COMPARATIVE PLASTICS INDUSTRY MANUFACTURING OPERATING COSTS

The Boyd Company, Inc.

Location Consultants

Princeton, NJ

TABLE OF CONTENTS

	COMPARATIVE OPERATING COST ANALYSIS: EXECUTIVE SUMMARY AND NOTES	1
	INTRODUCTIONCOMPARATIVE REGIONAL LOCATIONS	2
	LABOR COSTS	
	COMPARATIVE ELECTRIC POWER AND NATURAL GAS COSTS	
	COMPARATIVE LAND ACQUISITION AND CONSTRUCTION COSTS	
	COMPARATIVE AD VALOREM AND SALES TAX COSTS	
	TOTAL ANNUAL OPERATING COST RANKINGS	4
	ABOUT BOYD	
COI	MPARATIVE OPERATING COST ANALYSIS	5
	EXHIBIT I: A COMPARATIVE ANNUAL OPERATING COST	
	SIMULATION SUMMARY	
	EXHIBIT II: COMPARATIVE ANNUAL LABOR COSTS	
	EXHIBIT III: ANNUAL ELECTRIC POWER AND NATURAL GAS COSTS	
	EXHIBIT IV: PLANT CONSTRUCTION & AMORTIZATION COSTS	
	EXHIBIT V: AD VALOREM & SALES TAX COSTS	11

Princeton, NJ

COMPARATIVE OPERATING COST ANALYSIS: EXECUTIVE SUMMARY AND NOTES

Introduction

In the following analysis, major operating costs scaled to a representative plastics industry manufacturing plant are presented for a series of eight comparative production sites in the Northeast U.S. Findings are summarized in Exhibit I and show total annual operating costs ranging from a high of \$18.7 million in Long Island, NY, to a low of \$14.4 million in the Scranton/Wilkes Barre,

PA, area.

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 175,000 sq. ft. plastics production facility employing 225 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 latest third quarter 2016 figures.

Costs are germane to several key sectors of the plastics industry, including injection and blow molding, extrusion, thermoforming, reinforced plastics & composites and EPS foam.

Comparative Northeast Locations

For purposes of comparative economic analysis, major geographically-variable operating costs have been projected by Boyd for a series of eight metropolitan

A COMPARTIVE OPERATING COST ANALYSIS

PLASTICS INDUSTRY SITE SELECTION

areas in the Middle Atlantic states of New York, New Jersey and Pennsylvania housing current concentrations of the plastics and related light manufacturing operations.

The eight comparative locations included in the Boyd analysis are detailed below alphabetically by state.

- White Plains/Westchester County, NY
- Long Island, NY
- Rochester, NY
- > New Brunswick, NJ
- Newark, NJ
- Philadelphia, PA
- > Allentown/Bethlehem, PA
- Scranton/Wilkes Barre, PA

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 production, engineering, I.T., material handling/transportation and office/clerical job descriptions for the model 225-worker plastics industry 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 electric power and natural gas costs are presented in Exhibit III. Annual costs reflect industrial rate schedules of the respective local electric

utilities serving each area. Natural gas costs are based on an assumed monthly consumption of industrial-use gas.

Comparative Land Acquisition and Construction Costs

Exhibit IV presents comparative costs for the purchase of industrially-zoned land and the construction of new light manufacturing space in each of the eight surveyed locations.

Comparative Ad Valorem and Sales Tax Costs

Exhibit V presents comparative ad valorem (property) tax costs in each of eight surveyed production sites scaled to the land and building specifications of the model plastic plant. Also presented in this exhibit are comparative local and state sales tax costs based on a fixed annual purchase of supplies, equipment, furnishings and other taxable goods associated with the plant.

Total Annual Operating Cost Rankings

Taken from summary Exhibit I are national cost rankings of the eight surveyed locations.

TOTAL GEOGRAPHICALLY-VARIABLE OPERATING COST RANKING: NATIONAL							
Regions	Total Annual Operating Costs						
Long Island, NY	\$18,713,712						
White Plains/Westchester County, NY	\$18,621,515						
New Brunswick, NJ	\$18,084,608						
Newark, NJ	\$18,036,921						
Philadelphia, PA	\$17,024,142						
Rochester, NY	\$16,109,702						
Allentown/Bethlehem, PA	\$15,452,299						
Scranton/Wilkes Barre, PA	\$14,448,952						

A COMPARTIVE OPERATING COST ANALYSIS

PLASTICS INDUSTRY SITE SELECTION

About Boyd

Devoted exclusively to corporate mobility, The Boyd Company is recognized as one of the nation's premier authorities 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, Dell, Altera, Philips and other *Fortune 500* companies.

COMPARATIVE OPERATING COST EXHIBITS

COM	IDADATIVE ANN	IIIAI ODEE	EXHIBIT I	CT CIMIII AT	ION STIMM	ADV(1)		
COIN	White Plains/		Rochester			, ,	Allentown/ Bethlehem	Scranton/ Wilkes Barre
	NY	NY	NY	NJ	NJ	PA	PA	PA
	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area
onexempt Labor (2)								
Weighted Average Hourly Earnings	\$21.32	\$21.75	\$19.98	\$21.97	\$21.58	\$20.89	\$19.10	\$17.99
Annual Base Payroll Costs	\$9,133,488	\$9,317,700	\$8,559,432	\$9,411,948	\$9,244,872	\$8,949,276	\$8,182,440	\$7,706,916
Fringe Benefits	\$3,470,725	\$3,540,726	\$3,252,584	\$3,576,540	\$3,513,051	\$3,400,725	\$3,109,327	\$2,928,628
otal Annual Labor Costs	\$12,604,213	\$12,858,426	\$11,812,016	\$12,988,488	\$12,757,923	\$12,350,001	\$11,291,767	\$10,635,544
ectric Power Costs (3)	\$1,034,460	\$796,754	\$613,800	\$702,120	\$702,120	\$422,412	\$495,444	\$495,444
atural Gas Power Costs (4)	\$178,800	\$178,800	\$91,200	\$157,800	\$157,800	\$147,000	\$127,200	\$80,400
mortization Costs (5)	\$2,861,482	\$2,738,715	\$2,101,469	\$2,615,287	\$2,695,341	\$2,480,775	\$2,218,555	\$2,055,555
roperty and Sales Tax Costs (6)	\$1,942,560	\$2,141,017	\$1,491,217	\$1,620,913	\$1,723,737	\$1,623,954	\$1,319,333	\$1,182,009
otal Annual Geographically-Variable perating Costs	\$18,621,515	\$18,713,712	\$16,109,702	\$18,084,608	\$18,036,921	\$17,024,142	\$15,452,299	\$14,448,952
S:								
	e operating costs. Start	-up and relocation	n costs not cons	idered.				
ee Exhibit II.								
ee Exhibit IV. ee Exhibit V.								
	onexempt Labor (2) Weighted Average Hourly Earnings Annual Base Payroll Costs Fringe Benefits otal Annual Labor Costs ectric Power Costs (3) atural Gas Power Costs (4) mortization Costs (5) operty and Sales Tax Costs (6) otal Annual Geographically-Variable perating Costs S: cludes all major geographically-variable per Exhibit III. ee Exhibit III. ee Exhibit III. ee Exhibit III.	White Plains/ Westchester County NY Metro Area Description of the property and Sales Tax Costs (6) Description Costs Description Costs White Plains/ Westchester County NY Metro Area Security Earnings \$21.32 \$41.32 \$41.33,488 \$51.39 \$12,604,213 \$51.404,213 \$51.404,213 \$61.400 \$	White Plains/ Westchester County NY NY Metro Area Display the property of the property of the preparating Costs White Plains/ Westchester County NY NY Metro Area Metro Area Metro Area Metro Area Metro Area Sequence Hourly Earnings Sequence Hourly Earning Sequence Hourly	White Plains/ Westchester County NY Metro Area Metro Ar	White Plains/ Westchester County NY NY NY NJ NY NJ NY NJ NY NJ NY NJ NJ	Westchester County NY NY NJ	White Plains/ Westchester County NY NY NJ NJ PA	White Plains/ Westchester County NY

EXHIBIT II									
		COMPAR	ATIVE ANN	IUAL LABO	R COSTS				
	Number of	White Plains/ Westchester County	Long Island	Rochester	New Brunswick	Newark	Philadelphia	Allentown/ Bethlehem	Scranton/ Wilkes Barr
	Workers	NY	NY	NY	NJ	NJ	PA	PA	PA
Job Title		Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area
General									
Helper-Trainee	5	\$16.12	\$16.44	\$15.11	\$16.61	\$16.32	\$15.80	\$14.44	\$13.60
Porter/Janitor	2	\$15.60	\$15.91	\$14.62	\$16.08	\$15.79	\$15.29	\$13.98	\$13.16
Material Handler	5	\$21.19	\$21.61	\$19.86	\$21.83	\$21.45	\$20.77	\$18.98	\$17.88
Floor Person	3	\$18.50	\$18.87	\$17.34	\$19.06	\$18.73	\$18.13	\$16.57	\$15.61
Set-Up Person	4	\$19.87	\$20.27	\$18.62	\$20.47	\$20.11	\$19.47	\$17.80	\$16.76
Support Equipment Operator	6	\$18.03	\$18.39	\$16.90	\$18.57	\$18.25	\$17.67	\$16.15	\$15.21
Assembler	20	\$17.47	\$17.82	\$16.38	\$18.01	\$17.69	\$17.12	\$15.65	\$14.74
Inspector	5	\$22.34	\$22.79	\$20.94	\$23.02	\$22.62	\$21.89	\$20.01	\$18.85
Molding & Extrusion									
Injection Molding Operator	15	\$21.54	\$21.97	\$20.19	\$22.19	\$21.81	\$21.11	\$19.29	\$18.17
Extrusion Operator	15	\$21.01	\$21.43	\$19.69	\$21.65	\$21.27	\$20.59	\$18.82	\$17.72
Blow Molding Operator	15	\$21.29	\$21.72	\$19.96	\$21.94	\$21.55	\$20.86	\$19.07	\$17.96
Preform Compression Operator	10	\$22.12	\$22.56	\$20.74	\$22.80	\$22.40	\$21.68	\$19.82	\$18.67
Thermoforming									
In-Line Operator	20	\$22.34	\$22.79	\$20.94	\$23.02	\$22.62	\$21.89	\$20.01	\$18.85
Trim Press Operator	3	\$22.15	\$22.59	\$20.76	\$22.82	\$22.42	\$21.71	\$19.84	\$18.69
Reinforced Plastics									
Machine Operator	5	\$21.57	\$22.00	\$20.22	\$22.23	\$21.84	\$21.14	\$19.32	\$18.20
Fabricator	8	\$19.57	\$19.96	\$18.35	\$20.17	\$19.82	\$19.18	\$17.53	\$16.51
Pultruder Operator	3	\$22.34	\$22.79	\$20.94	\$23.02	\$22.62	\$21.89	\$20.01	\$18.85
Filament Winder Operator	2	\$22.68	\$23.13	\$21.26	\$23.37	\$22.96	\$22.23	\$20.32	\$19.13
EPS Foam									
Mold Operator	5	\$21.33	\$21.76	\$20.00	\$21.98	\$21.60	\$20.90	\$19.11	\$18.00
Insulation Technician	3	\$22.58	\$23.03	\$21.16	\$23.26	\$22.86	\$22.13	\$20.22	\$19.05
Foam Shop Operator	5	\$20.99	\$21.41	\$19.67	\$21.62	\$21.25	\$20.57	\$18.80	\$17.70

		COMPAR	ATIVE ANN	IUAL LABO	K CO212				
	Number of	White Plains/ Westchester County NY	Long Island	Rochester NY	New Brunswick NJ	Newark NJ	Philadelphia PA	Allentown/ Bethlehem PA	Scrantor Wilkes Ba PA
	Workers	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Are
Job Title									
Finishing									
Utility Man	4	\$18.04	\$18.40	\$16.91	\$18.59	\$18.26	\$17.68	\$16.16	\$15.22
Spray Paint Operator	3	\$21.57	\$22.00	\$20.22	\$22.23	\$21.84	\$21.14	\$19.32	\$18.20
Polishing & Buffing Operator	4	\$19.94	\$20.34	\$18.69	\$20.54	\$20.18	\$19.54	\$17.86	\$16.82
Printer Operator	2	\$23.50	\$23.97	\$22.03	\$24.22	\$23.79	\$23.03	\$21.05	\$19.83
Tumbling Operator	2	\$19.55	\$19.94	\$18.33	\$20.15	\$19.79	\$19.16	\$17.51	\$16.50
Shipping & Receiving									·
Team Leader	2	\$29.30	\$29.89	\$27.47	\$30.20	\$29.67	\$28.71	\$26.25	\$24.72
Warehouse Material Handler	3	\$24.47	\$24.96	\$22.94	\$25.22	\$24.78	\$23.98	\$21.92	\$20.65
Warehouse Clerk	2	\$25.65	\$26.16	\$24.04	\$26.43	\$25.97	\$25.14	\$22.97	\$21.64
Packer	20	\$16.79	\$17.13	\$15.73	\$17.30	\$16.99	\$16.45	\$15.04	\$14.16
Maintenance & Tool Room	-	,	•	*	,	,		*	, ,
Team Leader	2	\$35.89	\$36.61	\$33.64	\$36.98	\$36.33	\$35.17	\$32.15	\$30.28
Electrician	2	\$35.27	\$35.98	\$33.06	\$36.34	\$35.70	\$34.56	\$31.59	\$29.75
Maintenance Mechanic	3	\$32.77	\$33.43	\$30.72	\$33.77	\$33.18	\$32.11	\$29.36	\$27.65
Machinist	4	\$35.41	\$36.12	\$33.19	\$36.49	\$35.85	\$34.70	\$31.72	\$29.88
Mold Maker	2	\$32.39	\$33.04	\$30.36	\$33.37	\$32.79	\$31.74	\$29.01	\$27.32
Mold Repair Person	2	\$27.18	\$27.72	\$25.48	\$28.01	\$27.52	\$26.64	\$24.35	\$22.93
Office & Clerical									
Receptionist	1	\$20.38	\$20.79	\$19.10	\$21.00	\$20.63	\$19.97	\$18.25	\$17.19
General Clerk	3	\$18.92	\$19.30	\$17.73	\$19.50	\$19.15	\$18.54	\$16.95	\$15.96
Accounting Clerk	2	\$24.52	\$25.01	\$22.98	\$25.26	\$24.82	\$24.03	\$21.96	\$20.69
Secretary	2	\$22.02	\$22.46	\$20.64	\$22.69	\$22.30	\$21.58	\$19.73	\$18.58
Executive Secretary	1	\$33.39	\$34.06	\$31.30	\$34.41	\$33.81	\$32.72	\$29.91	\$28.17
Total Nonexempt Workers	225								
Weighted Average Hourly Earnings (1)		\$21.32	\$21.75	\$19.98	\$21.97	\$21.58	\$20.89	\$19.10	\$17.99
Total Annual Base Payroll Costs (2)		\$9,133,488	\$9,317,700	\$8,559,432	\$9,411,948	\$9,244,872	\$8,949,276	\$8,182,440	\$7,706,91
Fringe Benefits (3)		\$3,470,725	\$3,540,726	\$3,252,584	\$3,576,540	\$3,513,051	\$3,400,725	\$3,109,327	\$2,928,62
Total Annual Labor Costs		\$12,604,213	\$12,858,426	\$11,812,016	\$12,988,488	\$12,757,923	\$12,350,001	\$11,291,767	\$10,635,5
DTES:									
For mature plant in third year of operation BizCosts® data bank placing firm in a com job functions for a hypothetical plastics pro Assumes 1,904 hours worked per year pe	npetitive hiring po- oduction plant em	sition in each respective ploying 225 nonexempt	labor market. workers.	lob descriptions i	reflect a representat				

⁸The Boyd Company, Inc.

Location Consultants

Princeton, NJ

	EXHI	BIT III			
ANNUAL EL	ECTRIC POWER AND NA	ATURAL GAS (COST COMPA	ARISONS	
					Total Annual
		Annual Electric	Annual Cost	Annual Natural	Electric Power and
Location	Electric Utility Company	Power Cost (1)	Per kWh (cents)	Gas Cost (2)	Natural Gas Costs
White Plains/Westchester County, NY	Consolidated Edison	\$1,034,460	13.26	\$178,800	\$1,213,260
Long Island, NY	Long Island Power Authority	\$796,754	10.21	\$178,800	\$975,554
Rochester, NY	Rochester Electric & Gas	\$613,800	7.87	\$91,200	\$705,000
New Brunswick, NJ	PSE&G	\$702,120 \$702,120	9.00	\$157,800	\$859,920
Newark, NJ	PSE&G		9.00	\$157,800	\$859,920
Philadelphia, PA	PECO Energy	\$422,412	5.42	\$147,000	\$569,412
Allentown/Bethlehem, PA	PPL	\$495,444	6.35	\$127,200	\$622,644
Scranton/Wilkes Barre, PA	PPL	\$495,444	6.35	\$80,400	\$575,844
NOTES:					
(1) Based on assumed monthly demand of 1,0 costs reflect comparative industrial genera					
(2) Annual costs reflect an assumed monthly ulatest two-year city gate annual averages fincluded are city gate to plant site meter chlocal plant site location.					

(4) Assumes 25-year level amortization payments at 3.0 percent.

			EXHIBI	T IV				
	PLANT	CONSTRU	CTION AND	AMORTIZAT	TION COST	S		
	White Plains/ Westchester County	Long Island	Rochester	New Brunswick	Newark	Philadelphia	Allentown/ Bethlehem	Scranton/ Wilkes Barre
	NY	NY	NY	NJ	NJ	PA	PA	PA
	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area
Site Acquisition: No. of Acres	25	25	25	25	25	25	25	25
Cost per Acre (1)	\$425,500	\$317,500	\$83,500	\$382,500	\$410,500	\$294,500	\$154,500	\$79,500
Site Improvement Cost (2)								
Total Land Cost	\$10,637,500	\$7,937,500	\$2,087,500	\$9,562,500	\$10,262,500	\$7,362,500	\$3,862,500	\$1,987,500
Construction Cost (3)	\$19,652,168	\$20,194,568	\$14,845,163	\$16,400,370	\$17,107,283	\$16,236,366	\$15,127,928	\$14,138,250
Machinery and Equipment	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000
Total Project Investment	\$50,289,668	\$48,132,068	\$36,932,663	\$45,962,870	\$47,369,783	\$43,598,866	\$38,990,428	\$36,125,750
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	\$2,861,482	\$2,738,715	\$2,101,469	\$2,615,287	\$2,695,341	\$2,480,775	\$2,218,555	\$2,055,555
OTES:								
) Boyd estimate only. Actual negotial within a controlled industrial park se		site specifics, inc	luding location, a	ccess, visibility, etc	. Costs reflect full	y serviced industri	ially-zoned land	
Land preparation costs limited to n	ormal grading and held o	constant for purpo	ses of analysis.					
B) Based on construction of fully equip				entials in building cos	sts are based on			
latest BizCosts® construction cost	index data.							

				EXHIBI7	ΓV				
		Δ	D VALORE	M AND SA	LES TAX CO	STS			
		White Plains/						Allentown/	Scranton/
		Westchester County	Long Island	Rochester	New Brunswick	Newark	Philadelphia	Bethlehem	Wilkes Barre
		NY	NY	NY	NJ	NJ	PA	PA	PA
		Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area	Metro Area
	Real Property Tax Cost								
	Land Cost (1)	\$10,637,500	\$7,937,500	\$2,087,500	\$9,562,500	\$10,262,500	\$7,362,500	\$3,862,500	\$1,987,500
	Building Cost (2)	\$19,652,168	\$20,194,568	\$14,845,163	\$16,400,370	\$17,107,283	\$16,236,366	\$15,127,928	\$14,138,250
	Total	\$30,289,668	\$28,132,068	\$16,932,663	\$25,962,870	\$27,369,783	\$23,598,866	\$18,990,428	\$16,125,750
	Effective Tax Rate	\$29.55	\$37.76	\$29.01	\$28.73	\$31.01	\$26.44	\$29.98	\$26.79
	Real Property Tax Cost (3)	\$895,060	\$1,062,267	\$491,217	\$745,913	\$848,737	\$623,954	\$569,333	\$432,009
	Sales Tax Cost								
	Taxable Goods Purchases	\$12,500,000	\$12,500,000	\$12,500,000	\$12,500,000	\$12,500,000	\$12,500,000	\$12,500,000	\$12,500,000
	Sales Tax Rate (Percent)	8.38	8.63	8.00	7.00	7.00	8.00	6.00	6.00
	Total Annual Sales Tax Cost (4)	\$1,047,500	\$1,078,750	\$1,000,000	\$875,000	\$875,000	\$1,000,000	\$750,000	\$750,000
	Total Annual Ad Valorem and								
	Sales Tax Costs	\$1,942,560	\$2,141,017	\$1,491,217	\$1,620,913	\$1,723,737	\$1,623,954	\$1,319,333	\$1,182,009
NC	DTES:								
	See Exhibit IV.								
(2)	See Exhibit IV.								
(3)	Based on nominal real property t	ax rate and assessment	practices at eac	h location based	on \$1,000 of				
	valuation. Petitions for abatemen	its and lower assessmen	ts not considere	d. Effective tax	rates are				
	considered representative prope	rty tax levy amounts. Act							
	school, fire and special assessm	ent districts within each	surveyed metrop	olitan area.					
(4)	Based on prevailing local and sta	ate sales tax levies on tax	kable purchases	of supplies, furn	ishings, equipment				
	and other taxable goods.								

