

APPENDIX E

Energy Calculations

Globemaster Specific Plan Project
Proposed Project Construction Energy Demand

Construction Worker Gasoline Demand

Phase	Trips	Vehicle CO ₂ (MT)	Kg CO ₂ /Gallon	Gallons
Demolition 1	16	5.07	8.78	576.98
Site Preparation 1	18	3.49	8.78	397.84
Grading 1	20	10.01	8.78	1,140.00
Building Construction 1	1,330	6130.63	8.78	698,248.86
Paving 1	16	4.92	8.78	560.01
Architectural Coating 1	266	80.56	8.78	9,175.21
Demolition 2	16	4.18	8.78	475.91
Site Preparation 2	18	2.93	8.78	333.53
Grading 2	20	8.39	8.78	955.72
Building Construction 2	1,330	5154.26	8.78	587,045.85
Paving 2	16	4.17	8.78	475.28
Architectural Coating 2	266	68.37	8.78	7,787.10
Demolition 3	16	3.60	8.78	409.83
Site Preparation 3	18	2.52	8.78	287.22
Grading 3	20	7.23	8.78	823.02
Building Construction 3	1,330	4560.22	8.78	519,387.52
Paving 3	16	3.77	8.78	429.56
Architectural Coating 3	266	61.79	8.78	7,037.88
Demolition 4	16	3.29	8.78	374.31
Site Preparation 4	18	2.36	8.78	269.23
Grading 4	20	6.53	8.78	744.02
Building Construction 4	1,330	4344.08	8.78	494,769.81
Paving 4	16	3.72	8.78	423.39
Architectural Coating 4	266	61.80	8.78	7,039.00
Total				2,339,167.06

Construction Vendor Diesel Demand

Phase	Trips	Vehicle CO ₂ (MT)	Kg CO ₂ /Gallon	Gallons
Demolition 1	0	0.00	10.21	0.00
Site Preparation 1	0	0.00	10.21	0.00
Grading 1	0	0.00	10.21	0.00
Building Construction 1	570	6690.83	10.21	655,321.23
Paving 1	0	0.00	10.21	0.00
Architectural Coating 1	0	0.00	10.21	0.00
Demolition 2	0	0.00	10.21	0.00
Site Preparation 2	0	0.00	10.21	0.00
Grading 2	0	0.00	10.21	0.00
Building Construction 2	570	6416.01	10.21	628,404.19
Paving 2	0	0.00	10.21	0.00
Architectural Coating 2	0	0.00	10.21	0.00
Demolition 3	0	0.00	10.21	0.00
Site Preparation 3	0	0.00	10.21	0.00
Grading 3	0	0.00	10.21	0.00
Building Construction 3	570	6321.91	10.21	619,188.27
Paving 3	0	0.00	10.21	0.00
Architectural Coating 3	0	0.00	10.21	0.00
Demolition 4	0	0.00	10.21	0.00
Site Preparation 4	0	0.00	10.21	0.00
Grading 4	0	0.00	10.21	0.00
Building Construction 4	570	6298.49	10.21	616,893.99
Paving 4	0	0.00	10.21	0.00
Architectural Coating 4	0	0.00	10.21	0.00
Total				2,519,807.68

Construction Haul Diesel Demand

Phase	Trips	Vehicle CO ₂ (MT)	Kg CO ₂ /Gallon	Gallons
Demolition 1	3,984	153.54	10.21	15,038.18
Site Preparation 1	0	0.00	10.21	0.00
Grading 1	1,250	48.17	10.21	4,718.31
Building Construction 1	0	0.00	10.21	0.00
Paving 1	0	0.00	10.21	0.00
Architectural Coating 1	0	0.00	10.21	0.00
Demolition 2	3,984	140.06	10.21	13,717.68
Site Preparation 2	0	0.00	10.21	0.00
Grading 2	1,250	44.66	10.21	4,374.55
Building Construction 2	0	0.00	10.21	0.00
Paving 2	0	0.00	10.21	0.00
Architectural Coating 2	0	0.00	10.21	0.00
Demolition 3	3,984	137.03	10.21	13,420.98
Site Preparation 3	0	0.00	10.21	0.00
Grading 3	1,250	43.70	10.21	4,279.93
Building Construction 3	0	0.00	10.21	0.00
Paving 3	0	0.00	10.21	0.00
Architectural Coating 3	0	0.00	10.21	0.00
Demolition 4	3,984	135.62	10.21	13,282.74
Site Preparation 4	0	0.00	10.21	0.00
Grading 4	1,250	42.81	10.21	4,192.62
Building Construction 4	0	0.00	10.21	0.00
Paving 4	0	0.00	10.21	0.00
Architectural Coating 4	0	0.00	10.21	0.00
Total				73,025.00

Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO ₂ (MT)	Kg CO ₂ /Gallon	Gallons
Demolition 1	6	105.40	10.21	10,322.79
Site Preparation 1	7	63.52	10.21	6,221.19
Grading 1	8	266.97	10.21	26,148.19
Building Construction 1	9	1123.90	10.21	110,078.02
Paving 1	6	69.09	10.21	6,767.04
Architectural Coating 1	1	8.68	10.21	850.25
Demolition 2	6	103.69	10.21	10,156.00
Site Preparation 2	7	63.59	10.21	6,227.94
Grading 2	8	267.08	10.21	26,158.71
Building Construction 2	9	1124.81	10.21	110,167.42
Paving 2	6	69.07	10.21	6,764.58
Architectural Coating 2	1	8.68	10.21	850.25
Demolition 3	6	121.15	10.21	11,865.97
Site Preparation 3	7	76.01	10.21	7,444.54
Grading 3	8	320.64	10.21	31,404.26
Building Construction 3	9	1274.88	10.21	124,865.41
Paving 3	6	83.14	10.21	8,143.32
Architectural Coating 3	1	8.68	10.21	850.25
Demolition 4	6	121.15	10.21	11,865.97
Site Preparation 4	7	78.01	10.21	7,640.45
Grading 4	8	317.37	10.21	31,083.83
Building Construction 4	9	1274.88	10.21	124,865.36
Paving 4	6	83.14	10.21	8,143.32
Architectural Coating 4	1	8.81	10.21	862.75
Total				689,747.85

Construction Equipment Usage

Phase	Hours of Use
Demolition 1	2,976
Site Preparation 1	2,128
Grading 1	6,272
Building Construction 1	65,960
Paving 1	3,312
Architectural Coating 1	408
Demolition 2	2,976
Site Preparation 2	2,128
Grading 2	6,272
Building Construction 2	65,960
Paving 2	3,312
Architectural Coating 2	408
Demolition 3	2,976
Site Preparation 3	2,128
Grading 3	6,272
Building Construction 3	65,960
Paving 3	3,312
Architectural Coating 3	408
Demolition 4	2,976
Site Preparation 4	2,128
Grading 4	6,272
Building Construction 4	65,960
Paving 4	3,312
Architectural Coating 4	408
Total	324,224

Globemaster Specific Plan Project
Proposed Project Operational Energy Demand

Mobile Source Gasoline Demand

Project Facility	Vehicle MT CO ₂	Kg CO ₂ /Gallon	Gallons
All Land Uses	48,775.30	8.78	5,555,273.74
Total	48,775.30		5,555,273.74

Mobile Source Diesel Demand

Project Facility	Vehicle MT CO ₂	Kg CO ₂ /Gallon	Gallons
All Land Uses	21,361.17	10.21	2,092,181.40
Total	21,361.17		2,092,181.40

Electricity Demand

Project Facility	kWh/Year
<i>Building and Lighting Electricity Demand</i>	
Fast Food Restaurant with Drive Thru	1,633,180
General Office Building	52,157,200
High Turnover (Sit Down Restaurant)	1,103,500
Hotel	1,353,950
Manufacturing	37,944,600
Medical Office Building	1,840,860
Other Asphalt Surfaces	0
Quality Restaurant	441,400
Regional Shopping Center	5,809,470
Research & Development	6,292,040
Unrefrigerated Warehouse-No Rail	3,313,470
Building Total	111,889,670
<i>Water/Wastewater Electricity Demand</i>	
All Land Uses	31,978,270
Water/Wastewater Total	31,978,270
Total	143,867,940

Natural Gas Demand

Project Facility	kBTu/Year
Fast Food Restaurant with Drive Thru	8,538,120
General Office Building	41,798,100
High Turnover (Sit Down Restaurant)	5,769,000
Hotel	4,283,330
Manufacturing	61,873,600
Medical Office Building	1,475,240
Other Asphalt Surfaces	0
Quality Restaurant	2,307,600
Regional Shopping Center	705,743
Research & Development	10,260,000
Unrefrigerated Warehouse-No Rail	739,158
Total	137,749,891

Globemaster Specific Plan Project

Existing Operational Energy Demand

Mobile Source Gasoline Demand

Project Facility	Vehicle MT CO ₂	Kg CO ₂ /Gallon	Gallons
All Land Uses	16,432.21	8.78	1,871,550.47
Total	16,432.21		1,871,550.47

Mobile Source Diesel Demand

Project Facility	Vehicle MT CO ₂	Kg CO ₂ /Gallon	Gallons
All Land Uses	3,608.03	10.21	353,382.45
Total	3,608.03		353,382.45

Electricity Demand

Project Facility	kWh/Year
<i>Building and Lighting Electricity Demand</i>	
Automobile Care Center	1,981,360
Bank (with Drive-Through)	50,028
Convenience Market (24 Hour)	73,373
General Light Industry	2,882,300
General Office Building	1,775,240
Hardware/Paint Store	311,162
High Turnover (Sit Down Restaurant)	855,080
Hospital	74,850
Manufacturing	8,415,090
Medical Office Building	192,551
Racquet Club	162,981
Regional Shopping Center	1,755,550
Unrefrigerated Warehouse-No Rail	2,129,550
Building Total	20,659,114
<i>Water/Wastewater Electricity Demand</i>	
All Land Uses	5,892,255
Water/Wastewater Total	5,892,255
Total	26,551,369

Natural Gas Demand

Project Facility	kBTu/Year
Automobile Care Center	3,230,870
Bank (with Drive-Through)	81,577
Convenience Market (24 Hour)	8,913
General Light Industry	4,699,970
General Office Building	1,422,650
Hardware/Paint Store	37,800
High Turnover (Sit Down Restaurant)	4,470,280
Hospital	212,413
Manufacturing	13,721,900
Medical Office Building	154,307
Racquet Club	265,762
Regional Shopping Center	213,267
Unrefrigerated Warehouse-No Rail	475,054
Total	28,994,764