



COMPARATIVE 2022
**ADVANCED MANUFACTURING
OPERATING COSTS**

The Boyd Company, Inc.
Location Consultants
Princeton, NJ



TABLE OF CONTENTS

**COMPARATIVE OPERATING COST ANALYSIS: EXECUTIVE
SUMMARY AND NOTES** 1
INTRODUCTION 2
COMPARATIVE LOCATIONS 2
LABOR COSTS 3
COMPARATIVE ELECTRIC POWER AND NATURAL GAS COSTS 3
COMPARATIVE LAND ACQUISITION AND CONSTRUCTION COSTS 3
COMPARATIVE AD VALOREM AND SALES TAX COSTS 4
COMPARATIVE CORPORATE TRAVEL COSTS 4
TOTAL ANNUAL OPERATING COST RANKINGS 4
ABOUT BOYD 5

COMPARATIVE OPERATING COST ANALYSIS I: 6
EXHIBIT I: A COMPARATIVE ANNUAL OPERATING COST
SIMULATION SUMMARY 7
EXHIBIT II: COMPARATIVE ANNUAL LABOR COSTS 8
EXHIBIT III: ANNUAL ELECTRIC POWER AND NATURAL GAS COSTS 10
EXHIBIT IV: PLANT CONSTRUCTION & AMORTIZATION COSTS 11
EXHIBIT V: AD VALOREM & SALES TAX COSTS 12
EXHIBIT VI: CORPORATE TRAVEL COSTS 13

COMPARATIVE OPERATING COST ANALYSIS II: 14
EXHIBIT I: A COMPARATIVE ANNUAL OPERATING COST
SIMULATION SUMMARY 15
EXHIBIT II: COMPARATIVE ANNUAL LABOR COSTS 16
EXHIBIT III: ANNUAL ELECTRIC POWER AND NATURAL GAS COSTS 18
EXHIBIT IV: PLANT CONSTRUCTION & AMORTIZATION COSTS 19
EXHIBIT V: AD VALOREM & SALES TAX COSTS 20
EXHIBIT VI: CORPORATE TRAVEL COSTS 21

COMPARATIVE OPERATING COST ANALYSIS III: 22
EXHIBIT I: A COMPARATIVE ANNUAL OPERATING COST
SIMULATION SUMMARY 23
EXHIBIT II: COMPARATIVE ANNUAL LABOR COSTS 24
EXHIBIT III: ANNUAL ELECTRIC POWER AND NATURAL GAS COSTS 26
EXHIBIT IV: PLANT CONSTRUCTION & AMORTIZATION COSTS 27
EXHIBIT V: AD VALOREM & SALES TAX COSTS 28
EXHIBIT VI: CORPORATE TRAVEL COSTS 29

**COMPARATIVE OPERATING COST ANALYSIS:
EXECUTIVE SUMMARY AND NOTES**

Introduction

In the following analysis, major operating costs scaled to a representative advanced manufacturing plant are presented for a series of 24 regions in the U.S. and Canada. Findings are summarized in Exhibit I and show total annual operating costs ranging from a high of \$54.6 million in the San Jose/Silicon Valley Region of California to a low of \$ 32.3 million in the Eastern Ontario Region of Canada.

Annual operating costs were projected solely for comparative purposes, with only major geographically-variable factors being considered. Those costs not varying significantly with geography, including relocation and start-up expenses, were not considered. The independent Boyd analysis focuses on those key geographically-variable cost elements considered to be most pivotal to the corporate site selection process.

Overall costs were scaled to a hypothetical 350,000 sq. ft. production facility employing 500 workers. The format of the cost exhibits will allow the tailoring of cost data and facility specifications to reflect alternate scales of operation and staffing. Geographically-variable operating cost differentials are based on the second quarter of 2022. All costs are in U.S. dollars at a current exchange rate of .7900.

Advanced Manufacturing

The analysis has been structured to be a relevant cost-comparison tool for a broad segment of advanced manufacturing companies engaged in such sectors as precision metalworking, engineered plastics, composites, energy, aerospace, med tech and other advanced manufacturing fields. These are sectors that increasingly integrate new innovative technologies in both products and

processes. The rate of technology adoption and the ability to use that technology to remain competitive and add value are defining measures of the advanced manufacturing sector.

Comparative Regional Locations

For purposes of comparative economic analysis, major geographically-variable operating costs have been projected by Boyd for a series of 24 regions in the U.S. and Canada housing current and emerging concentrations of advanced manufacturing operations.

Regions included in the Boyd analysis demonstrate a diverse range of site selection strengths including available skillsets in advanced manufacturing, strong vocational training linkages, highly developed transportation and telecommunications networks, fully-serviced industrial sites, regional market access, sound energy supplies and others.

The 24 comparative locations included in the Boyd analysis are detailed below alphabetically by state and province.

- Los Angeles/Southern California Region
- Oakland/East Bay California Region
- Silicon Valley California Region
- Danbury/Southern Connecticut Region
- Rockford/Northern Illinois Region
- Lafayette/Northwest Indiana Region
- Boston/Southeast Massachusetts Region
- Detroit/Southeast Michigan Region
- Rochester/Southern Minnesota Region
- Reno/Western Nevada Region
- Albany/Hudson Valley New York Region
- Buffalo/Upstate New York Region
- Greensboro/Piedmont Triad North Carolina Region
- Raleigh/Research Triangle North Carolina Region
- Cleveland/Northeast Ohio Region
- Columbus/Central Ohio Region
- Eastern Ontario Region
- Portland/Willamette Valley Oregon Region

- Charleston/Low Country South Carolina Region
- Nashville/Middle Tennessee Region
- Austin/Texas Hill Country Texas Region
- Houston/Southeast Texas Region
- Fairfax /Northern Virginia Region
- Seattle/Puget Sound Washington Region

Comparative Labor Costs

Annual costs for labor, including direct and indirect production workers, are presented in Exhibit II. Costs are based on a representative mix of 500 production, tooling, finishing, engineering, maintenance, material handling and administrative office job titles for the model plant. Comparative labor costs for management staff were not included as these costs would tend not to vary as significantly by geography, but rather by individual company compensation practices. Fringe benefit costs are included as a percent of annual base payroll costs and are assumed to include all statutory benefits, pay for time not worked and company-sponsored benefits.

Comparative Electric Power and Natural Gas Costs

Comparative annual costs for electric power and natural gas, increasingly pivotal site selection variables in today's energy-sensitive environment, are presented in Exhibit III. Annual electric costs are based on industrial rate schedules for large power users in each of the surveyed regions.

Comparative Land Acquisition and Construction Costs

Exhibit IV presents comparative costs for the purchase of industrially-zoned land and the construction of new manufacturing facilities in each of the surveyed regions.

Comparative Ad Valorem and Sales Tax Costs

Exhibit V presents comparative ad valorem (property) tax costs in each of the 24 surveyed sites scaled to the land and building specifications of the model plant.

Also presented in this exhibit are comparative local and state sales tax costs based on a fixed annual purchase of taxable supplies furnishings and other taxable goods associated with the plant.

Comparative Corporate Travel Costs

Comparative annual on-site corporate travel costs in each of the 24 surveyed regions are presented in Exhibit VII. Costs include corporate traveler lodging, meals, local transportation and other business travel incidentals. Figures are indicative of local business travel cost structures expected to be incurred by management, technical support and other customer/vendor visitations to each of the 24 surveyed locations.

Total Annual Operating Cost Rankings

Taken from summary Exhibit I are national cost rankings of the 24 surveyed regions.

TOTAL GEOGRAPHICALLY-VARIABLE OPERATING COST RANKING	
Region	Total Annual Operating Costs
San Jose/Silicon Valley Region	\$54,644,335
Oakland/East Bay Region	\$51,201,613
Boston/Southeast MA Region	\$49,850,753
Los Angeles/Southern CA Region	\$48,126,282
Danbury/Southern CT Region	\$47,029,374
Fairfax/Northern VA Region	\$46,902,949
Seattle/Puget Sound Region	\$46,807,227
Columbus/Central OH Region	\$46,278,021
Raleigh/Research Triangle Region	\$44,542,013
Houston/Southeast TX Region	\$43,417,136
Detroit/Southeast MI Region	\$43,266,943
Albany/Hudson Valley Region	\$42,973,648
Rockford/Northern IL Region	\$42,747,289

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

Portland/Willamette Valley Region	\$42,462,783
Cleveland/Northeast OH Region	\$42,456,219
Buffalo/Upstate NY Region	\$41,316,420
Austin/Texas Hill Country Region	\$41,115,745
Rochester/Southern MN Region	\$41,062,122
Lafayette/Northwest IN Region	\$40,396,370
Reno/Western NV Region	\$39,853,536
Charleston/Low Country Region	\$39,746,491
Nashville/Middle TN Region	\$39,335,237
Greensboro/Piedmont Triad Region	\$39,176,897
Eastern Ontario Region	\$32,308,720

About Boyd

Devoted exclusively to corporate mobility, The Boyd Company is recognized as the nation's premier authority in comparative business cost analysis. Founded in 1975, Boyd (www.theboydcompany.com) provides independent site selection counsel to leading U.S. and overseas corporations. Advanced manufacturing clients of Boyd include the likes of Hewlett-Packard, Pratt & Whitney, APC/Schneider Electric, Altera, Tritium, Philips and other *Fortune 500* and up-and-coming companies.

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

COMPARATIVE OPERATING COST ANALYSIS I

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES I - EXHIBIT I									
COMPARATIVE ANNUAL OPERATING COST SIMULATION SUMMARY⁽¹⁾									
	Los Angeles/ Southern CA Region	Oakland/ East Bay Region	San Jose/ Silicon Valley Region	Danbury/ Southern CT Region	Rockford/ Northern IL Region	Lafayette/ Northwest IN Region	Boston/ Southeast MA Region	Detroit/ Southeast MI Region	
Nonexempt Labor (2)									
Weighted Average Hourly Earnings	\$29.77	\$31.70	\$33.47	\$29.57	\$26.26	\$25.79	\$30.04	\$27.11	
Annual Base Payroll Costs	\$28,341,040	\$30,178,400	\$31,863,440	\$28,150,640	\$24,999,520	\$24,552,080	\$28,598,080	\$25,808,720	
Fringe Benefits	\$10,486,185	\$11,166,008	\$11,789,473	\$10,415,737	\$9,249,822	\$9,084,270	\$10,581,290	\$9,549,226	
Total Annual Labor Costs	\$38,827,225	\$41,344,408	\$43,652,913	\$38,566,377	\$34,249,342	\$33,636,350	\$39,179,370	\$35,357,946	
Electric Power Costs (3)	\$1,026,660	\$1,239,396	\$1,239,396	\$950,592	\$553,956	\$608,208	\$1,279,068	\$560,100	
Natural Gas Power Costs (4)	\$1,115,407	\$1,115,407	\$1,115,407	\$810,174	\$814,535	\$702,907	\$1,020,349	\$1,020,349	
Amortization Costs (5)	\$5,139,863	\$5,285,526	\$6,395,846	\$4,315,401	\$3,830,180	\$3,433,839	\$5,589,943	\$4,292,053	
Property and Sales Tax Costs (6)	\$1,935,145	\$2,145,229	\$2,158,808	\$2,314,235	\$3,229,743	\$1,960,240	\$2,699,379	\$1,974,817	
Travel Costs (7)	\$81,982	\$71,647	\$81,965	\$72,595	\$69,533	\$54,826	\$82,644	\$61,678	
Total Annual Geographically- Variable Operating Costs	\$48,126,282	\$51,201,613	\$54,644,335	\$47,029,374	\$42,747,289	\$40,396,370	\$49,850,753	\$43,266,943	
NOTES:									
(1) Includes all major geographically-variable operating costs. Start-up and relocation costs not considered.									
(2) See Exhibit II.									
(3) See Exhibit III.									
(4) See Exhibit III.									
(5) See Exhibit IV.									
(6) See Exhibit V.									
(7) See Exhibit VI.									

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES I - EXHIBIT II									
COMPARATIVE ANNUAL LABOR COSTS									
		Los Angeles/ Southern CA Region	Oakland/ East Bay Region	San Jose/ Silicon Valley Region	Danbury/ Southern CT Region	Rockford/ Northern IL Region	Lafayette/ Northwest IN Region	Boston/ Southeast MA Region	Detroit/ Southeast MI Region
Job Title	Number of Workers								
Production & Maintenance Group									
Apprentice	7	\$18.76	\$19.98	\$21.09	\$18.63	\$16.55	\$16.25	\$18.93	\$17.08
General Production Helper	75	\$19.45	\$20.71	\$21.86	\$19.31	\$17.15	\$16.85	\$19.62	\$17.70
CNC Operator	30	\$35.71	\$38.02	\$40.14	\$35.46	\$31.50	\$30.94	\$36.03	\$32.51
CNC Programmer	5	\$46.05	\$49.03	\$51.76	\$45.73	\$40.62	\$39.90	\$46.46	\$41.92
Lathe Operator	15	\$33.79	\$35.98	\$37.98	\$33.56	\$29.81	\$29.27	\$34.09	\$30.76
Grinding Machine Operator (Metal/Plastics)	12	\$28.31	\$30.14	\$31.82	\$28.11	\$24.97	\$24.53	\$28.56	\$25.77
Drilling Mach. Operator (Metal/Plastics)	12	\$26.27	\$27.97	\$29.53	\$26.09	\$23.17	\$22.76	\$26.50	\$23.91
Punch Press Operator (Metal/Plastics)	6	\$27.30	\$29.07	\$30.69	\$27.11	\$24.08	\$23.65	\$27.55	\$24.86
Press Brake Operator & Setup	5	\$29.01	\$30.89	\$32.61	\$28.81	\$25.59	\$25.13	\$29.27	\$26.41
Mach. Tool Cutting Operator	20	\$33.79	\$35.98	\$37.98	\$33.56	\$29.81	\$29.27	\$34.09	\$30.76
Stamping Press Operator & Setup	16	\$27.63	\$29.42	\$31.05	\$27.43	\$24.37	\$23.93	\$27.87	\$25.15
Welder, Solderer & Brazier	4	\$37.90	\$40.35	\$42.60	\$37.64	\$33.43	\$32.83	\$38.24	\$34.50
Welder Operator	5	\$33.64	\$35.82	\$37.81	\$33.41	\$29.68	\$29.15	\$33.94	\$30.63
Laser/Plasma Cutting Operator & Setup	5	\$39.63	\$42.20	\$44.55	\$39.36	\$34.96	\$34.33	\$39.99	\$36.08
Maintenance Mechanic	3	\$29.55	\$31.46	\$33.21	\$29.34	\$26.06	\$25.60	\$29.81	\$26.90
Tooling and Finishing									
Tool & Die Maker	5	\$47.72	\$50.81	\$53.63	\$47.39	\$42.09	\$41.34	\$48.14	\$43.44
Model/Pattern Maker	5	\$45.66	\$48.62	\$51.32	\$45.35	\$40.28	\$39.56	\$46.07	\$41.57
Machinist	75	\$30.35	\$32.32	\$34.11	\$30.14	\$26.77	\$26.30	\$30.62	\$27.63
Tool Crib Attendant	5	\$47.21	\$50.26	\$53.06	\$46.88	\$41.64	\$40.90	\$47.63	\$42.97
Plater	5	\$45.98	\$48.96	\$51.69	\$45.67	\$40.56	\$39.84	\$46.40	\$41.86
Painter	4	\$29.01	\$30.89	\$32.61	\$28.81	\$25.59	\$25.13	\$29.27	\$26.41
Parts Cleaner	3	\$27.99	\$29.80	\$31.46	\$27.79	\$24.69	\$24.25	\$28.24	\$25.48
Heat Treat/Annealing/Brazing	5	\$36.19	\$38.54	\$40.68	\$35.94	\$31.93	\$31.36	\$36.52	\$32.95
Assembly/Fabricator Hand	50	\$26.42	\$28.13	\$29.69	\$26.23	\$23.30	\$22.89	\$26.65	\$24.05
Assembly Machine Operator	35	\$25.37	\$27.01	\$28.51	\$25.19	\$22.38	\$21.98	\$25.60	\$23.09
Engineering and Quality Control									
Industrial Engineer I	5	\$48.46	\$51.59	\$54.46	\$48.12	\$42.74	\$41.98	\$48.89	\$44.11
Industrial Engineer II	3	\$64.69	\$68.88	\$72.71	\$64.24	\$57.07	\$56.05	\$65.27	\$58.89
Electrical Engineer I	3	\$50.16	\$53.41	\$56.38	\$49.81	\$44.25	\$43.46	\$50.61	\$45.66
Electrical Engineer II	1	\$67.79	\$72.19	\$76.20	\$67.33	\$59.80	\$58.73	\$68.40	\$61.72
Mechanical Engineer I	2	\$49.81	\$53.04	\$55.99	\$49.47	\$43.94	\$43.15	\$50.26	\$45.35
Mechanical Engineer II	1	\$65.39	\$69.63	\$73.50	\$64.94	\$57.68	\$56.65	\$65.97	\$59.53
Inspector	5	\$45.06	\$47.98	\$50.64	\$44.75	\$39.75	\$39.04	\$45.46	\$41.02
ISO/QS Lead Auditor	1	\$69.16	\$73.65	\$77.74	\$68.69	\$61.01	\$59.92	\$69.78	\$62.96

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

**SERIES I - EXHIBIT II
COMPARATIVE ANNUAL LABOR COSTS**

		Los Angeles/ Southern CA Region	Oakland/ East Bay Region	San Jose/ Silicon Valley Region	Danbury/ Southern CT Region	Rockford/ Northern IL Region	Lafayette/ Northwest IN Region	Boston/ Southeast MA Region	Detroit/ Southeast MI Region
Material Handling & Transportation									
Stock & Freight Mover	5	\$28.67	\$30.53	\$32.23	\$28.47	\$25.29	\$24.84	\$28.93	\$26.10
Machine Feeder & Offbearer	4	\$23.89	\$25.44	\$26.85	\$23.73	\$21.08	\$20.70	\$24.11	\$21.75
Packer & Packager, Hand	15	\$27.63	\$29.42	\$31.05	\$27.43	\$24.37	\$23.93	\$27.87	\$25.15
Industrial Truck Operator	5	\$31.74	\$33.79	\$35.67	\$31.52	\$27.99	\$27.49	\$32.02	\$28.89
Truck Driver, Tractor Trailer	5	\$37.79	\$40.24	\$42.48	\$37.53	\$33.34	\$32.74	\$38.13	\$34.40
Truck Driver, Light	2	\$24.50	\$26.08	\$27.53	\$24.33	\$21.61	\$21.22	\$24.72	\$22.30
Office & Clerical									
Receptionist & Information Clerk	2	\$20.01	\$21.31	\$22.49	\$19.87	\$17.65	\$17.34	\$20.19	\$18.22
Bill & Account Collector	2	\$23.68	\$25.21	\$26.61	\$23.51	\$20.89	\$20.51	\$23.89	\$21.55
Accounting Clerk	5	\$27.87	\$29.67	\$31.32	\$27.67	\$24.58	\$24.14	\$28.12	\$25.37
Customer Service Representative	4	\$24.20	\$25.77	\$27.20	\$24.03	\$21.35	\$20.97	\$24.42	\$22.03
HR Assistant	2	\$29.69	\$31.62	\$33.38	\$29.49	\$26.19	\$25.72	\$29.96	\$27.03
Production Planning Clerk/Expeditor	3	\$38.28	\$40.76	\$43.02	\$38.01	\$33.76	\$33.16	\$38.62	\$34.84
Shipping & Receiving Clerk	5	\$27.63	\$29.42	\$31.05	\$27.43	\$24.37	\$23.93	\$27.87	\$25.15
Stock Clerk & Order Filler	3	\$27.99	\$29.80	\$31.46	\$27.79	\$24.69	\$24.25	\$28.24	\$25.48
Executive Secretary	1	\$30.22	\$32.18	\$33.96	\$30.01	\$26.66	\$26.18	\$30.49	\$27.51
Secretary	4	\$21.68	\$23.08	\$24.36	\$21.53	\$19.12	\$18.78	\$21.87	\$19.73
Total Workers	500								
Weighted Average Hourly Earnings (1)		\$29.77	\$31.70	\$33.47	\$29.57	\$26.26	\$25.79	\$30.04	\$27.11
Total Annual Base Payroll Costs (2)		\$28,341,040	\$30,178,400	\$31,863,440	\$28,150,640	\$24,999,520	\$24,552,080	\$28,598,080	\$25,808,720
Fringe Benefits (3)		\$10,486,185	\$11,166,008	\$11,789,473	\$10,415,737	\$9,249,822	\$9,084,270	\$10,581,290	\$9,549,226
Total Annual Labor Costs		\$38,827,225	\$41,344,408	\$43,652,913	\$38,566,377	\$34,249,342	\$33,636,350	\$39,179,370	\$35,357,946
NOTES:									
(1)	For mature plant in third year of operation based on current wage rates and fringe benefits. Wage rates reflect Boyd field research, industry sources, and 2022 BizCosts® data bank placing firm in an upper quartile hiring position in each respective labor market. Job descriptions reflect a representative mix of key direct and indirect job functions for a hypothetical advanced manufacturing plant employing 500 workers.								
(2)	Assumes 1,904 hours worked per year per employee based on 12 paid holidays and a two-week vacation for mature plant.								
(3)	Based on an estimated 37 percent of total annual base payroll costs. Costs include all statutory benefits, pay for time not worked and company-sponsored benefits.								

SERIES I - EXHIBIT III					
ANNUAL ELECTRIC POWER AND NATURAL GAS COST COMPARISONS					
	Electric Utility Company	Annual Electric Power Cost (1)	Annual Cost Per kWh (cents)	Annual Natural Gas Cost (2)	Total Annual Electric Power and Natural Gas Costs
Los Angeles/Southern CA Region	Southern California Edison	\$1,026,660	13.16	\$1,115,407	\$2,142,067
Oakland/East Bay Region	Pacific Gas and Electric	\$1,239,396	15.89	\$1,115,407	\$2,354,803
San Jose/Silicon Valley Region	Pacific Gas and Electric	\$1,239,396	15.89	\$1,115,407	\$2,354,803
Danbury/Southern CT Region	Connecticut Light and Power	\$950,592	12.19	\$810,174	\$1,760,766
Rockford/Northern IL Region	Commonwealth Edison	\$553,956	7.10	\$814,535	\$1,368,491
Lafayette/Northwest IN Region	Duke Energy	\$608,208	7.80	\$702,907	\$1,311,115
Boston/Southeast MA Region	Boston Edison Company	\$1,279,068	16.40	\$1,020,349	\$2,299,417
Detroit/Southeast MI Region	Detroit Edison Company	\$560,100	7.18	\$1,020,349	\$1,580,449
NOTES:					
(1) Based on assumed monthly demand of 1,000 kW and 650,000 kWh monthly consumption. Annual costs reflect comparative industrial general service rates.					
(2) Annual costs reflect an assumed monthly use of 75,000 therms of natural gas. Gas prices are based on latest monthly state averages for industrial-use gas.					

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES I - EXHIBIT IV									
PLANT CONSTRUCTION AND AMORTIZATION COSTS									
	Los Angeles/ Southern CA Region	Oakland/ East Bay Region	San Jose/ Silicon Valley Region	Danbury/ Southern CT Region	Rockford/ Northern IL Region	Lafayette/ Northwest IN Region	Boston/ Southeast MA Region	Detroit/ Southeast MI Region	
Site Acquisition: No. of Acres	50	50	50	50	50	50	50	50	50
Cost per Acre (1)	\$625,500	\$585,500	\$930,500	\$325,500	\$165,500	\$184,500	\$625,500	\$327,500	
Site Improvement Cost (2)	--	--	--	--	--	--	--	--	
Total Land Cost	\$31,275,000	\$29,275,000	\$46,525,000	\$16,275,000	\$8,275,000	\$9,225,000	\$31,275,000	\$16,375,000	
Construction Cost (3)	\$44,056,515	\$48,616,498	\$50,880,029	\$44,566,838	\$44,039,229	\$36,123,671	\$51,966,522	\$44,056,515	
Machinery and Equipment	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	
Total Project Investment	\$90,331,515	\$92,891,498	\$112,405,029	\$75,841,838	\$67,314,229	\$60,348,671	\$98,241,522	\$75,431,515	
Project Amortization									
Cost of Funds (Interest)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Payment Factor (4)	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	
Total Annual Amortization Cost	\$5,139,863	\$5,285,526	\$6,395,846	\$4,315,401	\$3,830,180	\$3,433,839	\$5,589,943	\$4,292,053	
NOTES:									
(1)	Boyd estimate only. Actual negotiated costs would vary by site specifics, including location, access, visibility, etc. Costs reflect fully serviced industrially-zoned land within a controlled industrial park setting.								
(2)	Land preparation costs limited to normal grading and held constant for purposes of analysis.								
(3)	Based on construction of fully equipped 350,000 sq. ft. industrial building. Geographic differentials in building costs are based on BizCosts® construction cost index data for the second quarter of 2022.								
(4)	Assumes 25-year level amortization payments at 3.0 percent.								

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES I - EXHIBIT V AD VALOREM AND SALES TAX COSTS									
	Los Angeles/ Southern CA Region	Oakland/ East Bay Region	San Jose/ Silicon Valley Region	Danbury/ Southern CT Region	Rockford/ Northern IL Region	Lafayette/ Northwest IN Region	Boston/ Southeast MA Region	Detroit/ Southeast MI Region	
Real Property Tax Cost									
Land Cost (1)	\$31,275,000	\$29,275,000	\$46,525,000	\$16,275,000	\$8,275,000	\$9,225,000	\$31,275,000	\$16,375,000	
Building Cost (2)	\$44,056,515	\$48,616,498	\$50,880,029	\$44,566,838	\$44,039,229	\$36,123,671	\$51,966,522	\$44,056,515	
Total	\$75,331,515	\$77,891,498	\$97,405,029	\$60,841,838	\$52,314,229	\$45,348,671	\$83,241,522	\$60,431,515	
Effective Tax Rate	\$11.75	\$13.74	\$12.02	\$27.60	\$43.10	\$27.79	\$24.92	\$22.75	
Real Property Tax Cost (3)	\$885,145	\$1,070,229	\$1,170,808	\$1,679,235	\$2,254,743	\$1,260,240	\$2,074,379	\$1,374,817	
Sales Tax Cost									
Taxable Goods Purchases	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000
Sales Tax Rate (Percent)	10.50	10.75	9.88	6.35	9.75	7.00	6.25	6.00	
Total Annual Sales Tax Cost (4)	\$1,050,000	\$1,075,000	\$988,000	\$635,000	\$975,000	\$700,000	\$625,000	\$600,000	
Total Annual Ad Valorem and Sales Tax Costs	\$1,935,145	\$2,145,229	\$2,158,808	\$2,314,235	\$3,229,743	\$1,960,240	\$2,699,379	\$1,974,817	
NOTES:									
(1) See Exhibit IV.									
(2) See Exhibit IV.									
(3) Based on nominal real property tax rate and assessment practices at each location based on \$1,000 of valuation. Petitions for abatements and lower assessments not considered. Effective tax rates are considered representative property tax levy amounts. Actual rates will vary based on alternate municipal, school, fire, and special assessment districts within each surveyed city.									
(4) Based on prevailing local and state sales tax levies on taxable purchases of supplies, furnishings, and various other taxable goods. No rate concessions or incentives are assumed.									

SERIES I - EXHIBIT VI			
COMPARATIVE ON SITE TRAVEL COSTS			
Location	Per Diem Cost (1)	Annual Travel Days (2)	Total Annual Corporate Travel Cost
Los Angeles/Southern CA Region	\$341.59	240	\$81,982
Oakland/East Bay Region	\$298.53	240	\$71,647
San Jose/Silicon Valley Region	\$341.52	240	\$81,965
Danbury/Southern CT Region	\$302.48	240	\$72,595
Rockford/Northern IL Region	\$289.72	240	\$69,533
Lafayette/Northwest IN Region	\$228.44	240	\$54,826
Boston/Southeast MA Region	\$344.35	240	\$82,644
Detroit/Southeast MI Region	\$256.99	240	\$61,678
NOTES:			
(1) Reflects the estimated daily cost of corporate traveler lodging, three meals, rental car/local transit and other incidentals based on second quarter 2022 BizCosts® data.			
(2) Based on an average of 20 billable per diem travel days per month at each of the destination locations.			

COMPARATIVE OPERATING COST ANALYSIS II

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

**SERIES II - EXHIBIT I
COMPARATIVE ANNUAL OPERATING COST SIMULATION SUMMARY⁽¹⁾**

	Rochester/ Southern MN Region	Reno/ Western NV Region	Albany/ Hudson Valley Region	Buffalo/ Upstate NY Region	Greensboro/ Piedmont Triad Region	Raleigh/ Research Triangle Region	Cleveland/ Northeast OH Region	Columbus Central OH Region
Nonexempt Labor (2)								
Weighted Average Hourly Earnings	\$25.83	\$25.70	\$26.97	\$26.16	\$25.49	\$29.33	\$26.40	\$29.31
Annual Base Payroll Costs	\$24,590,160	\$24,466,400	\$25,675,440	\$24,904,320	\$24,266,480	\$27,922,160	\$25,132,800	\$27,903,120
Fringe Benefits	\$9,098,359	\$9,052,568	\$9,499,913	\$9,214,598	\$8,978,598	\$10,331,199	\$9,299,136	\$10,324,154
Total Annual Labor Costs	\$33,688,519	\$33,518,968	\$35,175,353	\$34,118,918	\$33,245,078	\$38,253,359	\$34,431,936	\$38,227,274
Electric Power Costs (3)	\$605,316	\$523,116	\$424,104	\$424,104	\$504,480	\$504,480	\$491,052	\$558,288
Natural Gas Power Costs (4)	\$520,640	\$547,674	\$903,488	\$903,488	\$790,988	\$790,988	\$981,977	\$981,977
Amortization Costs (5)	\$4,205,287	\$3,781,195	\$4,159,902	\$3,652,752	\$3,333,688	\$3,623,329	\$3,802,471	\$3,933,763
Property and Sales Tax Costs (6)	\$1,969,926	\$1,408,423	\$2,243,428	\$2,157,540	\$1,243,985	\$1,304,939	\$2,685,994	\$2,517,595
Travel Costs (7)	\$72,434	\$74,160	\$67,373	\$59,618	\$58,678	\$64,918	\$62,789	\$59,124
Total Annual Geographically- Variable Operating Costs	\$41,062,122	\$39,853,536	\$42,973,648	\$41,316,420	\$39,176,897	\$44,542,013	\$42,456,219	\$46,278,021
NOTES:								
(1) Includes all major geographically-variable operating costs. Start-up and relocation costs not considered.								
(2) See Exhibit II.								
(3) See Exhibit III.								
(4) See Exhibit III.								
(5) See Exhibit IV.								
(6) See Exhibit V.								
(7) See Exhibit VI.								

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES II - EXHIBIT II COMPARATIVE ANNUAL LABOR COSTS									
		Rochester/ Southern MN	Reno/ Western NV	Albany/ Hudson Valley	Buffalo/ Upstate NY	Greensboro/ Piedmont Triad	Raleigh/ Research Triangle	Cleveland/ Northeast OH	Columbus Central OH
Job Title	Number of Workers	Region	Region	Region	Region	Region	Region	Region	Region
Production & Maintenance Group									
Apprentice	7	\$16.28	\$16.19	\$16.99	\$16.48	\$16.06	\$18.48	\$16.64	\$18.47
General Production Helper	75	\$16.87	\$16.78	\$17.61	\$17.08	\$16.65	\$19.16	\$17.24	\$19.14
CNC Operator	30	\$30.98	\$30.82	\$32.35	\$31.37	\$30.58	\$35.18	\$31.66	\$35.15
CNC Programmer	5	\$39.95	\$39.74	\$41.71	\$40.46	\$39.43	\$45.37	\$40.83	\$45.33
Lathe Operator	15	\$29.31	\$29.16	\$30.61	\$29.69	\$28.93	\$33.29	\$29.96	\$33.26
Grinding Machine Operator (Metal/Plastics)	12	\$24.56	\$24.43	\$25.64	\$24.87	\$24.24	\$27.89	\$25.10	\$27.87
Drilling Mach. Operator (Metal/Plastics)	12	\$22.79	\$22.67	\$23.79	\$23.08	\$22.49	\$25.88	\$23.29	\$25.86
Punch Press Operator (Metal/Plastics)	6	\$23.68	\$23.56	\$24.73	\$23.99	\$23.38	\$26.90	\$24.21	\$26.88
Press Brake Operator & Setup	5	\$25.16	\$25.03	\$26.28	\$25.49	\$24.84	\$28.58	\$25.72	\$28.56
Mach. Tool Cutting Operator	20	\$29.31	\$29.16	\$30.61	\$29.69	\$28.93	\$33.29	\$29.96	\$33.26
Stamping Press Operator & Setup	16	\$23.96	\$23.84	\$25.02	\$24.27	\$23.65	\$27.21	\$24.49	\$27.19
Welder, Solderer & Brazier	4	\$32.88	\$32.71	\$34.33	\$33.30	\$32.45	\$37.34	\$33.60	\$37.31
Welder Operator	5	\$29.18	\$29.03	\$30.47	\$29.56	\$28.80	\$33.14	\$29.83	\$33.12
Laser/Plasma Cutting Operator & Setup	5	\$34.38	\$34.20	\$35.90	\$34.82	\$33.93	\$39.04	\$35.14	\$39.01
Maintenance Mechanic	3	\$25.63	\$25.50	\$26.76	\$25.96	\$25.30	\$29.11	\$26.20	\$29.08
Tooling and Finishing									
Tool & Die Maker	5	\$41.39	\$41.18	\$43.22	\$41.92	\$40.86	\$47.01	\$42.31	\$46.97
Model/Pattern Maker	5	\$39.61	\$39.41	\$41.36	\$40.12	\$39.10	\$44.98	\$40.49	\$44.95
Machinist	75	\$26.33	\$26.19	\$27.49	\$26.67	\$25.99	\$29.90	\$26.91	\$29.88
Tool Crib Attendant	5	\$40.95	\$40.74	\$42.76	\$41.47	\$40.42	\$46.50	\$41.86	\$46.47
Plater	5	\$39.89	\$39.68	\$41.65	\$40.40	\$39.37	\$45.30	\$40.77	\$45.27
Painter	4	\$25.16	\$25.03	\$26.28	\$25.49	\$24.84	\$28.58	\$25.72	\$28.56
Parts Cleaner	3	\$24.28	\$24.15	\$25.35	\$24.59	\$23.96	\$27.57	\$24.82	\$27.55
Heat Treat/Annealing/Brazing	5	\$31.40	\$31.24	\$32.78	\$31.80	\$30.99	\$35.65	\$32.09	\$35.63
Assembly/Fabricator Hand	50	\$22.92	\$22.80	\$23.93	\$23.21	\$22.62	\$26.02	\$23.42	\$26.00
Assembly Machine Operator	35	\$22.01	\$21.89	\$22.98	\$22.29	\$21.72	\$24.99	\$22.49	\$24.97
Engineering and Quality Control									
Industrial Engineer I	5	\$42.03	\$41.82	\$43.89	\$42.57	\$41.49	\$47.73	\$42.96	\$47.70
Industrial Engineer II	3	\$56.12	\$55.83	\$58.60	\$56.84	\$55.39	\$63.73	\$57.36	\$63.68
Electrical Engineer I	3	\$43.51	\$43.29	\$45.44	\$44.07	\$42.95	\$49.41	\$44.48	\$49.38
Electrical Engineer II	1	\$58.81	\$58.51	\$61.41	\$59.56	\$58.05	\$66.79	\$60.11	\$66.73
Mechanical Engineer I	2	\$43.21	\$42.99	\$45.12	\$43.76	\$42.65	\$49.07	\$44.17	\$49.03
Mechanical Engineer II	1	\$56.72	\$56.43	\$59.23	\$57.45	\$55.99	\$64.42	\$57.98	\$64.37
Inspector	5	\$39.09	\$38.88	\$40.81	\$39.59	\$38.58	\$44.39	\$39.95	\$44.35
ISO/QS Lead Auditor	1	\$60.00	\$59.69	\$62.65	\$60.76	\$59.22	\$68.13	\$61.33	\$68.08

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES II - EXHIBIT II									
COMPARATIVE ANNUAL LABOR COSTS									
		Rochester/ Southern MN	Reno/ Western NV	Albany/ Hudson Valley	Buffalo/ Upstate NY	Greensboro/ Piedmont Triad	Raleigh/ Research Triangle	Cleveland/ Northeast OH	Columbus Central OH
	Number of Workers	Region	Region	Region	Region	Region	Region	Region	Region
Material Handling & Transportation									
Stock & Freight Mover	5	\$24.87	\$24.74	\$25.97	\$25.19	\$24.55	\$28.25	\$25.42	\$28.22
Machine Feeder & Offbearer	4	\$20.73	\$20.62	\$21.64	\$20.99	\$20.46	\$23.54	\$21.18	\$23.52
Packer & Packager, Hand	15	\$23.96	\$23.84	\$25.02	\$24.27	\$23.65	\$27.21	\$24.49	\$27.19
Industrial Truck Operator	5	\$27.53	\$27.39	\$28.75	\$27.88	\$27.17	\$31.26	\$28.14	\$31.24
Truck Driver, Tractor Trailer	5	\$32.78	\$32.61	\$34.23	\$33.20	\$32.36	\$37.23	\$33.51	\$37.20
Truck Driver, Light	2	\$21.25	\$21.14	\$22.19	\$21.52	\$20.97	\$24.13	\$21.72	\$24.11
Office & Clerical									
Receptionist & Information Clerk	2	\$17.36	\$17.27	\$18.13	\$17.58	\$17.13	\$19.71	\$17.74	\$19.70
Bill & Account Collector	2	\$20.54	\$20.43	\$21.45	\$20.80	\$20.27	\$23.32	\$20.99	\$23.31
Accounting Clerk	5	\$24.17	\$24.05	\$25.24	\$24.48	\$23.86	\$27.45	\$24.71	\$27.43
Customer Service Representative	4	\$20.99	\$20.89	\$21.92	\$21.26	\$20.72	\$23.84	\$21.46	\$23.82
HR Assistant	2	\$25.76	\$25.63	\$26.90	\$26.09	\$25.42	\$29.25	\$26.33	\$29.23
Production Planning Clerk/Expeditor	3	\$33.20	\$33.03	\$34.67	\$33.63	\$32.77	\$37.71	\$33.94	\$37.68
Shipping & Receiving Clerk	5	\$23.96	\$23.84	\$25.02	\$24.27	\$23.65	\$27.21	\$24.49	\$27.19
Stock Clerk & Order Filler	3	\$24.28	\$24.15	\$25.35	\$24.59	\$23.96	\$27.57	\$24.82	\$27.55
Executive Secretary	1	\$26.21	\$26.08	\$27.37	\$26.55	\$25.87	\$29.77	\$26.79	\$29.75
Secretary	4	\$18.80	\$18.71	\$19.63	\$19.04	\$18.56	\$21.35	\$19.22	\$21.34
Total Workers	500								
Weighted Average Hourly Earnings (1)		\$25.83	\$25.70	\$26.97	\$26.16	\$25.49	\$29.33	\$26.40	\$29.31
Total Annual Base Payroll Costs (2)		\$24,590,160	\$24,466,400	\$25,675,440	\$24,904,320	\$24,266,480	\$27,922,160	\$25,132,800	\$27,903,120
Fringe Benefits (3)		\$9,098,359	\$9,052,568	\$9,499,913	\$9,214,598	\$8,978,598	\$10,331,199	\$9,299,136	\$10,324,154
Total Annual Labor Costs		\$33,688,519	\$33,518,968	\$35,175,353	\$34,118,918	\$33,245,078	\$38,253,359	\$34,431,936	\$38,227,274
NOTES:									
(1) For mature plant in third year of operation based on current wage rates and fringe benefits. Wage rates reflect Boyd field research, industry sources, and 2022 BizCosts® data bank placing firm in an upper quartile hiring position in each respective labor market. Job descriptions reflect a representative mix of key direct and indirect job functions for a hypothetical advanced manufacturing plant employing 500 workers.									
(2) Assumes 1,904 hours worked per year per employee based on 12 paid holidays and a two-week vacation for mature plant.									
(3) Based on an estimated 37 percent of total annual base payroll costs. Costs include all statutory benefits, pay for time not worked and company-sponsored benefits.									

SERIES II - EXHIBIT III					
ANNUAL ELECTRIC POWER AND NATURAL GAS COST COMPARISONS					
	Electric Utility Company	Annual Electric Power Cost (1)	Annual Cost Per kWh (cents)	Annual Natural Gas Cost (2)	Total Annual Electric Power and Natural Gas Costs
Location					
Rochester/Southern MN Region	Rochester Public Utilities	\$605,316	7.76	\$520,640	\$1,125,956
Reno/Western NV Region	Nevada Energy	\$523,116	6.71	\$547,674	\$1,070,790
Albany/Hudson Valley Region	Niagara Mohawk	\$424,104	5.44	\$903,488	\$1,327,592
Buffalo/Upstate NY Region	Niagara Mohawk	\$424,104	5.44	\$903,488	\$1,327,592
Greensboro/Piedmont Triad Region	Duke Energy	\$504,480	6.47	\$790,988	\$1,295,468
Raleigh/Research Triangle Region	Duke Energy	\$504,480	6.47	\$790,988	\$1,295,468
Cleveland/Northeast OH Region	Cleveland Electric Illuminating	\$491,052	6.30	\$981,977	\$1,473,029
Columbus/Central OH Region	AEP-Columbus Southern Power	\$558,288	7.16	\$981,977	\$1,540,265
NOTES:					
(1)	Based on assumed monthly demand of 1,000 kW and 650,000 kWh monthly consumption. Annual costs reflect comparative industrial general service rates.				
(2)	Annual costs reflect an assumed monthly use of 75,000 therms of natural gas. Gas prices are based on latest monthly state averages for industrial-use gas.				

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES II - EXHIBIT IV								
PLANT CONSTRUCTION AND AMORTIZATION COSTS								
	Rochester/ Southern MN Region	Reno/ Western NV Region	Albany/ Hudson Valley Region	Buffalo/ Upstate NY Region	Greensboro/ Piedmont Triad Region	Raleigh/ Research Triangle Region	Cleveland/ Northeast OH Region	Columbus Central OH Region
Site Acquisition: No. of Acres	50	50	50	50	50	50	50	50
Cost per Acre (1)	\$292,500	\$235,500	\$365,500	\$139,500	\$265,500	\$366,500	\$195,500	\$300,500
Site Improvement Cost (2)	--	--	--	--	--	--	--	--
Total Land Cost	\$14,625,000	\$11,775,000	\$18,275,000	\$6,975,000	\$13,275,000	\$18,325,000	\$9,775,000	\$15,025,000
Construction Cost (3)	\$44,281,632	\$39,678,340	\$39,834,003	\$42,220,998	\$30,313,542	\$30,353,889	\$42,052,263	\$39,109,673
Machinery and Equipment	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000
Total Project Investment	\$73,906,632	\$66,453,340	\$73,109,003	\$64,195,998	\$58,588,542	\$63,678,889	\$66,827,263	\$69,134,673
Project Amortization								
Cost of Funds (Interest)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Payment Factor (4)	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569
Total Annual Amortization Cost	\$4,205,287	\$3,781,195	\$4,159,902	\$3,652,752	\$3,333,688	\$3,623,329	\$3,802,471	\$3,933,763
NOTES:								
(1) Boyd estimate only. Actual negotiated costs would vary by site specifics, including location, access, visibility, etc. Costs reflect fully serviced industrially-zoned land within a controlled industrial park setting.								
(2) Land preparation costs limited to normal grading and held constant for purposes of analysis.								
(3) Based on construction of fully equipped 350,000 sq. ft. industrial building. Geographic differentials in building costs are based on BizCosts® construction cost index data for the second quarter of 2022.								
(4) Assumes 25-year level amortization payments at 3.0 percent.								

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES II - EXHIBIT V									
AD VALOREM AND SALES TAX COSTS									
	Rochester/ Southern MN Region	Reno/ Western NV Region	Albany/ Hudson Valley Region	Buffalo/ Upstate NY Region	Greensboro/ Piedmont Triad Region	Raleigh/ Research Triangle Region	Cleveland/ Northeast OH Region	Columbus Central OH Region	
Real Property Tax Cost									
Land Cost (1)	\$14,625,000	\$11,775,000	\$18,275,000	\$6,975,000	\$13,275,000	\$18,325,000	\$9,775,000	\$15,025,000	
Building Cost (2)	\$44,281,632	\$39,678,340	\$39,834,003	\$42,220,998	\$30,313,542	\$30,353,889	\$42,052,263	\$39,109,673	
Total	\$58,906,632	\$51,453,340	\$58,109,003	\$49,195,998	\$43,588,542	\$48,678,889	\$51,827,263	\$54,134,673	
Effective Tax Rate	\$19.64	\$11.30	\$24.84	\$26.07	\$12.48	\$11.40	\$36.39	\$32.19	
Real Property Tax Cost (3)	\$1,156,926	\$581,423	\$1,443,428	\$1,282,540	\$543,985	\$554,939	\$1,885,994	\$1,742,595	
Sales Tax Cost									
Taxable Goods Purchases	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000
Sales Tax Rate (Percent)	8.13	8.27	8.00	8.75	7.00	7.50	8.00	7.75	
Total Annual Sales Tax Cost (4)	\$813,000	\$827,000	\$800,000	\$875,000	\$700,000	\$750,000	\$800,000	\$775,000	
Total Annual Ad Valorem and Sales Tax Costs	\$1,969,926	\$1,408,423	\$2,243,428	\$2,157,540	\$1,243,985	\$1,304,939	\$2,685,994	\$2,517,595	
NOTES:									
(1) See Exhibit IV.									
(2) See Exhibit IV.									
(3) Based on nominal real property tax rate and assessment practices at each location based on \$1,000 of valuation. Petitions for abatements and lower assessments not considered. Effective tax rates are considered representative property tax levy amounts. Actual rates will vary based on alternate municipal, school, fire, and special assessment districts within each surveyed city.									
(4) Based on prevailing local and state sales tax levies on taxable purchases of supplies, furnishings, and various other taxable goods. No rate concessions or incentives are assumed.									

SERIES II - EXHIBIT VI			
COMPARATIVE ON SITE TRAVEL COSTS			
Location	Per Diem Cost (1)	Annual Travel Days (2)	Total Annual Corporate Travel Cost
Rochester/Southern MN Region	\$301.81	240	\$72,434
Reno/Western NV Region	\$309.00	240	\$74,160
Albany/Hudson Valley Region	\$280.72	240	\$67,373
Buffalo/Upstate NY Region	\$248.41	240	\$59,618
Greensboro/Piedmont Triad Region	\$244.49	240	\$58,678
Raleigh/Research Triangle Region	\$270.49	240	\$64,918
Cleveland/Northeast OH Region	\$261.62	240	\$62,789
Columbus/Central OH Region	\$246.35	240	\$59,124
NOTES:			
(1) Reflects the estimated daily cost of corporate traveler lodging, three meals, rental car/local transit and other incidentals based on second quarter 2022 BizCosts® data.			
(2) Based on an average of 20 billable per diem travel days per month at each of the destination locations.			

COMPARATIVE OPERATING COST ANALYSIS III

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT I								
COMPARATIVE ANNUAL OPERATING COST SIMULATION SUMMARY⁽¹⁾								
	Eastern Ontario Region	Portland/ Villamette Valle Region	Charleston/ Low Country Region	Nashville/ Middle TN Region	Austin/ Texas Hill Country Region	Houston/ Southeast TX Region	Fairfax/ Northern VA Region	Seattle Puget Sound Region
Nonexempt Labor (2)								
Weighted Average Hourly Earnings	\$22.17	\$27.67	\$25.32	\$24.76	\$26.23	\$27.93	\$30.59	\$29.15
Annual Base Payroll Costs	\$21,105,840	\$26,341,840	\$24,104,640	\$23,571,520	\$24,970,960	\$26,589,360	\$29,121,680	\$27,750,800
Fringe Benefits	\$4,010,110	\$9,746,481	\$8,918,717	\$8,721,462	\$9,239,255	\$9,838,063	\$10,775,022	\$10,267,796
Total Annual Labor Costs	\$25,115,950	\$36,088,321	\$33,023,357	\$32,292,982	\$34,210,215	\$36,427,423	\$39,896,702	\$38,018,596
Electric Power Costs (3)	\$580,356	\$570,276	\$495,288	\$742,932	\$494,076	\$391,176	\$391,176	\$625,164
Natural Gas Power Costs (4)	\$467,543	\$519,767	\$664,535	\$723,837	\$481,395	\$481,395	\$641,860	\$790,988
Amortization Costs (5)	\$3,583,095	\$4,205,001	\$3,438,111	\$3,840,638	\$3,818,180	\$3,962,424	\$4,406,510	\$5,423,855
Property and Sales Tax Costs (6)	\$2,495,457	\$1,001,327	\$2,059,668	\$1,665,349	\$2,044,218	\$2,076,219	\$1,477,325	\$1,863,306
Travel Costs (7)	\$66,319	\$78,091	\$65,532	\$69,499	\$67,661	\$78,499	\$89,376	\$85,318
Total Annual Geographically- Variable Operating Costs	\$32,308,720	\$42,462,783	\$39,746,491	\$39,335,237	\$41,115,745	\$43,417,136	\$46,902,949	\$46,807,227
NOTES:								
(1) Includes all major geographically-variable operating costs. Start-up and relocation costs not considered.								
(2) See Exhibit II.								
(3) See Exhibit III.								
(4) See Exhibit III.								
(5) See Exhibit IV.								
(6) See Exhibit V.								
(7) See Exhibit VI.								

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT II COMPARATIVE ANNUAL LABOR COSTS									
		Eastern	Portland/	Charleston/	Nashville/	Austin/	Houston/	Fairfax/	Seattle
	Number of	Ontario	Willamette Valley	Low Country	Middle TN	Texas Hill Country	Southeast TX	Northern VA	Puget Sound
Job Title	Workers	Region	Region	Region	Region	Region	Region	Region	Region
Production & Maintenance Group									
Apprentice	7	\$13.97	\$17.44	\$15.96	\$15.60	\$16.53	\$17.60	\$19.28	\$18.37
General Production Helper	75	\$14.48	\$18.08	\$16.54	\$16.17	\$17.13	\$18.24	\$19.98	\$19.04
CNC Operator	30	\$26.59	\$33.19	\$30.37	\$29.69	\$31.46	\$33.50	\$36.69	\$34.96
CNC Programmer	5	\$34.29	\$42.80	\$39.17	\$38.29	\$40.57	\$43.21	\$47.32	\$45.09
Lathe Operator	15	\$25.16	\$31.41	\$28.74	\$28.09	\$29.77	\$31.70	\$34.72	\$33.08
Grinding Machine Operator (Metal/Plastics)	12	\$21.08	\$26.31	\$24.08	\$23.54	\$24.94	\$26.56	\$29.09	\$27.72
Drilling Mach. Operator (Metal/Plastics)	12	\$19.56	\$24.42	\$22.34	\$21.84	\$23.14	\$24.65	\$26.99	\$25.72
Punch Press Operator (Metal/Plastics)	6	\$20.33	\$25.38	\$23.22	\$22.70	\$24.05	\$25.62	\$28.06	\$26.73
Press Brake Operator & Setup	5	\$21.60	\$26.96	\$24.67	\$24.12	\$25.56	\$27.22	\$29.81	\$28.40
Mach. Tool Cutting Operator	20	\$25.16	\$31.41	\$28.74	\$28.09	\$29.77	\$31.70	\$34.72	\$33.08
Stamping Press Operator & Setup	16	\$20.57	\$25.68	\$23.50	\$22.97	\$24.34	\$25.92	\$28.39	\$27.05
Welder, Solderer & Brazer	4	\$28.22	\$35.23	\$32.24	\$31.51	\$33.39	\$35.56	\$38.94	\$37.11
Welder Operator	5	\$25.05	\$31.27	\$28.61	\$27.97	\$29.64	\$31.56	\$34.57	\$32.94
Laser/Plasma Cutting Operator & Setup	5	\$29.51	\$36.84	\$33.71	\$32.95	\$34.92	\$37.18	\$40.72	\$38.80
Maintenance Mechanic	3	\$22.00	\$27.46	\$25.13	\$24.57	\$26.03	\$27.72	\$30.36	\$28.93
Tooling and Finishing									
Tool & Die Maker	5	\$35.53	\$44.35	\$40.59	\$39.67	\$42.04	\$44.77	\$49.03	\$46.72
Model/Pattern Maker	5	\$34.00	\$42.44	\$38.84	\$37.96	\$40.23	\$42.84	\$46.92	\$44.71
Machinist	75	\$22.60	\$28.21	\$25.82	\$25.24	\$26.74	\$28.48	\$31.19	\$29.72
Tool Crib Attendant	5	\$35.15	\$43.88	\$40.15	\$39.25	\$41.59	\$44.29	\$48.51	\$46.22
Plater	5	\$34.24	\$42.74	\$39.11	\$38.23	\$40.51	\$43.14	\$47.25	\$45.02
Painter	4	\$21.60	\$26.96	\$24.67	\$24.12	\$25.56	\$27.22	\$29.81	\$28.40
Parts Cleaner	3	\$20.84	\$26.01	\$23.81	\$23.27	\$24.66	\$26.26	\$28.76	\$27.40
Heat Treat/Annealing/Brazing	5	\$26.95	\$33.64	\$30.78	\$30.09	\$31.89	\$33.96	\$37.19	\$35.44
Assembly/Fabricator Hand	50	\$19.67	\$24.55	\$22.47	\$21.96	\$23.27	\$24.78	\$27.14	\$25.86
Assembly Machine Operator	35	\$18.89	\$23.58	\$21.58	\$21.09	\$22.35	\$23.80	\$26.07	\$24.84
Engineering and Quality Control									
Industrial Engineer I	5	\$36.08	\$45.04	\$41.21	\$40.29	\$42.69	\$45.46	\$49.79	\$47.44
Industrial Engineer II	3	\$48.17	\$60.13	\$55.02	\$53.79	\$56.99	\$60.69	\$66.47	\$63.34
Electrical Engineer I	3	\$37.35	\$46.62	\$42.66	\$41.71	\$44.19	\$47.06	\$51.54	\$49.11
Electrical Engineer II	1	\$50.48	\$63.01	\$57.66	\$56.37	\$59.73	\$63.60	\$69.66	\$66.38
Mechanical Engineer I	2	\$37.09	\$46.30	\$42.37	\$41.41	\$43.88	\$46.73	\$51.18	\$48.77
Mechanical Engineer II	1	\$48.69	\$60.78	\$55.62	\$54.37	\$57.61	\$61.35	\$67.19	\$64.02
Inspector	5	\$33.55	\$41.88	\$38.32	\$37.46	\$39.70	\$42.27	\$46.30	\$44.11
ISO/QS Lead Auditor	1	\$51.50	\$64.29	\$58.83	\$57.50	\$60.93	\$64.89	\$71.07	\$67.72

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT II COMPARATIVE ANNUAL LABOR COSTS									
		Eastern	Portland/	Charleston/	Nashville/	Austin/	Houston/	Fairfax/	Seattle
	Number of	Ontario	Willamette Valley	Low Country	Middle TN	Texas Hill Country	Southeast TX	Northern VA	Puget Sound
	Workers	Region	Region	Region	Region	Region	Region	Region	Region
Material Handling & Transportation									
Stock & Freight Mover	5	\$21.35	\$26.65	\$24.39	\$23.84	\$25.26	\$26.90	\$29.46	\$28.07
Machine Feeder & Offbearer	4	\$17.79	\$22.21	\$20.32	\$19.86	\$21.05	\$22.42	\$24.55	\$23.39
Packer & Packager, Hand	15	\$20.57	\$25.68	\$23.50	\$22.97	\$24.34	\$25.92	\$28.39	\$27.05
Industrial Truck Operator	5	\$23.63	\$29.50	\$26.99	\$26.39	\$27.96	\$29.77	\$32.61	\$31.07
Truck Driver, Tractor Trailer	5	\$28.14	\$35.13	\$32.14	\$31.42	\$33.30	\$35.46	\$38.83	\$37.00
Truck Driver, Light	2	\$18.24	\$22.77	\$20.84	\$20.37	\$21.58	\$22.98	\$25.17	\$23.98
Office & Clerical									
Receptionist & Information Clerk	2	\$14.90	\$18.60	\$17.02	\$16.64	\$17.63	\$18.77	\$20.56	\$19.59
Bill & Account Collector	2	\$17.63	\$22.01	\$20.14	\$19.69	\$20.86	\$22.21	\$24.33	\$23.18
Accounting Clerk	5	\$20.75	\$25.90	\$23.70	\$23.17	\$24.55	\$26.15	\$28.64	\$27.28
Customer Service Representative	4	\$18.02	\$22.49	\$20.58	\$20.12	\$21.32	\$22.71	\$24.87	\$23.69
HR Assistant	2	\$22.11	\$27.60	\$25.26	\$24.69	\$26.16	\$27.86	\$30.51	\$29.07
Production Planning Clerk/Expeditor	3	\$28.50	\$35.58	\$32.56	\$31.82	\$33.72	\$35.91	\$39.33	\$37.47
Shipping & Receiving Clerk	5	\$20.57	\$25.68	\$23.50	\$22.97	\$24.34	\$25.92	\$28.39	\$27.05
Stock Clerk & Order Filler	3	\$20.84	\$26.01	\$23.81	\$23.27	\$24.66	\$26.26	\$28.76	\$27.40
Executive Secretary	1	\$22.50	\$28.09	\$25.70	\$25.12	\$26.62	\$28.35	\$31.05	\$29.59
Secretary	4	\$16.14	\$20.15	\$18.44	\$18.02	\$19.10	\$20.34	\$22.27	\$21.22
Total Workers	500								
Weighted Average Hourly Earnings (1)		\$22.17	\$27.67	\$25.32	\$24.76	\$26.23	\$27.93	\$30.59	\$29.15
Total Annual Base Payroll Costs (2)		\$21,105,840	\$26,341,840	\$24,104,640	\$23,571,520	\$24,970,960	\$26,589,360	\$29,121,680	\$27,750,800
Fringe Benefits (3)		\$4,010,110	\$9,746,481	\$8,918,717	\$8,721,462	\$9,239,255	\$9,838,063	\$10,775,022	\$10,267,796
Total Annual Labor Costs		\$25,115,950	\$36,088,321	\$33,023,357	\$32,292,982	\$34,210,215	\$36,427,423	\$39,896,702	\$38,018,596
NOTES:									
(1) For mature plant in third year of operation based on current wage rates and fringe benefits. Wage rates reflect Boyd field research, industry sources, and 2022 BizCosts® data bank placing firm in an upper quartile hiring position in each respective labor market. Job descriptions reflect a representative mix of key direct and indirect job functions for a hypothetical advanced manufacturing plant employing 500 workers.									
(2) Assumes 1,904 hours worked per year per employee based on 12 paid holidays and a two-week vacation for mature plant.									
(3) Based on an estimated 37 percent of total annual base payroll costs for U.S. locations. Eastern Ontario assumes a rate of 19 percent. Costs include all statutory benefits, pay for time not worked and company-sponsored benefits.									

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT III					
ANNUAL ELECTRIC POWER AND NATURAL GAS COST COMPARISONS					
	Electric Utility Company	Annual Electric Power Cost (1)	Annual Cost Per kWh (cents)	Annual Natural Gas Cost (2)	Total Annual Electric Power and Natural Gas Costs
Location					
Eastern Ontario Region	Hydro One	\$580,356	7.44	\$467,543	\$1,047,899
Portland/Willamette Valley Region	Portland General Electric	\$570,276	7.31	\$519,767	\$1,090,043
Charleston/Low Country Region	Dominion Energy South Carolina	\$495,288	6.35	\$664,535	\$1,159,823
Nashville/Middle TN Region	Nashville Electric	\$742,932	9.53	\$723,837	\$1,466,769
Austin/Texas Hill Country Region	Entergy Energy	\$494,076	6.33	\$481,395	\$975,471
Houston/Southeast TX Region	Entergy Energy	\$391,176	5.02	\$481,395	\$872,571
Fairfax/Northern VA Region	Dominion Virginia Power	\$391,176	5.02	\$641,860	\$1,033,036
Seattle/Puget Sound Region	Puget Sound Energy	\$625,164	8.02	\$790,988	\$1,416,152
NOTES:					
(1) Based on assumed monthly demand of 1,000 kW and 650,000 kWh monthly consumption. Annual costs reflect comparative industrial general service rates.					
(2) Annual costs reflect an assumed monthly use of 75,000 therms of natural gas. Gas prices are based on latest monthly state and regional averages for industrial-use gas.					

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT IV									
PLANT CONSTRUCTION AND AMORTIZATION COSTS									
	Eastern Ontario Region	Portland/ Willamette Valley Region	Charleston/ Low Country Region	Nashville/ Middle TN Region	Austin/ Texas Hill Country Region	Houston/ Southeast TX Region	Fairfax/ Northern VA Region	Seattle Puget Sound Region	
Site Acquisition: No. of Acres	50	50	50	50	50	50	50	50	
Cost per Acre (1)	\$85,500	\$322,500	\$285,500	\$347,500	\$401,500	\$389,500	\$525,500	\$715,500	
Site Improvement Cost (2)	--	--	--	--	--	--	--	--	
Total Land Cost	\$4,275,000	\$16,125,000	\$14,275,000	\$17,375,000	\$20,075,000	\$19,475,000	\$26,275,000	\$35,775,000	
Construction Cost (3)	\$43,696,800	\$42,776,593	\$31,148,748	\$35,123,036	\$32,028,336	\$35,163,386	\$36,168,054	\$44,547,584	
Machinery and Equipment	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	
Total Project Investment	\$62,971,800	\$73,901,593	\$60,423,748	\$67,498,036	\$67,103,336	\$69,638,386	\$77,443,054	\$95,322,584	
Project Amortization									
Cost of Funds (Interest)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Payment Factor (4)	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	0.0569	
Total Annual Amortization Cost	\$3,583,095	\$4,205,001	\$3,438,111	\$3,840,638	\$3,818,180	\$3,962,424	\$4,406,510	\$5,423,855	
NOTES:									
(1)	Boyd estimate only. Actual negotiated costs would vary by site specifics, including location, access, visibility, etc. Costs reflect fully serviced industrially-zoned land within a controlled industrial park setting.								
(2)	Land preparation costs limited to normal grading and held constant for purposes of analysis.								
(3)	Based on construction of fully equipped 350,000 sq. ft. industrial building. Geographic differentials in building costs are based on BizCosts® construction cost index data for the second quarter of 2022.								
(4)	Assumes 25-year level amortization payments at 3.0 percent.								

**A COMPARATIVE OPERATING
COST ANALYSIS**

**ADVANCED MANUFACTURING
SITE SELECTION**

SERIES III - EXHIBIT V								
AD VALOREM AND SALES TAX COSTS								
	Eastern Ontario Region	Portland/ Willamette Valley Region	Charleston/ Low Country Region	Nashville/ Middle TN Region	Austin/ Texas Hill Country Region	Houston/ Southeast TX Region	Fairfax/ Northern VA Region	Seattle Puget Sound Region
Real Property Tax Cost								
Land Cost (1)	\$4,275,000	\$16,125,000	\$14,275,000	\$17,375,000	\$20,075,000	\$19,475,000	\$26,275,000	\$35,775,000
Building Cost (2)	\$43,696,800	\$42,776,593	\$31,148,748	\$35,123,036	\$32,028,336	\$35,163,386	\$36,168,054	\$44,547,584
Total	\$47,971,800	\$58,901,593	\$45,423,748	\$52,498,036	\$52,103,336	\$54,638,386	\$62,443,054	\$80,322,584
Effective Tax Rate	\$24.92	\$17.00	\$25.53	\$13.15	\$23.40	\$22.90	\$14.05	\$10.25
Real Property Tax Cost (3)	\$1,195,457	\$1,001,327	\$1,159,668	\$690,349	\$1,219,218	\$1,251,219	\$877,325	\$823,306
Sales Tax Cost								
Taxable Goods Purchases	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000
Sales Tax Rate (Percent)	13.00	0.00	9.00	9.75	8.25	8.25	6.00	10.40
Total Annual Sales Tax Cost (4)	\$1,300,000	\$0	\$900,000	\$975,000	\$825,000	\$825,000	\$600,000	\$1,040,000
Total Annual Ad Valorem and Sales Tax Costs	\$2,495,457	\$1,001,327	\$2,059,668	\$1,665,349	\$2,044,218	\$2,076,219	\$1,477,325	\$1,863,306
NOTES:								
(1) See Exhibit IV.								
(2) See Exhibit IV.								
(3) Based on nominal real property tax rate and assessment practices at each location based on \$1,000 of valuation. Petitions for abatements and lower assessments not considered. Effective tax rates are considered representative property tax levy amounts. Actual rates will vary based on alternate municipal, school, fire, and special assessment districts within each surveyed city.								
(4) Based on prevailing local and state sales tax levies on taxable purchases of supplies, furnishings, equipment and other taxable goods. The combined Ontario and Federal sales tax cost does not reflect certain input tax credits which are available to manufacturers.								

SERIES III - EXHIBIT VI			
COMPARATIVE ON SITE TRAVEL COSTS			
Location	Per Diem Cost (1)	Annual Travel Days (2)	Total Annual Corporate Travel Cost
Eastern Ontario Region	\$276.33	240	\$66,319
Portland/Willamette Valley Region	\$325.38	240	\$78,091
Charleston/Low Country Region	\$273.05	240	\$65,532
Nashville/Middle TN Region	\$289.58	240	\$69,499
Austin/Texas Hill Country Region	\$281.92	240	\$67,661
Houston/Southeast TX Region	\$327.08	240	\$78,499
Fairfax/Northern VA Region	\$372.40	240	\$89,376
Seattle/Puget Sound Region	\$355.49	240	\$85,318
NOTES:			
(1) Reflects the estimated daily cost of corporate traveler lodging, three meals, rental car/local transit and other incidentals based on second quarter 2022 BizCosts® data.			
(2) Based on an average of 20 billable per diem travel days per month at each of the destination locations.			

