

A COMPARATIVE COST ANALYSIS
FOR
NORTH AMERICAN AND EUROPEAN
BIOMEDICAL INDUSTRY
OPERATIONS

Prepared By:

The Boyd Company, Inc.

Location Consultants

Princeton, NJ

**COMPARATIVE OPERATING
COST ANALYSIS**

**BIOMEDICAL INDUSTRY
SITE SELECTION**

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

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

Introduction

In the following analysis, major operating costs scaled to a representative biomedical industry facility are projected by Boyd for a series of comparative North American and European locations. Economic findings are summarized in Exhibit I and show total annual operating costs in the U.S. ranging from a high of \$11.3 million in San Jose, CA, to a low of \$8.5 million in Sioux Falls, SD. Annual costs among the surveyed Canadian biomedical centers range from a high of \$9.2 million in Vancouver, BC, to a low of \$8.5 million in Montreal, QUE. Annual costs among the surveyed European locations range from a high of \$13.0 million in Dusseldorf, Germany, to low of \$10.1 million in Madrid, Spain.

Annual operating costs were projected by Boyd solely for comparative purposes, with only major geographically-variable factors being considered. Those costs not varying significantly with geography, including start-up and relocation expenses, were not considered. The Boyd Company's authoritative, third-party analysis focuses on those key elements considered fundamental to the corporate biomedical industry site selection process. These costs include such pivotal factors as scientific and technical labor skilled in the life sciences, office occupancy, utilities, corporate travel, and others.

Overall operating costs were scaled by Boyd to a hypothetical 75,000 sq. ft. research and product development facility employing 100 workers. The Boyd Company's cost simulations are designed to provide an independent point of reference for the corporate facilities planner's assessment of relative

operating cost levels in each of the candidate biomedical industry sites. The format of the cost exhibits will allow the facilities planner to tailor The Boyd Company's cost data to reflect alternate scales of operation of the model biomedical facility.

Comparative North American and European Biomedical Industry Centers

For purposes of comparative economic analysis, major geographically-variable operating costs have been projected by Boyd for a series of 50 U.S., Canadian, and European metropolitan areas. Surveyed locations are considered by Boyd to be current or emerging centers of new biomedical and biotech corporate investment in a range of key sectors such as bio-pharma, molecular science, agri-bio, genetics, genomics, proteomics, bio-informatics, and others.

Listed below are the 50 comparative North American and European biomedical industry centers included in the Boyd economic analysis.

COMPARATIVE BIOMEDICAL INDUSTRY CENTERS
By Region

New England & Quebec Region:

- Boston, Massachusetts
- Fairfield County, Connecticut
- New Haven, Connecticut
- Manchester, New Hampshire
- Portland, Maine
- Montreal, Quebec

Mid-Atlantic Region:

- Rochester, New York
- Princeton, New Jersey
- Middlesex/Somerset/Hunterdon, New Jersey
- Philadelphia, Pennsylvania
- Lehigh Valley, Pennsylvania
- Pittsburgh, Pennsylvania

Southeast Region:

- Fairfax County, Virginia
- Montgomery County, Maryland
- Raleigh/Durham, North Carolina
- Memphis, Tennessee
- Birmingham, Alabama
- Palm Beach County, Florida

**COMPARATIVE OPERATING
COST ANALYSIS**

**BIOMEDICAL INDUSTRY
SITE SELECTION**

East North Central & So. Ontario Region:

- Cleveland, Ohio
- Columbus, Ohio
- Indianapolis, Indiana
- Madison, Wisconsin
- Chicago, Illinois
- Toronto, Ontario

West North Central Region:

- St. Louis, Missouri
- Kansas City, Missouri/Kansas
- Minneapolis/St. Paul, Minnesota
- Des Moines/Ames, Iowa
- Sioux Falls, South Dakota

Southwest Region:

- Norman, Oklahoma
- Houston, Texas
- Austin, Texas
- Shreveport, Louisiana
- New Orleans, Louisiana

Mountain Region:

- Denver, Colorado
- Colorado Springs, Colorado
- Phoenix, Arizona
- Tucson, Arizona

**COMPARATIVE OPERATING
COST ANALYSIS**

**BIOMEDICAL INDUSTRY
SITE SELECTION**

- Salt Lake City, Utah

West Coast Region:

- San Jose, California
- San Francisco, California
- San Diego, California
- Seattle/Bellevue, Washington
- Portland, Oregon
- Vancouver, British Columbia

European Region:

- London, England
- Madrid, Spain
- Brussels, Belgium
- Amsterdam, Netherlands
- Dusseldorf, Germany

U.S. Dollars

All operating cost figures in the comparative analysis are expressed in U.S. dollars. Exchange rates reflect prevailing first quarter 2004 levels for the Canadian dollar, the British Pound, and the Euro. From a monetary standpoint, financial analysts will take note of equalized lending rate assumptions among all the surveyed locations. This has been factored into amortization cost figures presented in Exhibit IV.

Labor Costs

Annual costs for labor, including life science research, engineering, product development, and administrative support workers, are presented in Exhibit II. Costs are based on a representative mix of job descriptions for a model 100-worker biomedical industry center. Labor costs for executive management staff were not included as these costs would tend not to vary as significantly by geography, but rather by individual company compensation practices.

Total annual labor costs, including fringe benefits, range from a high of \$6.7 million in San Francisco, CA, to a low of \$ 5.1 million in Sioux Falls, SD. Fringe benefits are included as a percent of total annual base payroll costs and include all statutory and company-sponsored benefits. Boyd projects biomedical industry fringe benefit costs in the U.S. at 32 percent of base payroll costs. Total fringe benefit costs in the Canadian and European biomedical sites are based on local fringe benefit practices including social security, other statutory benefits, pay for time not worked and company sponsored benefits.

Electric Power

Comparative annual electric power costs are presented in Exhibit III. Annual costs reflect commercial rate schedules of respective local electric utilities serving each surveyed area. Annual electric power costs vary greatly, ranging from a high in excess of \$200,000 in the surveyed California sites, to a low of \$65,219 in Vancouver, BC.

Facility Lease Costs

Annual costs for the leasing of Class-A research and office space in each of the surveyed locations are detailed in Exhibit IV. For purposes of

**COMPARATIVE OPERATING
COST ANALYSIS**

**BIOMEDICAL INDUSTRY
SITE SELECTION**

comparative analysis, annual costs are keyed to effective asking rates and reflect the leasing of 75,000 square feet of total space.

Other Occupancy Costs

Boyd projections of other occupancy costs, including project amortization and heating and air conditioning, are presented in Exhibits IV and V. Differentials in heating and air conditioning costs reflect both varying climatic conditions and differences in power costs.

Corporate Travel Costs

Comparative annual on-site corporate travel costs in each of the surveyed locations are presented in Exhibit VI. Costs include corporate traveler lodging, meals, local transportation, and other business travel incidentals. Figures are indicative of local travel cost structures expected to be incurred by employee visitations (management, technical, trainee, e.g.) to each of the 50 surveyed biomedical facility sites. Annual travel costs range from a high of \$649,792 in London, England, to a low of \$199,411 in Birmingham, AL.

Total Annual Operating Cost Rankings

Taken from summary Exhibit I is a cost ranking of all the 50 surveyed U.S., Canadian, and European biomedical industry centers.

Total Geographically-Variable Operating
Cost Rankings

Biomedical Facility Location	Total Annual Operating Costs
Dusseldorf, Germany	\$13,001,723
Brussels, Belgium	\$11,994,807
London, England	\$11,409,946
San Jose, CA	\$11,286,189
San Francisco, CA	\$11,223,246
Middlesex/Somerset/ Hunterdon, NJ	\$11,127,149
Princeton, NJ	\$10,622,999
Boston, MA	\$10,617,154
New Haven, CT	\$10,550,754
Philadelphia, PA	\$10,533,305
Fairfield County, CT	\$10,449,819
Amsterdam, Netherlands	\$10,434,401
Chicago, IL	\$10,386,763
San Diego, CA	\$10,382,245
Fairfax County, VA	\$10,215,206
Montgomery County, MD	\$10,174,233
Madrid, Spain	\$10,100,108
Palm Beach, FL	\$ 9,893,432
Houston, TX	\$ 9,848,868
St. Louis, MO	\$ 9,760,763
Portland, OR	\$ 9,724,581
Rochester, NY	\$ 9,724,300
Seattle/Bellevue, WA	\$ 9,674,879
Cleveland, OH	\$ 9,659,512
Madison, WI	\$ 9,575,783

Total Geographically-Variable Operating
Cost Rankings, Continued

Biomedical Facility Location	Total Annual Operating Costs
Denver, CO	\$ 9,551,142
Pittsburgh, PA	\$ 9,550,482
Phoenix, AZ	\$ 9,542,052
Kansas City, MO/KS	\$ 9,523,617
Austin, TX	\$ 9,455,166
Manchester, NH	\$ 9,387,308
Lehigh Valley, PA	\$ 9,383,759
Portland, ME	\$ 9,370,850
Des Moines/Ames, IA	\$ 9,343,696
Tucson, AZ	\$ 9,256,817
Vancouver, BC	\$ 9,216,967
Minneapolis/St. Paul, MN	\$ 9,211,549
Raleigh/Durham, NC	\$ 9,187,589
Columbus, OH	\$ 9,165,702
Salt Lake City, UT	\$ 9,123,839
Indianapolis, IN	\$ 9,112,803
New Orleans, LA	\$ 9,111,540
Birmingham, AL	\$ 9,064,037
Memphis, TN	\$ 8,936,527
Colorado Springs, CO	\$ 8,878,575
Toronto, ONT	\$ 8,792,914
Norman, OK	\$ 8,704,721
Shreveport, LA	\$ 8,687,885
Montreal, QUE	\$ 8,514,889
Sioux Falls, SD	\$ 8,483,070

About Boyd

Founded in 1975, The Boyd Company, Inc., of Princeton, NJ, provides independent location counsel to leading U.S. and overseas corporations. The firm works throughout North America and Europe, and serves such clients as: Rhone-Poulenc; United Technologies; Mayne Pharma; Time, Inc.; TD Canada Trust; Philips; J.P. Morgan Chase; PepsiCo; Hewlett-Packard; and many others.