



2016 Comparative Advanced Manufacturing Operating Costs Analysis

In the 2016 analysis, completed by The Boyd Company, Princeton, NJ, major operating costs scaled to a representative advanced manufacturing plant were presented for a series of 24 regions in the U.S. and Canada. Findings were summarized and show total annual operating costs ranging from a high of \$42.5 million in the San Jose/Silicon Valley Region of California to a low of \$ 27.5 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 2016. All costs are in U.S. dollars at a current exchange rate of .7500.

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, affordable industrial sites, regional market access, sound energy supplies and others.

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, were ranked. 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

The chart below 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

Comparative ad valorem (property) tax costs in each of the 24 surveyed sites presented were scaled to the land and building specifications of the model plant. Also presented were 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 were presented. 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 Ranking

ADVANCED MANUFACTURING	
TOTAL GEOGRAPHICALLY-VARIABLE OPERATING COST RANKING: NATIONAL	
Regions	Total Annual Operating Costs
San Jose/Silicon Valley Region	\$42,519,717
Oakland/East Bay Region	\$41,077,394
Boston/Southeast MA Region	\$40,932,808
Los Angeles/Southern CA Region	\$39,442,794
Danbury/Southern CT Region	\$39,385,745
Seattle/Puget Sound Region	\$38,826,958
Albany/Hudson Valley Region	\$37,890,099

Fairfax/Northern VA Region	\$37,788,209
Rockford/Northern IL Region	\$37,282,778
Detroit/Southeast MI Region	\$36,984,221
Buffalo/Upstate NY Region	\$36,547,231
Houston/Southeast TX Region	\$36,500,268
Cleveland/Northeast OH Region	\$35,569,826
Portland/Willamette Valley Region	\$34,718,557
Austin/Texas Hill Country Region	\$34,561,763
Columbus/Central OH Region	\$34,472,582
Lafayette/Northwest IN Region	\$34,187,636
Reno/Western NV Region	\$34,065,632
Rochester/Southern MN Region	\$34,003,197
Nashville/Middle TN Region	\$32,931,333
Raleigh/Research Triangle Region	\$32,922,364
Charleston/Low Country Region	\$32,455,939
Greensboro/Piedmont Triad Region	\$30,719,794
Eastern Ontario Region	\$27,514,918

Comparative Annual Operating Cost Simulation Summary – select regions						
	Highest Cost Location					Lowest Cost Location
	Austin/Texas Hill Country Region	Boston/Southeast MA Region	Detroit/Southeast MI Region	Buffalo/Upstate NY Region	Cleveland/Northeast OH Region	Eastern Ontario Region
Non Exempt Labour						
Weighted Average Hourly Earnings	\$22.92	\$25.83	\$24.22	\$23.66	\$23.06	\$19.07
Annual Base Payroll Costs	\$21,819,840	\$24,590,160	\$23,057,440	\$22,524,320	\$21,953,120	\$18,154,640
Fringe Benefits	\$8,073,341	\$9,098,359	\$8,531,253	\$8,333,998	\$8,122,654	\$3,449,382
Total Annual Labour Costs	\$29,893,181	\$33,688,519	\$31,588,693	\$30,858,318	\$30,075,774	\$21,604,022

Electric Power Costs	\$457,224	\$940,800	\$537,552	\$414,036	\$581,676	\$517,428
Natural Gas Power Costs	\$216,000	\$748,800	\$521,100	\$584,100	\$477,900	\$439,218
Amortization Costs	\$2,425,377	\$3,490,044	\$2,881,092	\$2,768,818	\$2,781,812	\$2,775,298
Property and Sales Tax Costs	\$1,484,138	\$1,950,686	\$1,375,403	\$1,851,509	\$1,578,103	\$2,553,053
Travel Costs	\$85,843	\$113,959	\$80,381	\$70,450	\$74,561	\$65,117
Total Annual Geographically-Variable Operating Costs	\$34,561,763	\$40,932,808	\$36,984,221	\$36,547,231	\$35,569,826	\$27,149,18

Note: Includes all major geographically-variable operating costs. Start-up and relocation costs not considered.

Source: *The Boyd Company, Inc. Location Consultants, Princeton, NJ, 2016*