

APPENDIX B:
ENERGY CONSUMPTION WORKSHEETS

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Santa Monica College Art Complex Replacement Project
 1410 Pico Boulevard, 2019 & 2023 14th Street
 Santa Monica CA 90405

Total Diesel Usage From Construction Equipment

| Phase | Off-Road Equipment Type | Units | Hours | HP | Load Factor | Ave. Daily Factor | Number of Days | Diesel Usage (gallons) |
|-----------------------|--------------------------|-------|-------|-----|-------------|-------------------|----------------|------------------------|
| Demolition | Concrete/Industrial Saws | 1 | 8 | 81 | 0.73 | 0.6 | 22 | 312 |
| Demolition | Tractor/Loader/Backhoe | 3 | 8 | 97 | 0.37 | 0.6 | 22 | 568 |
| Demolition | Rubber Tired Dozer | 1 | 8 | 247 | 0.40 | 0.6 | 22 | 522 |
| Grading | Excavator | 1 | 8 | 158 | 0.38 | 0.6 | 66 | 951 |
| Grading | Rubber Tired Dozer | 1 | 6 | 247 | 0.40 | 0.6 | 66 | 1174 |
| Grading | Tractor/Loader/Backhoe | 1 | 7 | 97 | 0.37 | 0.6 | 66 | 497 |
| Grading | Grader | 1 | 6 | 187 | 0.41 | 0.6 | 66 | 911 |
| Building Construction | Cement and Mortar Mixers | 1 | 8 | 9 | 0.56 | 0.6 | 347 | 420 |
| Building Construction | Pavers | 1 | 6 | 160 | 0.42 | 0.6 | 347 | 4197 |
| Building Construction | Cranes | 1 | 6 | 231 | 0.29 | 0.6 | 347 | 4184 |
| Building Construction | Forklifts | 1 | 6 | 89 | 0.20 | 0.6 | 347 | 1112 |
| Building Construction | Tractor/Loader/Backhoe | 1 | 6 | 97 | 0.37 | 0.6 | 347 | 2242 |
| Building Construction | Generator Sets | 1 | 8 | 84 | 0.74 | 0.6 | 347 | 5177 |
| Building Construction | Rollers | 1 | 6 | 80 | 0.38 | 0.6 | 347 | 1899 |
| Architectural Coating | Air Compressors | 4 | 6 | 78 | 0.48 | 0.6 | 95 | 2561 |
| Architectural Coating | Aerial Lifts | 2 | 8 | 63 | 0.31 | 0.6 | 95 | 891 |
| TOTAL | | | | | | | | 27,617 |

Sources: Equipment usage (hours and total days), horsepower (HP) and load factors are per the CalEEMod Worksheets; Fuel rate calculation is per the SCAQMD Air Quality Handbook (1993) Table A9-3E.

Electricity Usage from Watering During Construction (AQMD Rule 403: Fugitive Dust)

| Phase | Duration of Phase (days) | Watering Days | Ave. Daily Acreage Disturbed | Water Use (gallons) | Electricity (kWhr) |
|-----------------------|--------------------------|---------------|------------------------------|---------------------|--------------------|
| Demolition | 22 | 22 | 1.65 | 109,626 | 1,066.33 |
| Grading | 66 | 66 | 1.65 | 328,878 | 3,199.00 |
| Building Construction | 347 | | 0 | - | - |
| Architectural Coating | 95 | | 0 | - | - |
| TOTAL | | | | | 4,265.33 |

Notes:

1. Water Application Rate= 3,020 gal/acre/day per Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition). Water application during the building demolition phase excludes surface parking lot, which would be removed during the grading phase.
2. kWhr equivalent = 0.01 kWhr
3. Electricity consumption per water useage = 0.009727 kWhr/gallon.

Construction Worker, Vendor, and Hauling Gasoline and Diesel Consumption

| Phase | Daily Trips | | Days | Total Trips | | | Trip Length | | | Ave. Daily Factor | Gasoline Usage (gallons) | Diesel Usage (gallons) |
|------------------------|-------------|----------|------------|--------------|--------------|--------------|-------------|--------|------|-------------------|--------------------------|------------------------|
| | Worker | Vendor | | Worker | Vendor | Haul | Worker | Vendor | Haul | | | |
| Demolition | 13 | - | 22 | 286 | - | 62 | 14.7 | 6.9 | 30 | 0.6 | 148 | 297 |
| Grading | 10 | - | 66 | 660 | - | 4,571 | 14.7 | 6.9 | 30 | 0.6 | 342 | 21,864 |
| Building Construction | 15 | 6 | 347 | 5,205 | 2,082 | - | 14.7 | 6.9 | 0 | 0.6 | 2,699 | 2,290 |
| Architectural Coatings | 3 | - | 95 | 285 | - | - | 14.7 | 6.9 | 0 | 0.6 | 148 | - |
| TOTAL | 41 | 6 | 530 | 6,436 | 2,082 | 4,633 | | | | | 3,337 | 24,451 |

Notes: Assumes an average fuel efficiency of 28.35 miles per gallon (mpg) for gasoline and 6.27 mpg for diesel per Table 7, Statewide Vehicle Fuel Economy Miles Per Gallon, 2007 California Motor Vehicle Stock Travel and Fuel Forecast (May 2008).

Source: Parker Environmental Consultants