 7					\$200,000	\$2,200,000	\$2,400,000	\$12,685,400
Year 8							\$0	\$12,685,400
Year 9							\$0	\$12,685,400
Year 10							\$0	\$12,685,400
Year 11				\$1,217,700			\$1,217,700	\$13,903,100
Year 12					\$150,000	\$2,200,000	\$2,350,000	\$16,253,100
Year 13							\$0	\$16,253,100
Year 14							\$0	\$16,253,100
Year 15							\$0	\$16,253,100

### Calculation of Return on Public Investment

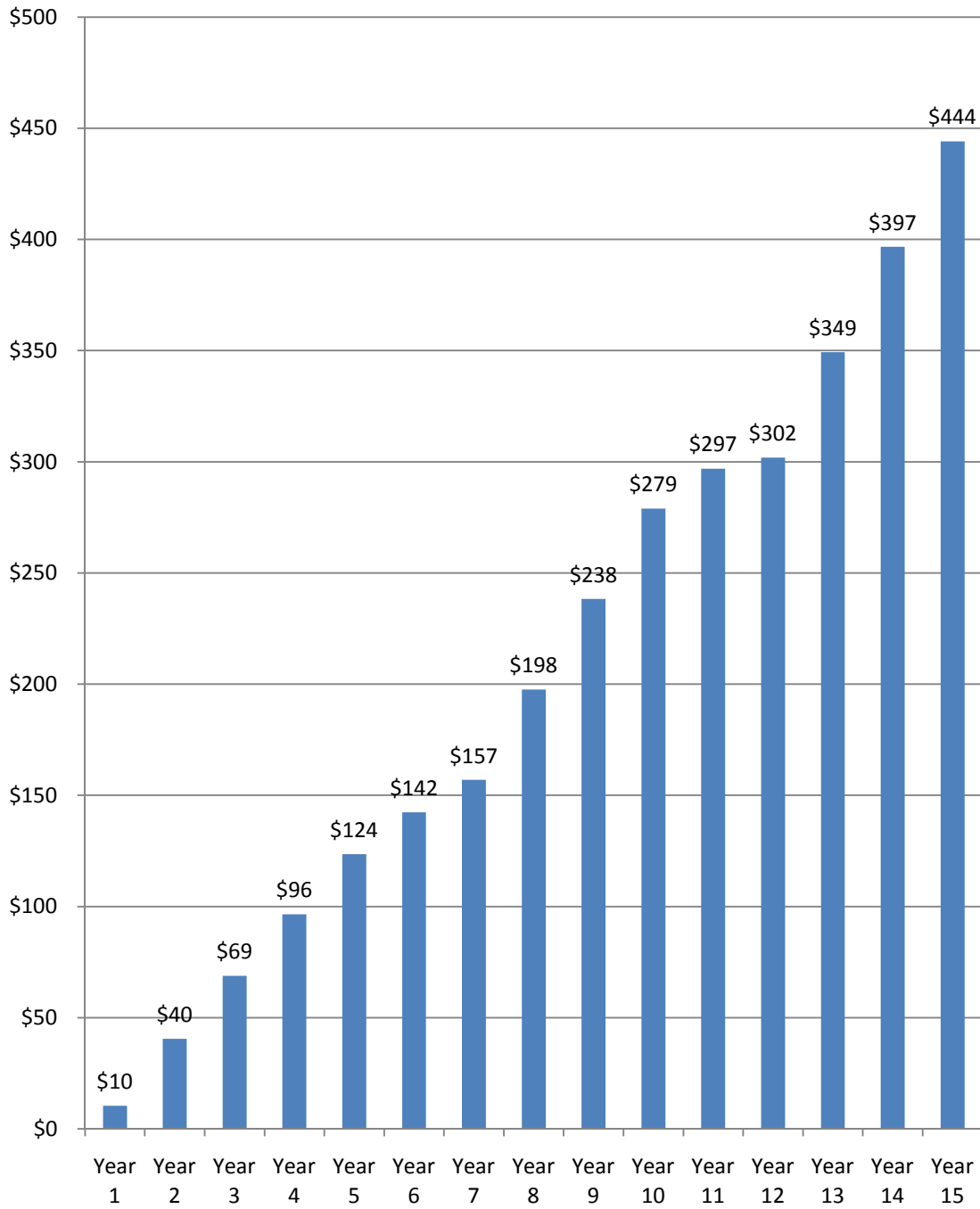
For the purposes of this analysis, ROPI represents the ratio of overall economic output within Schenectady County generated by the project to the amount of public investment into the project.

As presented here, this ratio assumes an aggregation of public sources; it does not, for instance, distinguish among state or local public investment sources.

*Table 22:* Annual and cumulative public investment schedule.

	Cumulative Public Investment	Cumulative Final-Demand Output	ROPI Per \$1 Invested
Year 1	\$8,517,700	\$88,411,488	\$10.38
Year 2	\$8,767,700	\$354,894,828	\$40.48
Year 3	\$8,867,700	\$610,026,694	\$68.79
Year 4	\$8,967,700	\$865,158,560	\$96.47
Year 5	\$9,067,700	\$1,120,290,426	\$123.55
Year 6	\$10,285,400	\$1,463,833,779	\$142.32
Year 7	\$12,685,400	\$1,991,012,134	\$156.95
Year 8	\$12,685,400	\$2,506,839,013	\$197.62
Year 9	\$12,685,400	\$3,022,665,892	\$238.28
Year 10	\$12,685,400	\$3,538,492,772	\$278.94
Year 11	\$13,903,100	\$4,128,133,138	\$296.92
Year 12	\$16,253,100	\$4,906,207,734	\$301.86
Year 13	\$16,253,100	\$5,676,714,679	\$349.27
Year 14	\$16,253,100	\$6,447,221,624	\$396.68
Year 15	\$16,253,100	\$7,217,728,569	\$444.08

*Chart 4: Rate of Return on Public Investment (ROPI) per \$1 of investment over a 15-year horizon.*



## Appendix: Discussion of the Methodology Used for This Analysis

Effective planning for public- and private-sector projects and programs at the state and local levels requires a systematic analysis of the economic impacts of these projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for inter-industry relationships within regions, are useful tools for conducting regional economic impact analysis.

In the 1970s, the Bureau of Economic Analysis (BEA) developed a method for estimating regional I-O multipliers known as RIMS (Regional Industrial Multiplier System)<sup>9</sup>, based on the work of Garnick and Drake.<sup>10</sup> In the 1980s, BEA completed an enhancement of RIMS, known as RIMS II, and published a handbook for RIMS II users.<sup>11</sup> In 1992, BEA published a second edition of the handbook in which the multipliers were based on more recent data and improved methodology. In 1997, BEA published a third edition of the handbook that provides more detail on the use of the multipliers and the data sources and methods for estimating them.

RIMS II uses an accounting framework called an I-O table. For each industry, an I-O table shows the industrial distribution of inputs purchased and outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national I-O table, which shows the input and output structure of nearly 500 U.S.

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<sup>9</sup> Adapted from materials contained in "Regional Multipliers: A User Handbook for the Regional Input-Output Modeling Systems (RIMS-II)," U.S. Department of Commerce, Bureau of Economic Analysis (Washington, DC: U.S Government Printing Office, 1997).

<sup>10</sup> See Daniel H. Garnick, "Differential Regional Multiplier Models," *Journal of Regional Science* 10 (February 1970): 35-47; for a presentation covering the first applied RIMS implementation, see Ronald L. Drake, "A Short-Cut to Estimates of Regional Input-Output Multipliers," *International Regional Science Review* 1 (Fall 1976): 1-17.

<sup>11</sup> See U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Input-Output Modeling System (RIMS II): Estimation, Evaluation, and Application of a Disaggregated Regional Impact Model* (Washington, DC: U.S. Government Printing Office, 1981).

industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to show a region's industrial structure and trading patterns.<sup>12</sup>

Using RIMS II for impact analysis has several advantages. RIMS II multiplier-based estimates apply to any region composed of one or more counties and for any industry, or group of industries, in the national I-O table. The accessibility of the main data sources for RIMS II keeps the cost of estimating regional multipliers relatively low. Empirical tests show that estimates based on relatively expensive surveys and RIMS II-based estimates are similar in magnitude.<sup>13</sup>

BEA's RIMS multipliers can be a cost-effective way for analysts to estimate the economic impacts of changes in a regional economy. However, it is important to keep in mind that, like all economic impact models, RIMS provides approximate order-of-magnitude estimates of impacts. RIMS multipliers are best suited for estimating the impacts of small changes on a regional economy. RIMS is not useful for macroeconomic analysis or for broad component analysis of the national or global economy.

Effective use of RIMS multipliers for impact studies requires that analysts consider various inputs relevant to the local conditions in which the project or development under study must coexist. These conditions might include geographic, general and local economic conditions, general and local tax policy, and other factors shaping local economic conditions. A key premise of the interpretation of RIMS model outputs is that changes in output, earnings, and employment associated with a given project or action gain much of their relevancy when considered in terms of the change they represent.

RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II

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<sup>12</sup> See U.S. Department of Commerce, Bureau of Economic Analysis, *The Detailed Input-Output Structure of the U.S. Economy, Volume II* (Washington, DC: U.S. Government Printing Office, November 1994); and U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income, 1929-93* (Washington, DC: U.S. Government Printing Office, June 1995).

<sup>13</sup> See U.S. Department of Commerce, *Regional Input-Output Modeling System (RIMS-II)*, chapter 5. Also see Sharon M. Brucker, Steven E. Hastings, and William R. Latham III, "The Variation of Estimated Impacts from Five Regional Input-Output Models," *International Regional Science Review* 13 (1990): 119-39.

to estimate the regional impacts of airport construction and expansion. In the private sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

## RIMS II Methodology

RIMS II uses BEA's benchmark and annual I-O tables spanning the nation, and scaled to various regional geographic units including states, MSAs, counties, cities, local municipalities, and so forth. Since a particular region may not contain all the industries found at the national level, a given region might not be able to provide all the input requirements of the region's industries. BEA regional economic accounts identify input requirements not produced in a given study region.

The RIMS II method for estimating regional I-O multipliers is a three-step process. In the first step, the analyst develops a region-specific version of the producer portion of the national I-O, this using a six-digit NAICS location quotients (LQs). The LQs estimate the extent that regional firms supply input requirements. RIMS II uses LQs based on two types of data: BEA's personal income data (by place of residence) to calculate LQs in the service industries, and BEA's wage-and-salary data (by place of work) to calculate LQs in the nonservice industries.

In the second step, the analyst generates the region-specific household row and the household column from the national I-O table. Next, come adjustments to the household row coefficients, derived from the value-added row of the national I-O table, this to reflect regional earnings leakages resulting from individuals working in the region but residing outside the region. Then follows adjustment to the household column coefficients, based on the personal consumption expenditure column of the national I-O table, this to account for regional consumption leakages stemming from personal taxes and savings.

In the last step, the Leontief inversion approach renders the estimate multipliers. This inversion approach produces output, earnings, and employment multipliers, which trace the impacts of changes in final-demand on directly and indirectly affected industries.

### Accuracy of RIMS II

Empirical tests indicate that RIMS II yields multipliers that are not substantially different in magnitude from those generated by regional I-O models based on relatively expensive surveys. For example, a comparison of 224 industry-specific multipliers from survey-based tables for Texas, Washington, and West Virginia indicates that the RIMS II average multipliers overestimate the average multipliers from the survey-based tables by approximately 5 percent. For the majority of individual industry-specific multipliers, the difference between RIMS II and survey-based multipliers is less than 10 percent. In addition, RIMS II and survey multipliers show statistically similar distributions of affected industries.

### Advantages of RIMS II Methodology

There are numerous advantages to using RIMS II. First, the accessibility of the main data sources makes it possible to estimate regional multipliers without conducting relatively expensive site-specific economic surveys. Second, the level of industrial detail used in RIMS II helps avoid aggregation errors, which often occur with combined industries. Third, RIMS II multipliers facilitate comparisons across areas because they rely on a consistent set of estimating procedures nationwide. Fourth, annual RIMS II multiplier updates present the most recent local-area wage-and-salary and personal-income data.

### Applications of RIMS II Methodology

RIMS II multipliers serve a wide variety of impact studies. For example, the U.S. Nuclear Regulatory Commission has used RIMS II multipliers in environmental impact statements required for licensing nuclear electricity-generating facilities. The U.S. Department of Housing and Urban Development has used RIMS II multipliers to estimate the impacts of various types of urban redevelopment expenditures. In addition, BEA has provided RIMS II multipliers to numerous individuals and groups outside the Federal Government. RIMS II multipliers apply to a wide-range of economic and industrial I-O and impacts studies, including, opening or closing military bases, tourist expenditures, new energy facilities, energy conservation, offshore drilling, opening or closing manufacturing plants, shopping malls, new sports stadiums, and new airport or port facilities.