

Appendix E

Noise Analyses

APPENDIX E-1

**ADDITIONAL CONSTRUCTION NOISE
ANALYSIS INFORMATION**

OVERVIEW OF THE CNSTNOIZ MODEL

Noise impacts from construction activity have been estimated using a detailed spreadsheet model (CNSTNOIZ). The CNSTNOIZ model is structured to provide separate analyses for each construction phase. Different versions of the spreadsheet model accommodate from one to five construction phases in a single spreadsheet. In addition to the main data entry sheet for each construction phase, the CNSTNOIZ model provides a summary sheet and chart of noise levels versus distance for each construction phase. The CNSTNOIZ model has an expandable database of 140 equipment entries including heavy equipment, power tools, and other noise sources such as equipment backup beepers and manual hammering. Some equipment types have multiple entries to reflect a range of typical engine sizes. The database provides a default reference noise level at 50 feet, the range of reference noise levels expected for the general equipment type, default atmospheric absorption coefficients, and default operating time factors for hours when the equipment is active. The operating time fractions allow for more realistic modeling of noise from intermittent equipment operations.

The database in the CNSTNOIZ model incorporates data from a wide range of published sources plus some additional data based on direct monitoring data and manufacturer information. Default atmospheric absorption rates included in the database were calculated according to the 1978 American National Standards Institute (ANSI) procedures using available frequency spectrum data for major types of equipment. Data included in the database represent minimum atmospheric absorption rates (typically representing cool temperatures and high relative humidity levels). Database entries for default equipment operating time factors for active hours are generally consistent with default values used in the CNSTEMIS air quality spreadsheet model.

Noise calculations performed by the CNSTNOIZ model employ a conventional distance extrapolation procedure for point sources of noise incorporating a 6-dBA drop-off rate per doubling of distance plus a minimum atmospheric absorption adjustment.

The primary calculation sheet allows users to replace the program default values with project-specific estimates. The model requires users to specify the number and type of equipment items active in the same general work area for each hour of a 24-hour cycle, thus allowing realistic calculation of various noise metrics, including: hourly average noise levels by time of day; maximum hourly noise levels; average daytime, evening, and nighttime noise levels; 24-hour average noise levels (24-hour Leq); and 24-hour CNEL or Ldn noise levels. The model automatically calculates noise levels at 20 distances from the main activity areas of the construction site (default distances range from 50 feet to 2 miles). The model provides a tabular summary of noise levels at all distances. The model also provides a chart of noise levels at distances out to 3,000 feet, comparing maximum 1-hour Leq, average daytime Leq, and 24-hour CNEL or Ldn level at each distance. The hourly noise contributions from each type of equipment are available in the primary calculation sheet of the model.

ANALYSES FOR THE PROPOSED PROJECT AND ALTERNATIVES

Alternatives 1, 2, and 3 would use similar equipment for comparable construction phases. Although Alternative 3 might have lower numbers of some equipment items than Alternatives 1 or 2 at the solar farm site, the equipment would typically operate in multiple groups of items that would be similar for all alternatives. Consequently, a single analysis for each of the modeled construction phases would be applicable to all three alternatives.

Overall construction equipment use for each phase of construction was consistent with the construction emissions analyses summarized in Appendix D-2. The CNSTNOIZ analyses considered various equipment groupings likely to occur during each phase of construction. The grouping producing the greatest noise impact was used to represent noise impacts from each construction phase.

NOISE LEVEL CHARTS FOR MAJOR CONSTRUCTION PHASES OF PROJECT COMPONENTS

The following tables and charts summarize the results of the construction noise analysis for major construction phases at the solar farm, Gen-Tie Line, and Red Bluff Substation. .

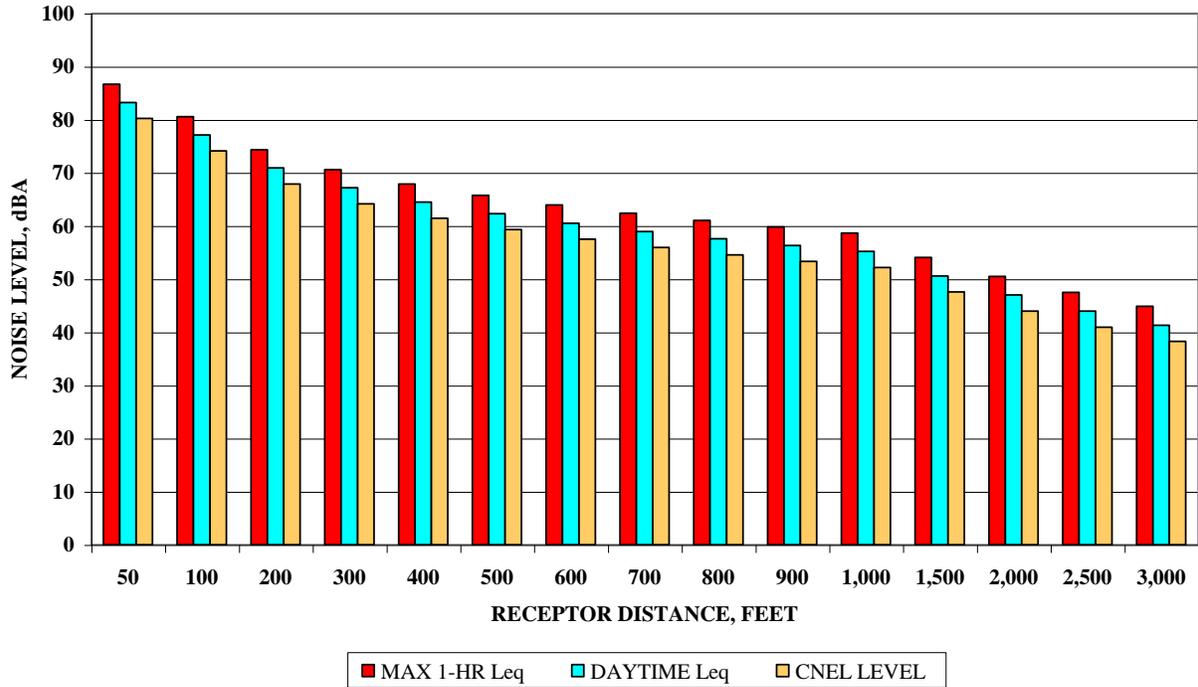
SOLAR FARM CONSTRUCTION

Site Clearing Phase

**Table E1-1.
Equipment Group Analyzed for the Site Clearing Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Brush Cutters | 2 | 8 | 6.8 | 81 | 0.75 |
| Tracked Dozer | 1 | 2 | 0.5 | 88 | 0.75 |
| Wheeled Tractor | 1 | 4 | 3.4 | 80 | 0.75 |
| Wheeled Loader | 1 | 2 | 1.5 | 80 | 0.50 |
| Wood Chipper | 1 | 2 | 0.5 | 91 | 0.75 |
| ATVs | 1 | 4 | 2.6 | 70 | 0.50 |
| Water Truck | 1 | 2 | 1.3 | 80 | 0.50 |
| Dump Truck | 1 | 2 | 0.5 | 80 | 0.32 |

**SOLAR FARM CONSTRUCTION NOISE IMPACTS
SITE CLEARING OPERATIONS**

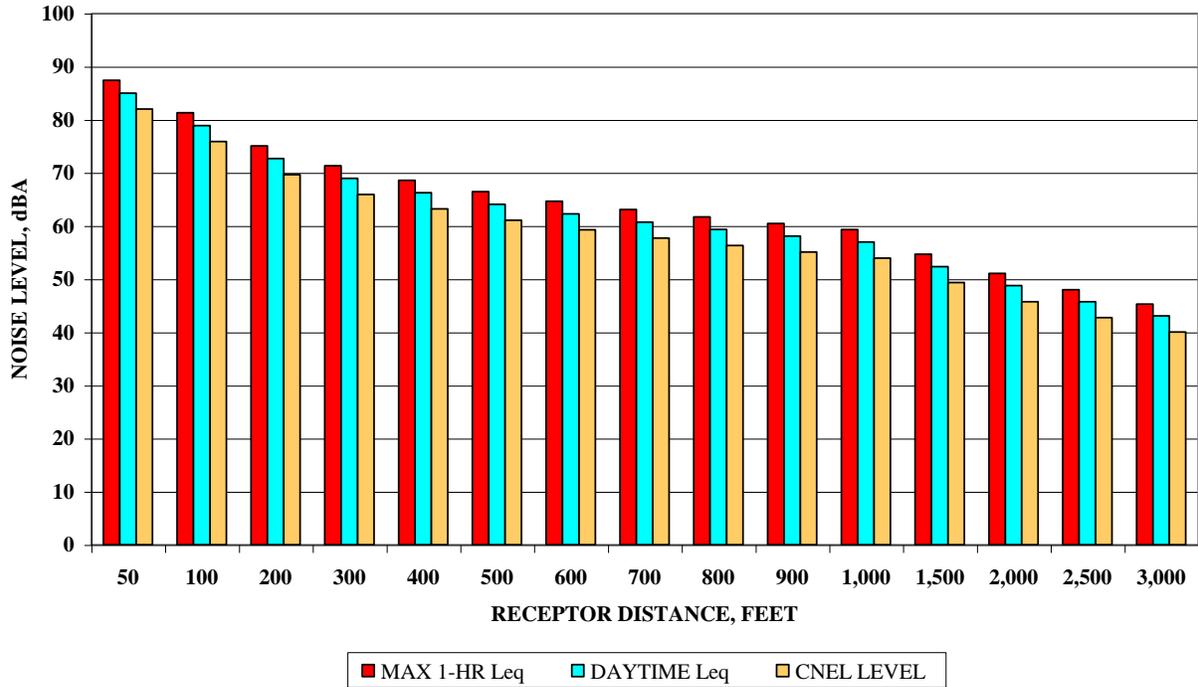


Site Grading Phase

**Table E1-2.
Equipment Group Analyzed for the Site Grading Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|------------------|---------------------------|----------------------|------------------------------------|------------------------------|---|
| Scraper | 1 | 8 | 6.8 | 85 | 0.75 |
| Tracked Dozer | 1 | 4 | 3.4 | 88 | 0.75 |
| Grader | 1 | 4 | 3.4 | 82 | 0.75 |
| Roller-Compactor | 1 | 4 | 3.4 | 73 | 0.45 |
| ATVs | 1 | 4 | 2.6 | 70 | 0.50 |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |

**SOLAR FARM CONSTRUCTION NOISE IMPACTS
SITE GRADING OPERATIONS**

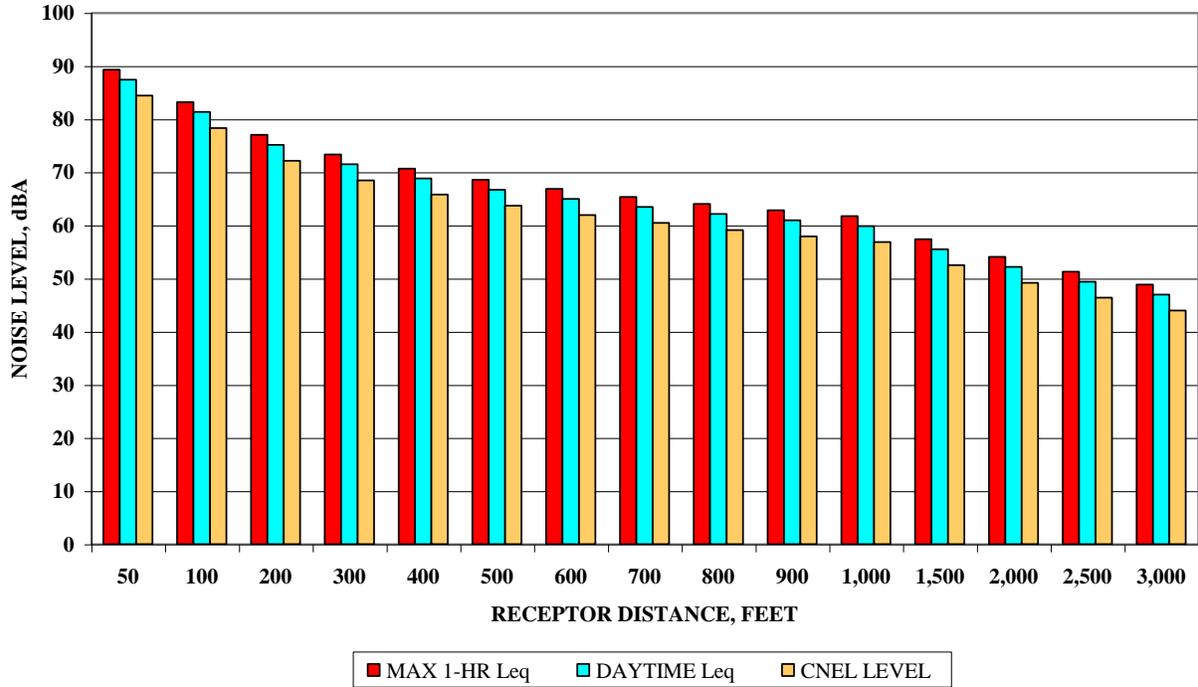


Array Support Post Phase

**Table E1-3.
Equipment Group Analyzed for the Array Support Post Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Auger Rig | 1 | 8 | 3.6 | 85 | 0.66 |
| Vibratory Pile Driver | 2 | 8 | 8.0 | 85 | 0.54 |
| Forklift | 1 | 4 | 2.6 | 80 | 0.50 |
| ATVs | 1 | 4 | 2.6 | 70 | 0.50 |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |
| Flatbed Truck | 1 | 2 | 0.5 | 75 | 0.32 |

**SOLAR FARM CONSTRUCTION NOISE IMPACTS
INSTALLATION OF ARRAY SUPPORT POSTS**

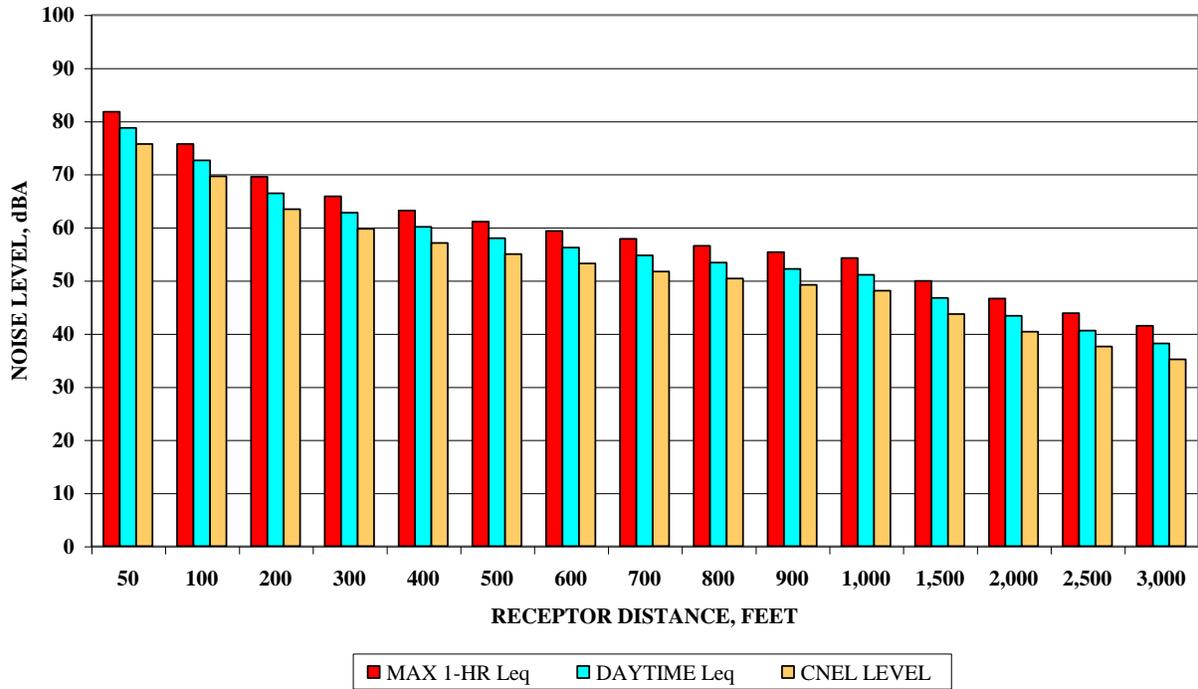


Trenching and Underground Cable Phase

**Table E1-4.
Equipment Group Analyzed for the Trenching and Underground Cable Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|----------------|---------------------------|----------------------|------------------------------------|------------------------------|---|
| Trencher | 1 | 8 | 6.8 | 73 | 0.50 |
| Backhoe-Loader | 1 | 4 | 3.4 | 80 | 0.50 |
| Cable Plow | 1 | 8 | 6.8 | 80 | 0.75 |
| ATVs | 1 | 8 | 5.2 | 70 | 0.50 |
| Water Truck | 1 | 3 | 1.3 | 80 | 0.50 |
| Dump Truck | 1 | 4 | 1.0 | 80 | 0.32 |
| Flatbed Truck | 1 | 1 | 0.25 | 75 | 0.32 |
| Forklift | 1 | 1 | 0.65 | 80 | 0.50 |

**SOLAR FARM CONSTRUCTION NOISE IMPACTS
TRENCHING AND UNDERGROUND CABLE INSTALLATION**

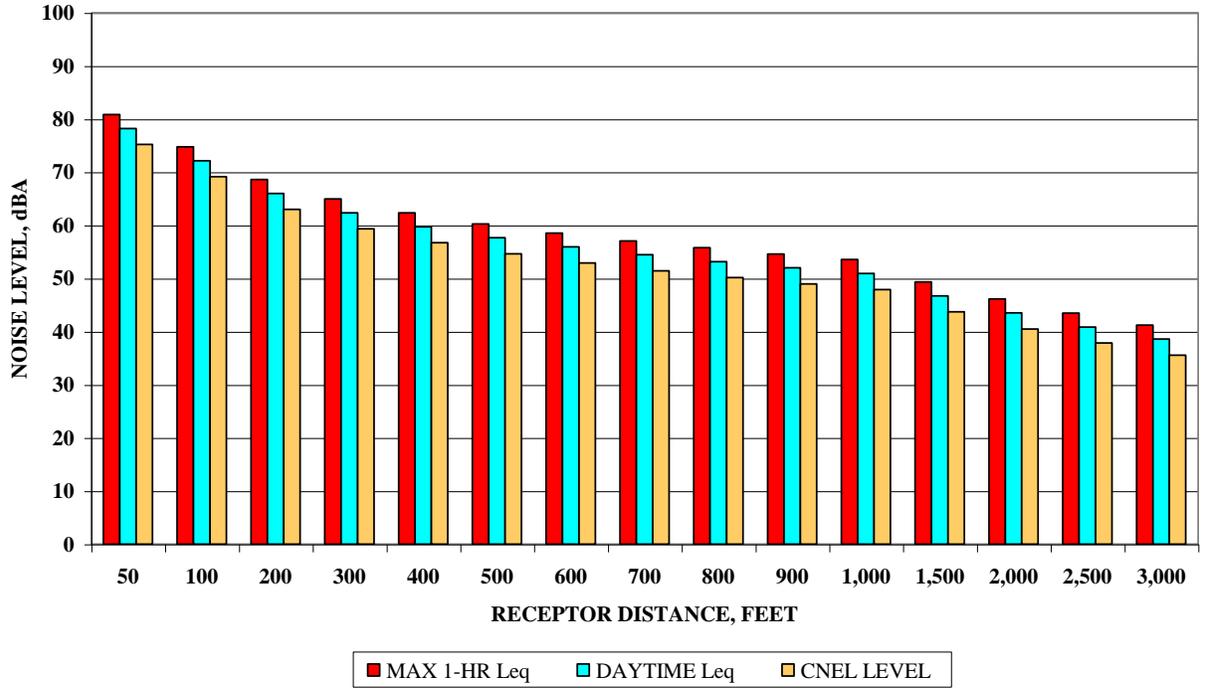


Soil Compaction Phase

**Table E1-5.
Equipment Group Analyzed for the Soil Compaction Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Roller-Compactor | 2 | 6 | 5.1 | 77 | 0.45 |
| ATVs | 1 | 8 | 5.2 | 70 | 0.50 |
| Water Truck | 1 | 8 | 5.2 | 80 | 0.50 |

SOLAR FARM CONSTRUCTION NOISE IMPACTS SOIL COMPACTION PHASE



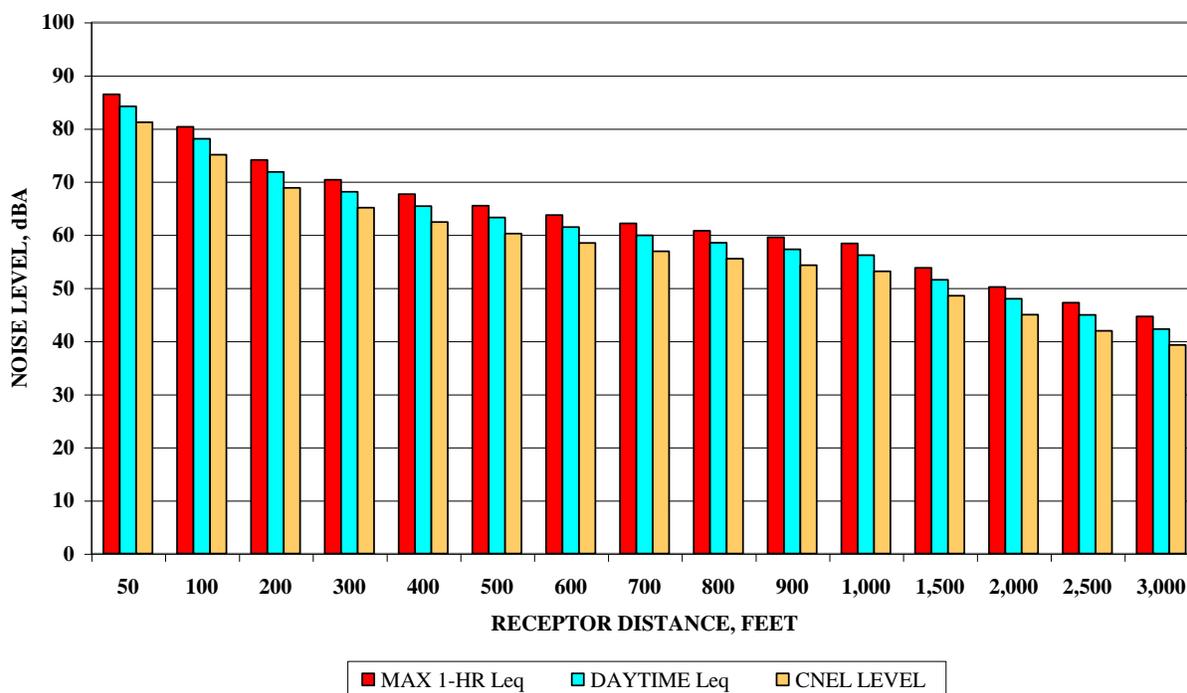
GEN-TIE LINE CONSTRUCTION

Site Preparation Phase

**Table E1-6.
Equipment Group Analyzed for the Site Preparation Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Tracked Dozer | 1 | 8 | 6.8 | 86 | 0.75 |
| Grader | 1 | 2 | 1.7 | 82 | 0.75 |
| Roller-Compactor | 1 | 6 | 5.1 | 73 | 0.45 |
| Wheeled Loader | 1 | 4 | 3.0 | 78 | 0.50 |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |
| Dump Truck | 1 | 1 | 0.25 | 80 | 0.32 |

**GEN-TIE LINE CONSTRUCTION NOISE IMPACTS
SITE PREPARATION PHASE**



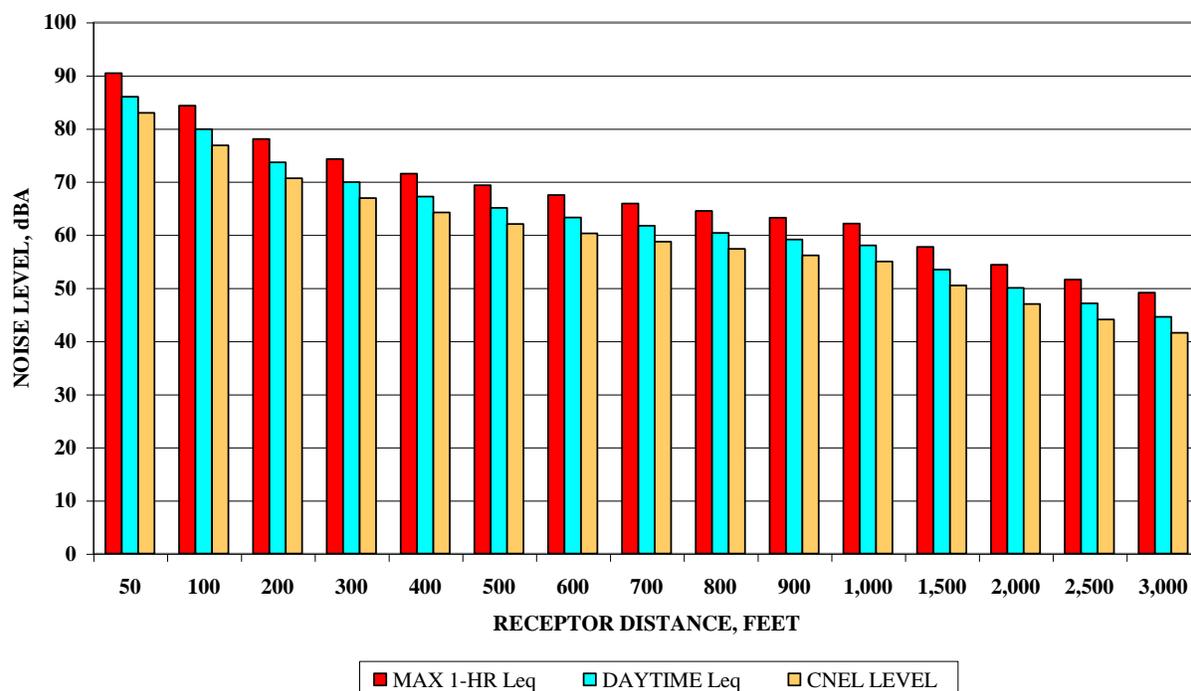
Tower Foundation Phase

**Table E1-7.
Equipment Group Analyzed for the Tower Foundation Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Tracked Dozer | 1 | 2 | 1.7 | 86 | 0.75 |
| Wheeled Loader | 1 | 4 | 3.0 | 78 | 0.50 |
| Backhoe-Loader | 1 | 2 | 1.7 | 80 | 0.50 |
| Fork Lift | 1 | 4 | 2.6 | 80 | 0.50 |
| Mobile Crane | 1 | 4 | 2.6 | 82 | 0.50 |
| Mobile Crane | 1 | 2 | 1.3 | 82 | 0.50 |
| Auger Rig | 1 | 2 | 0.9 | 85 | 0.66 |

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Drill Rig | 1 | 4 | 4.0 | 87 | 0.66 |
| Compressor | 1 | 4 | 4.0 | 81 | 0.66 |
| Pump | 1 | 2 | 2.0 | 83 | 0.41 |
| Portable Mixer | 1 | 2 | 1.8 | 82 | 0.50 |
| Jackhammer | 1 | 2 | 1.5 | 90 | 1.36 |
| Cement Mixer Truck | 1 | 2 | 0.8 | 80 | 0.50 |
| Dump Truck | 1 | 5 | 0.88 | 80 | 0.32 |
| Slurry Truck | 1 | 2 | 1.3 | 80 | 0.50 |
| Specialty Truck | 1 | 2 | 1.3 | 75 | 0.32 |
| Water Truck | 1 | 2 | 1.3 | 80 | 0.50 |

**GEN-TIE LINE CONSTRUCTION NOISE IMPACTS
TOWER FOUNDATIONS PHASE**

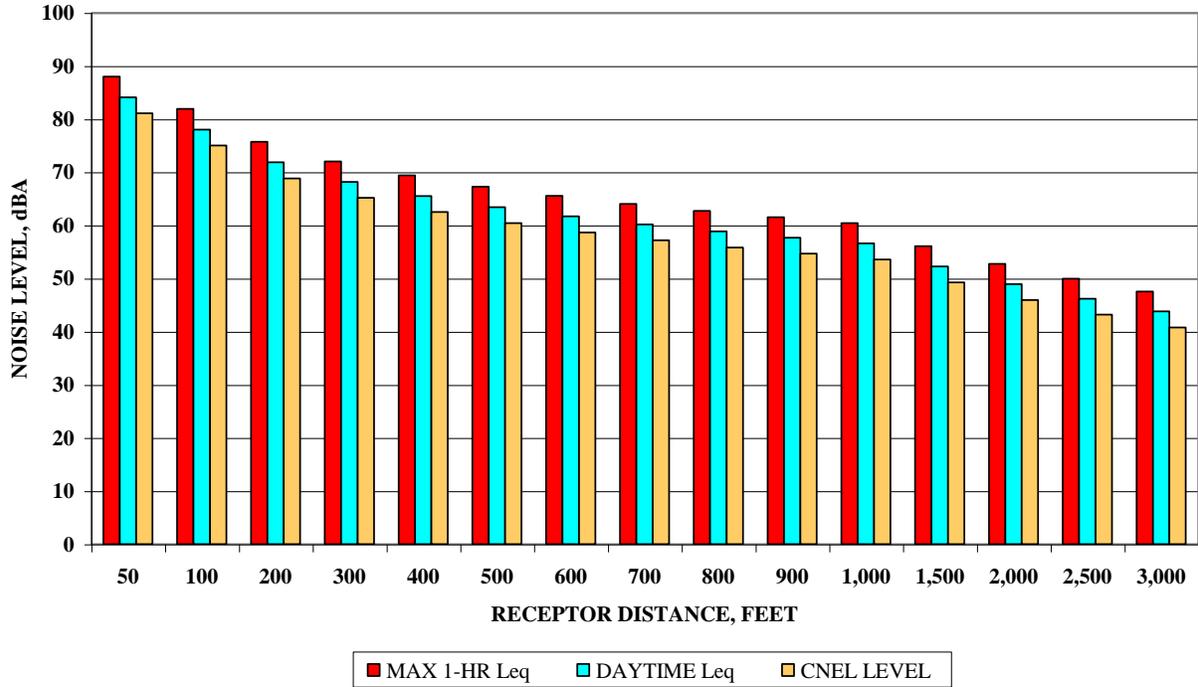


Tower Assembly and Erection Phase

**Table E1-8
Equipment Group Analyzed for the Tower Assembly and Erection Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Forklift | 2 | 4 | 2.6 | 80 | 0.50 |
| Mobile Crane | 2 | 6 | 3.9 | 82 | 0.50 |
| Compressor | 2 | 4 | 4.0 | 81 | 0.66 |
| Flatbed Truck | 1 | 4 | 1.0 | 75 | 0.32 |
| Flatbed Truck | 1 | 4 | 1.0 | 75 | 0.32 |
| Water Truck | 1 | 8 | 5.2 | 80 | 0.50 |

**GEN-TIE LINE CONSTRUCTION NOISE IMPACTS
TOWER ASSEMBLY PHASE**



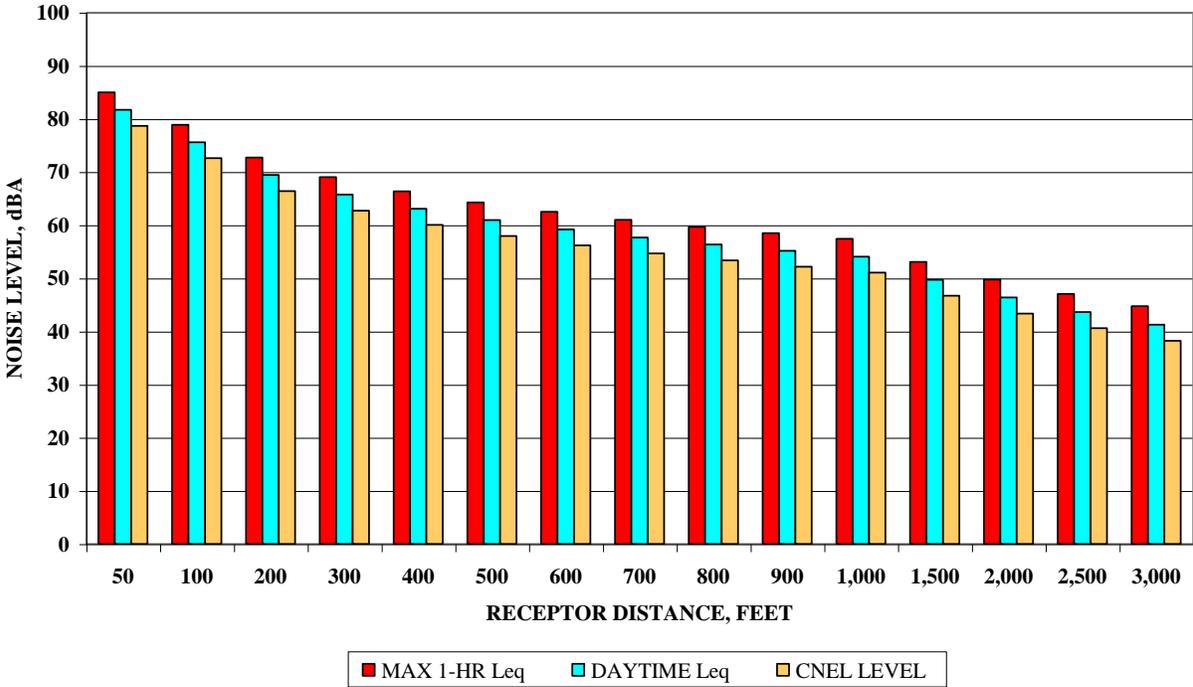
Line Stringing Phase

**Table E1-9
Equipment Group Analyzed for the Line Stringing Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------|---------------------------|----------------------|------------------------------------|------------------------------|---|
| Tracked Dozer | 1 | 2 | 1.7 | 86 | 0.75 |
| Backhoe-Loader | 1 | 6 | 5.1 | 80 | 0.50 |
| Compressor | 1 | 4 | 4.0 | 81 | 0.66 |
| Line Puller | 1 | 4 | 3.0 | 81 | 0.81 |
| Mixed Trucks | 1 | 2 | 0.5 | 80 | 0.32 |
| Specialty Truck | 2 | 5 | 3.25 | 75 | 0.32 |
| Specialty | 2 | 4 | 2.6 | 75 | 0.32 |

| | | | | | |
|-------------|---|---|-----|----|------|
| Truck | | | | | |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |

**GEN-TIE LINE CONSTRUCTION NOISE IMPACTS
LINE STRINGING PHASE**



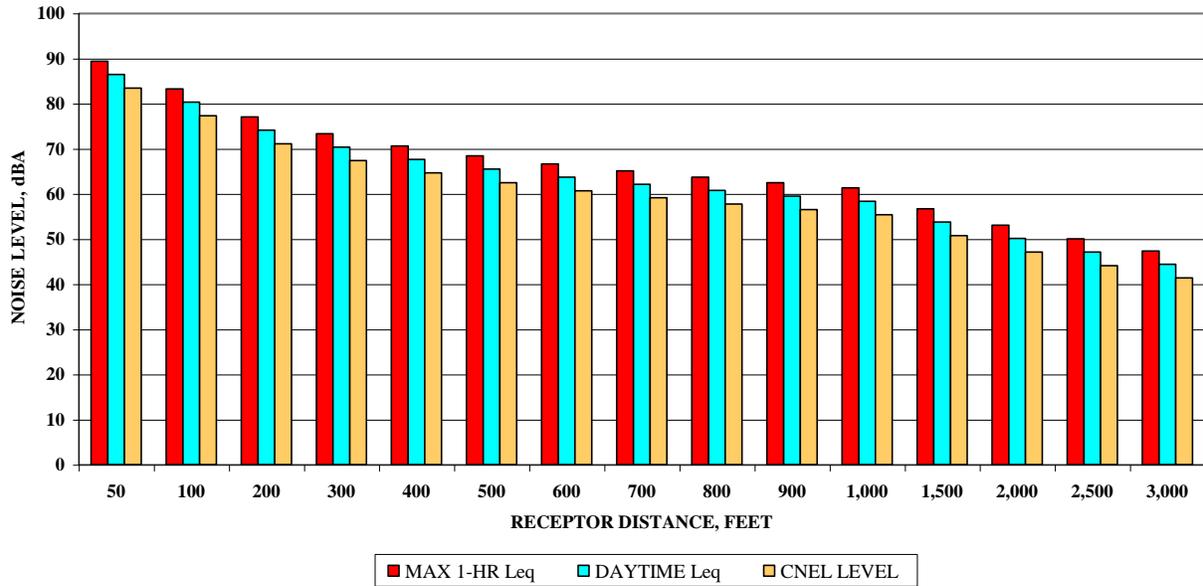
RED BLUFF SUBSTATION CONSTRUCTION

Site Clearing Phase

Table E1-10.
Equipment Group Analyzed for the Site Clearing Phase

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Brush Cutters | 2 | 8 | 6.8 | 81 | 0.75 |
| Tracked Dozer | 1 | 8 | 6.8 | 88 | 0.75 |
| Wheeled Tractor | 1 | 8 | 6.8 | 80 | 0.75 |
| Wheeled Loader | 1 | 4 | 3.0 | 80 | 0.50 |
| Wood Chipper | 1 | 4 | 2.6 | 91 | 0.75 |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |

**RED BLUFF SUBSTATION CONSTRUCTION NOISE IMPACTS
SITE CLEARING OPERATIONS**

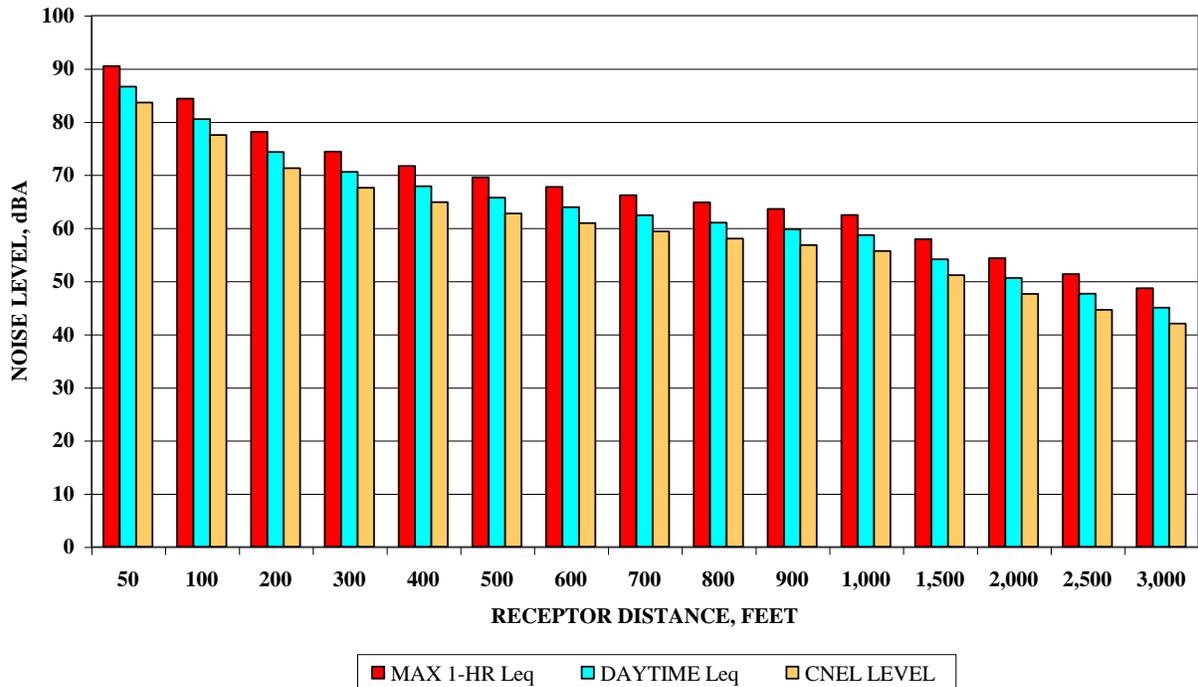


Site Grading and Compaction Phase

**Table E1-11.
Equipment Group Analyzed for the Site Grading and Compaction Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Scraper | 1 | 7 | 5.1 | 85 | 0.75 |
| Tracked Dozer | 1 | 7 | 3.4 | 88 | 0.75 |
| Grader | 1 | 7 | 3.4 | 82 | 0.75 |
| Roller-Compactor | 1 | 8 | 6.8 | 75 | 0.45 |
| Wheeled Loader | 1 | 8 | 6.0 | 80 | 0.50 |
| Backhoe-Loader | 1 | 8 | 6.8 | 80 | 0.50 |
| Water Truck | 1 | 4 | 2.6 | 80 | 0.50 |

**RED BLUFF SUBSTATION CONSTRUCTION NOISE IMPACTS
SITE GRADING AND COMPACTION OPERATIONS**



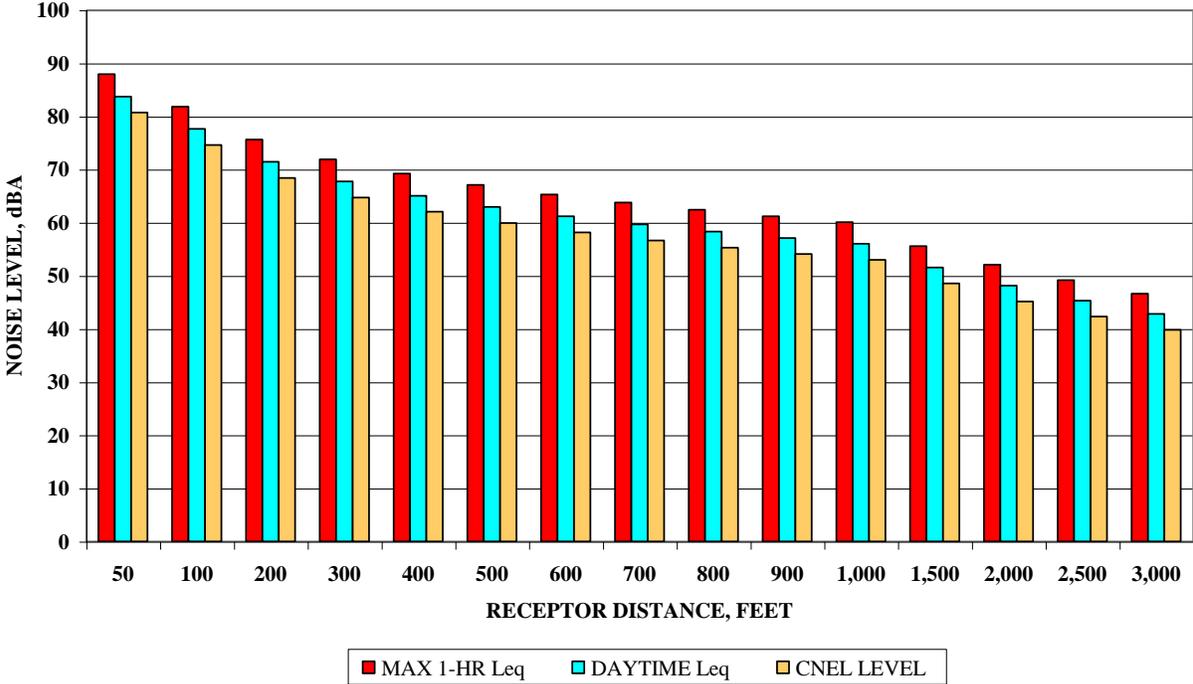
Trenching and Foundations Phase

**Table E1-12.
Equipment Group Analyzed for the Trenching and Foundations Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Excavator | 1 | 6 | 3.4 | 80 | 0.75 |
| Backhoe-Loader | 1 | 6 | 5.1 | 80 | 0.50 |
| Skid-Steer Loader | 1 | 6 | 4.5 | 70 | 0.50 |
| Wheeled Loader | 1 | 6 | 4.5 | 80 | 0.50 |
| Auger Rig | 1 | 6 | 2.25 | 85 | 0.66 |

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|--------------------|---------------------------|----------------------|------------------------------------|------------------------------|---|
| Tracked Dozer | 1 | 2 | 1.7 | 88 | 0.75 |
| Cement Mixer Truck | 1 | 2 | 0.8 | 80 | 0.50 |
| Water Truck | 1 | 6 | 3.9 | 80 | 0.50 |

**RED BLUFF SUBSTATION CONSTRUCTION NOISE IMPACTS
TRENCHING AND FOUNDATIONS PHASE**

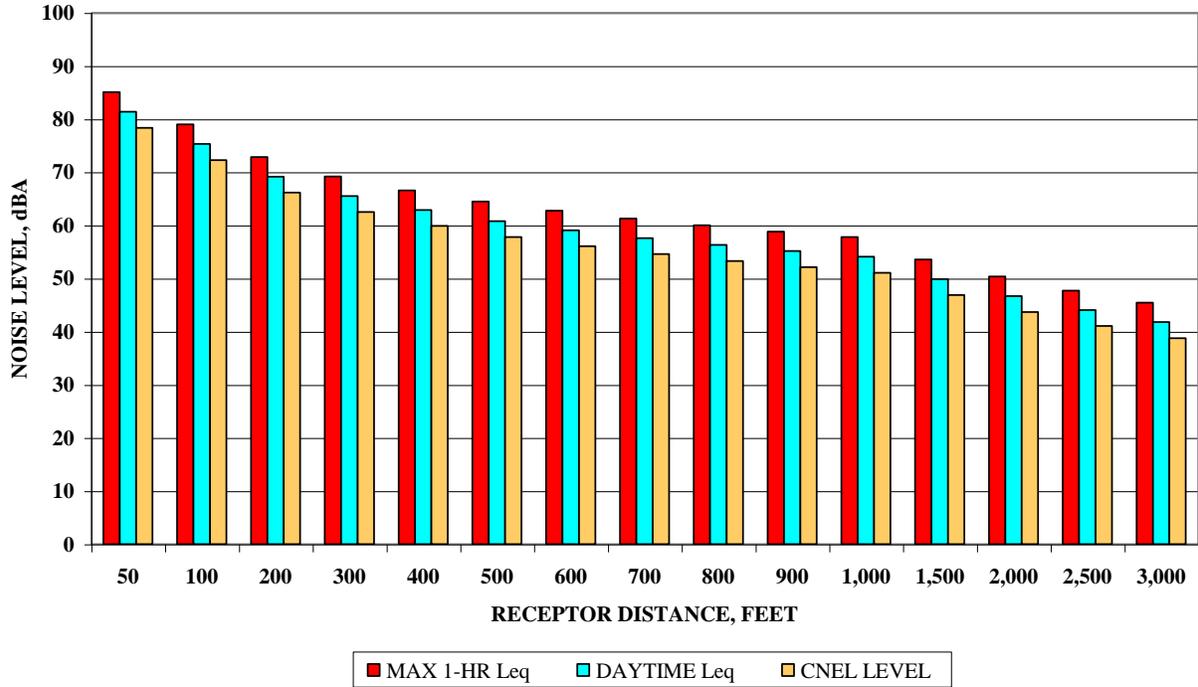


Equipment Pads Phase

Table E1-13.
Equipment Group Analyzed for the Equipment Pads Phase

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Wheeled Loader | 1 | 6 | 3.0 | 80 | 0.50 |
| Mobile Crane | 1 | 2 | 1.3 | 82 | 0.50 |
| Forklift | 1 | 6 | 2.6 | 80 | 0.50 |
| Flatbed Truck | 1 | 2 | 0.5 | 75 | 0.32 |
| Dump Truck | 2 | 6 | 1.5 | 80 | 0.32 |
| Cement Mixer Truck | 2 | 6 | 2.4 | 80 | 0.50 |
| Water Truck | 1 | 6 | 3.9 | 80 | 0.50 |

**RED BLUFF SUBSTATION CONSTRUCTION NOISE IMPACTS
EQUIPMENT PADS PHASE**



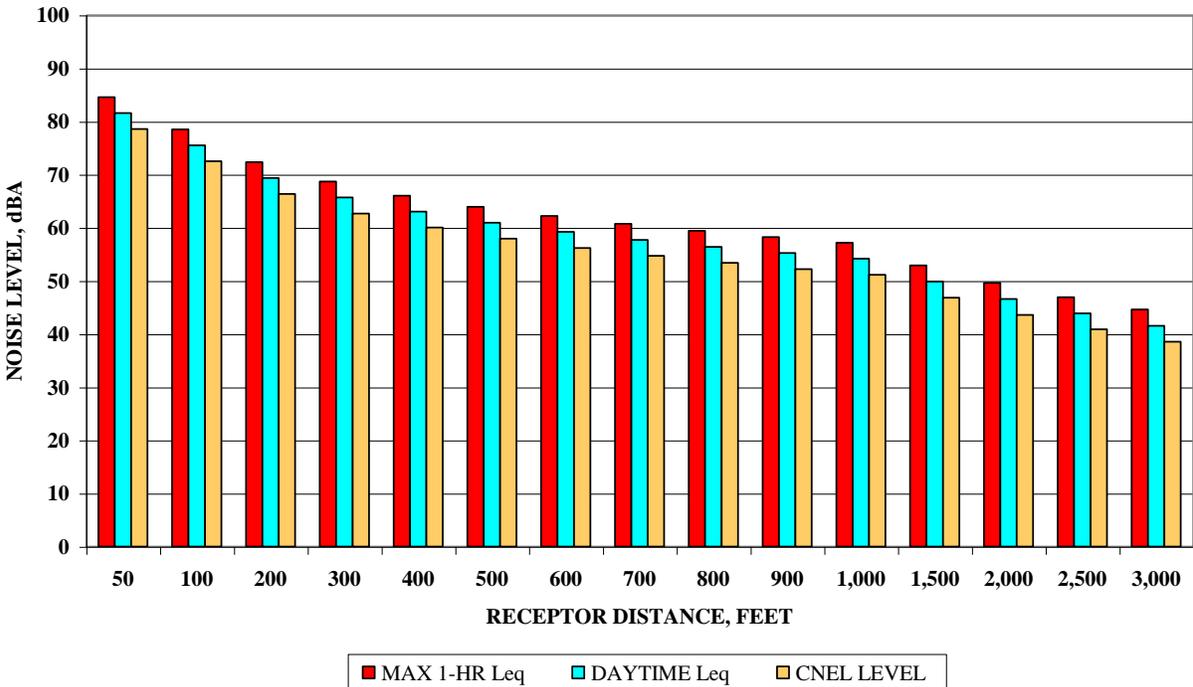
Substation Equipment Installation Phase

**Table E1-14.
Equipment Group Analyzed for the Substation Equipment Installation Phase**

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|-----------------------|----------------------------------|-----------------------------|---|-------------------------------------|--|
| Compressor | 1 | 8 | 8.0 | 81 | 0.66 |
| Mobile Crane | 1 | 2 | 1.3 | 82 | 0.50 |
| Forklift | 1 | 8 | 5.2 | 80 | 0.50 |
| Wheeled Loader | 1 | 7 | 4.5 | 80 | 0.50 |
| Dump Truck | 1 | 6 | 1.0 | 80 | 0.32 |
| Specialty Truck | 1 | 6 | 3.9 | 75 | 0.32 |
| | 1 | 6 | 3.9 | 80 | 0.50 |

| Equipment Item | Number Active at One Time | Active Hours Per Day | Net Daily Operating Hours Per Item | Noise Level at 50 Feet (dBA) | Atmospheric Absorption, dB per 100 Meters |
|----------------|---------------------------|----------------------|------------------------------------|------------------------------|---|
| Water Truck | | | | | |

**RED BLUFF SUBSTATION CONSTRUCTION NOISE IMPACTS
EQUIPMENT INSTALLATION PHASE**



MAJOR DATA SOURCES

Acoustical Society of America. 1978. **American National Standard: Method for the Calculation of the Absorption of Sound by the Atmosphere. ANSI S1.26-1978; ASA 23-1978.** New York, NY.

Cowan, James P. 1994. **Handbook of Environmental Acoustics.** Van Nostrand Reinhold. New York, NY.

Dennison, E. E., D. C. Kanistanaux, and S. Ying. 1980. *Outdoor Noise of Coal-Fired Power Plants.* **Noise Control Engineering 14(1): 30-37.**

Gharabegian, A., K. M. Cosgrove, J. R. Pehrson, and T. D. Trinh. 1985. *Forest Fire Fighters Noise Exposure.* **Noise Control Engineering Journal 25(3): 96-111.**

Honda Power Equipment. 2005. Internet website www.hondapowerequipment.com,

National Institute for Occupational Safety and Health. nd. **NIOSH Sound Meter: How Loud is Your Workplace?** Internet website: www.cdc.gov/niosh/noise/hptherm.html.

National Institute for Occupational Safety and Health. nd. **Carpenters Noise Exposures.** Internet website: www.cdc.gov/niosh/noise/chnoises.html.

Technical European Sheet Piling Association. 2001. **Installation of Steel Sheet Piles.** Internet website: www.skylinesteel.com/assets/manuals/InstallationManual.pdf.

U.S. Army Corps of Engineers San Francisco District and Port of Oakland. 1998. **Final Environmental Impact Statement/Report, Oakland Harbor Navigation Improvement (-50 Foot) Project. SCH No. 97072051.**

U.S. Environmental Protection Agency. 1971. **Noise From Construction Equipment and Operations, Building Equipment, and Home Appliances. NTID300.1.** Prepared by Bolt, Beranek and Newman. U.S. Government Printing Office. Washington, DC.

U.S. Environmental Protection Agency. 1980. **Construction Noise Control Technology Initiatives.** Prepared by ORI, Inc.. EPA Office of Noise Abatement and Control. Washington, DC.

U.S. Federal Highway Administration. 2006. **FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054; DOT-VNTSC-FHWA-05-01.** Washington, DC.

U.S. Federal Railroad Administration. 2005. **High-Speed Ground Transportation Noise and Vibration Impact Assessment.** FRA Office of Railway Development.

APPENDIX E-2

**ADDITIONAL TRAFFIC NOISE
ANALYSIS INFORMATION**

OVERVIEW OF THE FHWACNEL MODEL

Noise impacts from local highway traffic have been estimated using a spreadsheet model (FHWACNEL) originally designed as a batch mode implementation of the 1978 Federal Highway Administration (FHWA) traffic noise prediction model (subsequently released as the STAMINA model). The FHWA STAMINA model and the more recent FHWA TNM traffic noise model are designed to analyze noise levels from highway traffic for a single hour, using highway geometrics and traffic condition data input on a lane-by-lane basis. In contrast, the FHWACNEL spreadsheet model used for this analysis is designed to model traffic noise on an hourly basis over a 24-hour period, providing a direct calculation of CNEL or Ldn noise levels. In addition, the FHWACNEL spreadsheet model is designed to accommodate highway segments defined on either a single lane or a multi-lane basis.

The FHWACNEL spreadsheet model has been programmed using Lotus 1-2-3 spreadsheet software, which allows spreadsheet programming using sophisticated keystroke macros. The spreadsheet allows users to select from the original FHWA noise algorithms, alternative algorithms developed by the California Department of Transportation (Caltrans), alternative algorithms developed by the Ontario Department of Transportation, or the Caltrans algorithms with supplemental correction factors that adjust model results to values that are consistent with the more recent FHWA TNM traffic noise model. The Caltrans algorithms with TNM correction factors provide the default setup for the FHWACNEL model.

The FHWA traffic noise models define vehicle types according to the number of axles and tires on the vehicle. The 1978 FHWA traffic noise prediction model used three vehicle classes (light duty vehicles, medium trucks, and heavy trucks). The more recent TNM model uses five vehicle classes: light duty vehicles, motorcycles, medium trucks, buses, and heavy trucks. Light duty vehicles are all vehicles with two axles and four tires. Motorcycles are vehicles with two axles, either two or three tires, and an open driver compartment. Medium trucks are cargo vehicles with two axles and six tires. Buses are vehicles which have either two or three axles and which are designed to carry 9 or more passengers. Heavy trucks are cargo vehicles with three or more axles. For use in the FHWACNEL model, the TNM classes of light duty vehicles and motorcycles are merged, and the TNM classes of medium trucks and buses are merged. For practical purposes, motor homes are presently treated as buses in the FHWACNEL model.

The FHWACNEL model incorporates separate sets of TNM correction factors for light duty vehicles, medium duty trucks, and heavy duty trucks. The TNM correction factors for each vehicle type vary based on vehicle speed and receptor distance. The TNM correction factor values were derived from parallel analyses using the TNM 2.5 Lookup program and the FHWACNEL spreadsheet with the original Caltrans algorithms. The TNM correction factors cover a speed range of 0 to 75 mph and a receptor distance range of 50 to 950 feet. The default TNM correction factors assume that 3.7% of light duty vehicles are motorcycles (the California statewide average) and that 37.1% of medium duty trucks are buses and motor homes (the

California statewide average). A separate spreadsheet generates replacement TNM correction factor values for user-specified motorcycle and bus/motor home percentages.

The FHWACNEL model analyzes hourly traffic volumes over a 24-hour period for a road network of up to 30 highway segments (single or multi-lane, one-way or bi-directional) and up to 40 receptor locations. Users input the receptor coordinates, highway segment centerline coordinates, highway width, average daily traffic volume, nominal free-flow speed, and hourly vehicle capacity for each highway segment. In addition, users input an hourly distribution pattern for the daily traffic (either project-specific or from a library of typical patterns), the hourly percentage of medium duty trucks (either project-specific or from a library of typical patterns), and the hourly percentage of heavy duty trucks (either project-specific or from a library of typical patterns). The FHWACNEL spreadsheet includes a database of hourly traffic volume and hourly truck percentage patterns for an array of roadway types that can be used directly or modified to provide hourly traffic estimates based on known or predicted ADT values. A spreadsheet macro automatically processes hourly traffic patterns for each highway segment and all receptor locations. The FHWACNEL model adjusts hourly vehicle speeds according to the volume:capacity ratio. The model automatically creates a separate output file for each highway segment; the output files summarize the highway segment contributions to hourly Leq and daily CNEL or Ldn levels at each receptor location. A separate spreadsheet program (LINKSUM) automatically combines results from each highway segment output file to produce total hourly Leq and daily CNEL or Ldn estimates at each receptor location. The LINKSUM spreadsheet automates the creation of summary tables for CNEL, Ldn, maximum hourly Leq, or Leq by clock hour for each receptor across all modeled highway segment. The LINKSUM spreadsheet can also generate a matrix of receptor distances to each highway segment.

ANALYSES FOR THE PROPOSED PROJECT AND ALTERNATIVES

Modeled Roadways

Roadways incorporated into the traffic noise modeling analysis included segments of I-10 east and west of the Highway 177 interchange, Highway 177 from I-10 to Kaiser Road, and Kaiser Road between Highway 177 and the solar farm site. For simplicity, I-10 was treated as an east-west roadway and Highway 177 and Kaiser Road were treated as north-south roadways.

Modeled Receptor Locations

Receptors for the traffic noise modeling analysis were established along three sets of receptor transects perpendicular to Kaiser Road or Highway 177. Each receptor transect had six receptor points east of the relevant roadway and six receptor points west of the relevant roadway. Receptor points were located at distances of 50 feet, 100 feet, 250 feet, 500 feet, 750 feet, and 1,000 feet from the roadway centerline. The southernmost transects were located in Desert Center east and west of Highway 177, south of Ragsdale Road and 550 feet north of the point where the centerlines of Highway 177 and I-10 intersect. The central transects were located east and west of Kaiser Road in the Lake Tamarisk area, about 600 feet north of Oasis Road. The northernmost transects were located east and west of Kaiser Road about midway between the Lake Tamarisk development and the solar farm site.

Modeled Traffic Volumes

Existing traffic volumes for Kaiser Road were based on the 24-hour traffic counts provided in the traffic study (Hernandez, Kroone & Associates 2010). The traffic count was conducted north of the Lake Tamarisk development, and showed a daily total volume of 108 vehicles. Existing traffic volumes for the portion of Kaiser Road south of the Lake Tamarisk development were estimated by increasing the daily volume to 150 vehicles. Baseline traffic conditions for Highway 177 and I-10 were developed from 2008 traffic count data and 2007 truck count data downloaded from the Caltrans website (Caltrans 2007, 2008). The traffic count data for Kaiser Road provided hourly auto and truck volume patterns. The hourly auto and truck volume patterns for Highway 177 and I-10 were extrapolated from daily volumes and hourly distribution patterns adjusted to match reported peak hour conditions.

Traffic conditions for 2011 and 2012 were developed by adding project-related traffic volumes to the baseline traffic volumes for each roadway segment. Construction-related traffic would include construction worker commute traffic and heavy truck traffic bringing equipment and materials to the construction sites. Construction worker and construction truck traffic volumes for each alternative were based on estimates generated by the construction emissions model (see Appendices D-1 and D-2). The two solar farm alternatives would have somewhat different construction worker commute volumes and somewhat different construction truck traffic volumes. For analysis purposes, all Gen-Tie Line alternatives were assumed to generate the same volumes of construction worker and construction truck traffic. The traffic volumes for Gen Tie Line A-1 were used for all alternatives. Construction traffic for the two Red Bluff Substation alternatives was not included in the analysis because that traffic would not use Highway 177 or Kaiser Road.

Table E2-1 summarizes the traffic conditions used for the traffic noise modeling analysis.

**Table E2-1.
Traffic Conditions Used for Traffic Noise Modeling.**

| Road Segment | Parameter | Existing Conditions | Alt 1 & 2, 2011 | Alt 1 & 2, 2012 | Alt 3, 2011 | Alt 3, 2012 |
|--------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|--------------------|--------------------|
| I-10 West of Highway 177 | Modeled Road Length, ft | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| | Combined Traffic Lane Widths, ft | 56 | 56 | 56 | 56 | 56 |
| | Light Vehicle Speed, mph | 65 | 65 | 65 | 65 | 65 |
| | Medium Truck Speed, mph | 65 | 65 | 65 | 65 | 65 |
| | Heavy Truck Speed, mph | 65 | 65 | 65 | 65 | 65 |

| Road Segment | Parameter | Existing Conditions | Alt 1 & 2, 2011 | Alt 1 & 2, 2012 | Alt 3, 2011 | Alt 3, 2012 |
|---|---|----------------------------|----------------------------|----------------------------|--------------------|--------------------|
| | ADT | 23,000 | 23,278 | 23,157 | 23,271 | 23,145 |
| | Medium Truck % of ADT | 5.16% | 5.5% | 5.5% | 5.5% | 5.5% |
| | Heavy Truck % of ADT | 34.29% | 35.4% | 35.4% | 35.3% | 35.4% |
| | Peak Hour Volume | 3,000 | 2,998 | 2,994 | 2,997 | 2,994 |
| | Hourly Capacity | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| | Drop-off Rate, dBA per doubling of distance | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| I-10 East of Highway 177 | Modeled Road Length, ft | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| | Combined Traffic Lane Widths, ft | 56 | 56 | 56 | 56 | 56 |
| | Light Vehicle Speed, mph | 65 | 65 | 65 | 65 | 65 |
| | Medium Truck Speed, mph | 65 | 65 | 65 | 65 | 65 |
| | Heavy Truck Speed, mph | 65 | 65 | 65 | 65 | 65 |
| | ADT | 21,400 | 21,598 | 21,485 | 21,591 | 21,481 |
| | Medium Truck % of ADT | 5.61% | 6.0% | 6.0% | 6.0% | 6.0% |
| | Heavy Truck % of ADT | 37.79% | 40.2% | 40.3% | 40.2% | 40.3% |
| | Peak Hour Volume | 2,800 | 2,790 | 2,786 | 2,789 | 2,786 |
| | Hourly Capacity | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Drop-off Rate, dBA per doubling of distance | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Highway 177 south of Kaiser Road | Modeled Road Length, ft | 1,429 | 1,429 | 1,429 | 1,429 | 1,429 |
| | Combined Traffic Lane Widths, ft | 24 | 24 | 24 | 24 | 24 |
| | Light Vehicle Speed, mph | 50 | 50 | 50 | 50 | 50 |

| Road Segment | Parameter | Existing Conditions | Alt 1 & 2, 2011 | Alt 1 & 2, 2012 | Alt 3, 2011 | Alt 3, 2012 |
|------------------------------------|---|----------------------------|----------------------------|----------------------------|--------------------|--------------------|
| | Medium Truck Speed, mph | 50 | 50 | 50 | 50 | 50 |
| | Heavy Truck Speed, mph | 50 | 50 | 50 | 50 | 50 |
| | ADT | 2,250 | 2,613 | 2,475 | 2,596 | 2,451 |
| | Medium Truck % of ADT | 4.4% | 5.8% | 5.7% | 5.7% | 5.5% |
| | Heavy Truck % of ADT | 9.6% | 10.9% | 9.5% | 10.4% | 9.2% |
| | Peak Hour Volume | 290 | 304 | 298 | 303 | 296 |
| | Hourly Capacity | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |
| | Drop-off Rate, dBA per doubling of distance | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Kaiser Road south of Tamarisk Lake | Modeled Road Length, ft | 9,029 | 9,029 | 9,029 | 9,029 | 9,029 |
| | Combined Traffic Lane Widths, ft | 24 | 24 | 24 | 24 | 24 |
| | Light Vehicle Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | Medium Truck Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | Heavy Truck Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | ADT | 150 | 510 | 372 | 493 | 358 |
| | Medium Truck % of ADT | 20.4% | 20.1% | 24.8% | 20.0% | 24.1% |
| | Heavy Truck % of ADT | 6.5% | 25.4% | 21.5% | 23.1% | 22.5% |
| | Peak Hour Volume | 17 | 140 | 95 | 139 | 88 |
| | Hourly Capacity | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |
| | Drop-off Rate, dBA per doubling of distance | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Kaiser Road | Modeled Road Length, ft | 23,133 | 23,133 | 23,133 | 23,133 | 23,133 |

| Road Segment | Parameter | Existing Conditions | Alt 1 & 2, 2011 | Alt 1 & 2, 2012 | Alt 3, 2011 | Alt 3, 2012 |
|------------------------|---|----------------------------|----------------------------|----------------------------|--------------------|--------------------|
| north of Tamarisk Lake | Combined Traffic Lane Widths, ft | 24 | 24 | 24 | 24 | 24 |
| | Light Vehicle Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | Medium Truck Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | Heavy Truck Speed, mph | 45 | 45 | 45 | 45 | 45 |
| | ADT | 108 | 468 | 330 | 451 | 316 |
| | Medium Truck % of ADT | 20.4% | 20.1% | 24.8% | 20.0% | 24.1% |
| | Heavy Truck % of ADT | 6.5% | 25.4% | 21.5% | 23.1% | 22.5% |
| | Peak Hour Volume | 12 | 135 | 90 | 134 | 83 |
| | Hourly Capacity | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 |
| | Drop-off Rate, dBA per doubling of distance | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |

Table E2-2 summarizes hourly vehicle percentage patterns used in the traffic noise model for I-10 west of Highway 177 under Alternatives 1 and 2.

Table E2-2.
Hourly Traffic Distributions Used for Traffic Noise Modeling: I-10 West of Highway 177

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|----------------------|----------------------------|-----------------|-----------------|---------------------------------------|-----------------|-----------------|---------------------------------------|-----------------|-----------------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 1.0% | 5.0% | 0.1% | 0.0% | 4.3% | 0.1% | 0.0% | 4.3% |
| 1:00 AM | 0.1% | 1.5% | 6.0% | 0.1% | 0.0% | 4.3% | 0.1% | 0.0% | 4.3% |
| 2:00 AM | 0.2% | 2.0% | 7.0% | 0.2% | 2.2% | 6.5% | 0.2% | 2.2% | 6.5% |
| 3:00 AM | 0.2% | 3.0% | 9.0% | 0.2% | 2.2% | 8.7% | 0.2% | 2.2% | 8.7% |
| 4:00 AM | 0.4% | 3.0% | 12.0% | 0.4% | 3.3% | 12.0% | 0.4% | 3.3% | 12.0% |
| 5:00 AM | 0.6% | 4.5% | 16.0% | 0.6% | 4.3% | 15.9% | 0.6% | 4.3% | 15.9% |
| 6:00 AM | 1.5% | 5.0% | 24.0% | 1.9% | 9.8% | 18.5% | 1.8% | 9.8% | 20.4% |
| 7:00 AM | 3.5% | 5.5% | 30.0% | 3.5% | 5.4% | 30.5% | 3.5% | 5.4% | 30.3% |

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 8:00 AM | 6.0% | 5.8% | 38.0% | 6.0% | 5.8% | 38.3% | 6.0% | 5.8% | 38.2% |
| 9:00 AM | 7.0% | 6.0% | 47.0% | 7.0% | 6.0% | 47.4% | 7.0% | 6.0% | 47.2% |
| 10:00 AM | 8.0% | 6.6% | 50.0% | 8.0% | 6.5% | 50.3% | 8.0% | 6.6% | 50.1% |
| 11:00 AM | 9.0% | 6.4% | 51.0% | 8.9% | 6.3% | 51.3% | 9.0% | 6.4% | 51.1% |
| 12:00 PM | 10.5% | 6.1% | 47.0% | 10.4% | 6.1% | 47.2% | 10.4% | 6.1% | 47.1% |
| 1:00 PM | 13.0% | 5.8% | 42.0% | 12.9% | 5.8% | 42.2% | 12.9% | 5.8% | 42.1% |
| 2:00 PM | 9.0% | 5.6% | 37.0% | 8.9% | 5.6% | 37.2% | 9.0% | 5.6% | 37.1% |
| 3:00 PM | 8.0% | 5.5% | 27.0% | 8.4% | 6.6% | 25.6% | 8.2% | 6.5% | 26.1% |
| 4:00 PM | 7.5% | 5.0% | 22.0% | 7.4% | 5.0% | 22.0% | 7.4% | 5.0% | 22.0% |
| 5:00 PM | 6.0% | 4.0% | 17.0% | 5.9% | 4.0% | 17.0% | 6.0% | 4.0% | 17.0% |
| 6:00 PM | 3.5% | 3.0% | 15.0% | 3.5% | 3.0% | 15.0% | 3.5% | 3.0% | 15.0% |
| 7:00 PM | 2.0% | 2.2% | 14.0% | 2.0% | 2.2% | 13.9% | 2.0% | 2.2% | 13.9% |
| 8:00 PM | 1.7% | 1.8% | 12.0% | 1.7% | 1.8% | 12.0% | 1.7% | 1.8% | 12.0% |
| 9:00 PM | 1.0% | 1.6% | 8.0% | 1.0% | 1.7% | 7.8% | 1.0% | 1.7% | 7.8% |
| 10:00 PM | 0.7% | 1.5% | 7.0% | 0.7% | 1.2% | 6.8% | 0.7% | 1.2% | 6.8% |
| 11:00 PM | 0.5% | 1.0% | 5.0% | 0.5% | 0.9% | 5.2% | 0.5% | 0.9% | 5.2% |

VPH = vehicles per hour
ADT = average daily traffic
MT = medium trucks (2 axles, 6 wheels)
HT = heavy trucks (3 or more axles)

Table E2-3 summarizes hourly vehicle percentage patterns used in the traffic noise model for I-10 east of Highway 177 under Alternatives 1 and 2.

**Table E2-3.
Hourly Traffic Distributions Used for Traffic Noise Modeling: I-10 East of Highway 177**

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 1.0% | 6.0% | 0.1% | 0.0% | 4.8% | 0.1% | 0.0% | 4.8% |
| 1:00 AM | 0.1% | 1.5% | 7.0% | 0.1% | 0.0% | 4.8% | 0.1% | 0.0% | 4.8% |
| 2:00 AM | 0.2% | 2.0% | 8.0% | 0.2% | 2.3% | 7.0% | 0.2% | 2.3% | 7.0% |
| 3:00 AM | 0.2% | 3.0% | 10.0% | 0.2% | 2.3% | 9.3% | 0.2% | 2.3% | 9.3% |
| 4:00 AM | 0.4% | 3.5% | 16.0% | 0.4% | 3.5% | 16.3% | 0.4% | 3.5% | 16.3% |
| 5:00 AM | 0.6% | 4.5% | 21.0% | 0.6% | 4.7% | 21.1% | 0.6% | 4.7% | 21.1% |
| 6:00 AM | 1.5% | 5.0% | 29.0% | 1.8% | 6.5% | 24.2% | 1.6% | 6.9% | 26.8% |
| 7:00 AM | 3.5% | 5.5% | 35.0% | 3.5% | 5.4% | 35.4% | 3.5% | 5.5% | 35.2% |
| 8:00 AM | 6.0% | 6.0% | 43.0% | 6.0% | 6.0% | 43.3% | 6.0% | 6.0% | 43.2% |
| 9:00 AM | 7.0% | 6.5% | 52.0% | 7.0% | 6.4% | 52.4% | 7.0% | 6.5% | 52.2% |

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 10:00 AM | 8.0% | 7.0% | 55.0% | 8.0% | 7.0% | 55.3% | 8.0% | 7.0% | 55.2% |
| 11:00 AM | 9.0% | 7.2% | 56.0% | 9.0% | 7.2% | 56.3% | 9.0% | 7.2% | 56.1% |
| 12:00 PM | 10.5% | 7.0% | 52.0% | 10.5% | 7.0% | 52.2% | 10.5% | 7.0% | 52.1% |
| 1:00 PM | 13.0% | 6.8% | 47.0% | 12.9% | 6.8% | 47.2% | 13.0% | 6.8% | 47.1% |
| 2:00 PM | 9.0% | 6.5% | 42.0% | 8.9% | 6.5% | 42.2% | 9.0% | 6.5% | 42.1% |
| 3:00 PM | 8.0% | 6.0% | 32.0% | 8.2% | 6.3% | 30.9% | 8.1% | 6.4% | 31.5% |
| 4:00 PM | 7.5% | 5.4% | 27.0% | 7.4% | 5.4% | 27.0% | 7.5% | 5.4% | 27.0% |
| 5:00 PM | 6.0% | 4.9% | 22.0% | 5.9% | 4.9% | 22.0% | 6.0% | 4.9% | 22.0% |
| 6:00 PM | 3.5% | 3.9% | 19.0% | 3.5% | 3.9% | 19.0% | 3.5% | 3.9% | 19.0% |
| 7:00 PM | 2.0% | 3.0% | 17.0% | 2.0% | 3.0% | 17.1% | 2.0% | 3.0% | 17.1% |
| 8:00 PM | 1.7% | 2.0% | 15.0% | 1.7% | 1.9% | 15.1% | 1.7% | 1.9% | 15.1% |
| 9:00 PM | 1.0% | 1.6% | 10.0% | 1.0% | 1.4% | 9.8% | 1.0% | 1.4% | 9.8% |
| 10:00 PM | 0.7% | 1.5% | 9.0% | 0.7% | 1.3% | 9.3% | 0.7% | 1.3% | 9.3% |
| 11:00 PM | 0.5% | 1.0% | 6.0% | 0.5% | 0.9% | 5.6% | 0.5% | 0.9% | 5.6% |

VPH = vehicles per hour

ADT = average daily traffic

MT = medium trucks (2 axles, 6 wheels)

HT = heavy trucks (3 or more axles)

Table E2-4 summarizes hourly vehicle percentage patterns used in the traffic noise model for Highway 177 south of Kaiser Road under Alternatives 1 and 2.

**Table E2-4.
Hourly Traffic Distributions Used for Traffic Noise Modeling: Highway 177
South of Kaiser Road**

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 0.3% | 2.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| 1:00 AM | 0.1% | 0.3% | 2.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| 2:00 AM | 0.2% | 0.4% | 2.3% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% |
| 3:00 AM | 0.2% | 0.5% | 2.8% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% |
| 4:00 AM | 0.4% | 0.6% | 3.0% | 0.3% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% |
| 5:00 AM | 0.6% | 1.5% | 3.5% | 0.5% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% |
| 6:00 AM | 1.5% | 2.0% | 7.0% | 6.0% | 23.4% | 1.3% | 4.6% | 27.4% | 1.8% |
| 7:00 AM | 3.5% | 4.0% | 9.0% | 3.4% | 3.4% | 19.1% | 3.4% | 3.5% | 15.3% |
| 8:00 AM | 6.0% | 4.0% | 10.0% | 5.7% | 3.4% | 18.8% | 5.8% | 3.5% | 15.4% |
| 9:00 AM | 7.0% | 4.5% | 11.0% | 6.7% | 4.0% | 19.0% | 6.7% | 4.2% | 15.6% |
| 10:00 AM | 8.0% | 5.0% | 9.0% | 7.5% | 4.6% | 16.3% | 7.6% | 4.8% | 13.2% |

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 11:00 AM | 9.0% | 5.3% | 7.5% | 8.4% | 5.0% | 14.2% | 8.6% | 5.2% | 11.3% |
| 12:00 PM | 10.5% | 4.8% | 9.0% | 9.6% | 4.4% | 14.7% | 9.9% | 4.5% | 12.2% |
| 1:00 PM | 12.9% | 5.0% | 8.0% | 11.6% | 4.9% | 12.2% | 12.0% | 5.0% | 10.4% |
| 2:00 PM | 9.1% | 3.5% | 7.0% | 8.2% | 3.3% | 11.2% | 8.5% | 3.3% | 9.5% |
| 3:00 PM | 8.0% | 3.0% | 6.0% | 11.6% | 13.5% | 3.6% | 10.5% | 13.5% | 4.2% |
| 4:00 PM | 7.5% | 2.0% | 7.2% | 6.5% | 1.8% | 7.1% | 6.8% | 1.8% | 7.1% |
| 5:00 PM | 6.0% | 1.5% | 7.8% | 5.2% | 1.5% | 7.4% | 5.5% | 1.5% | 7.4% |
| 6:00 PM | 3.5% | 1.0% | 7.3% | 3.0% | 1.3% | 7.6% | 3.2% | 1.3% | 7.6% |
| 7:00 PM | 2.0% | 0.6% | 5.0% | 1.7% | 0.0% | 4.4% | 1.8% | 0.0% | 4.4% |
| 8:00 PM | 1.7% | 0.4% | 3.0% | 1.5% | 0.0% | 2.6% | 1.5% | 0.0% | 2.6% |
| 9:00 PM | 1.0% | 0.3% | 2.5% | 0.9% | 0.0% | 4.3% | 0.9% | 0.0% | 4.3% |
| 10:00 PM | 0.7% | 0.3% | 2.0% | 0.6% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% |
| 11:00 PM | 0.5% | 0.3% | 2.0% | 0.4% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% |

VPH = vehicles per hour

ADT = average daily traffic

MT = medium trucks (2 axles, 6 wheels)

HT = heavy trucks (3 or more axles)

Table E2-5 summarizes hourly vehicle percentage patterns used in the traffic noise model for Kaiser Road south of Lake Tamarisk under Alternatives 1 and 2.

**Table E2-5.
Hourly Traffic Distributions Used for Traffic Noise Modeling: Kaiser Road
South of Lake Tamarisk**

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 1:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 3:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 4:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 5:00 AM | 2.8% | 33.3% | 0.0% | 0.6% | 33.3% | 0.0% | 0.9% | 33.3% | 0.0% |
| 6:00 AM | 8.3% | 22.2% | 0.0% | 28.4% | 28.6% | 0.0% | 26.7% | 36.4% | 0.0% |
| 7:00 AM | 9.3% | 20.0% | 0.0% | 4.3% | 10.0% | 50.0% | 4.8% | 12.5% | 37.5% |
| 8:00 AM | 2.8% | 0.0% | 0.0% | 3.6% | 0.0% | 82.4% | 3.3% | 0.0% | 72.7% |
| 9:00 AM | 5.6% | 16.7% | 0.0% | 4.7% | 4.5% | 72.7% | 4.5% | 6.7% | 60.0% |
| 10:00 AM | 8.3% | 33.3% | 11.1% | 5.3% | 12.0% | 68.0% | 5.5% | 16.7% | 55.6% |
| 11:00 AM | 8.3% | 44.4% | 11.1% | 5.3% | 16.0% | 68.0% | 5.5% | 22.2% | 55.6% |

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 PM | 5.6% | 33.3% | 16.7% | 4.7% | 9.1% | 77.3% | 4.5% | 13.3% | 66.7% |
| 1:00 PM | 11.1% | 25.0% | 8.3% | 5.6% | 11.5% | 57.7% | 6.1% | 15.0% | 45.0% |
| 2:00 PM | 8.3% | 11.1% | 11.1% | 4.1% | 5.3% | 57.9% | 4.5% | 6.7% | 46.7% |
| 3:00 PM | 10.2% | 18.2% | 0.0% | 28.8% | 28.1% | 0.0% | 27.3% | 35.6% | 0.0% |
| 4:00 PM | 6.5% | 0.0% | 0.0% | 1.5% | 0.0% | 0.0% | 2.1% | 0.0% | 0.0% |
| 5:00 PM | 2.8% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% |
| 6:00 PM | 5.6% | 0.0% | 0.0% | 1.3% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% |
| 7:00 PM | 1.9% | 50.0% | 0.0% | 0.4% | 50.0% | 0.0% | 0.6% | 50.0% | 0.0% |
| 8:00 PM | 0.9% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% |
| 9:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 10:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 11:00 PM | 1.9% | 0.0% | 100.0% | 0.4% | 0.0% | 100.0% | 0.6% | 0.0% | 100.0% |

VPH = vehicles per hour
ADT = average daily traffic
MT = medium trucks (2 axles, 6 wheels)
HT = heavy trucks (3 or more axles)

Table E2-6 summarizes hourly vehicle percentage patterns used in the traffic noise model for Kaiser Road Between Lake Tamarisk and the solar farm site under Alternatives 1 and 2.

**Table E2-6.
Hourly Traffic Distributions Used for Traffic Noise Modeling: Kaiser Road
Between Lake Tamarisk and the Solar Farm Site**

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 1:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 3:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 4:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 5:00 AM | 2.8% | 33.3% | 0.0% | 0.6% | 33.3% | 0.0% | 0.9% | 33.3% | 0.0% |
| 6:00 AM | 8.3% | 22.2% | 0.0% | 28.4% | 28.6% | 0.0% | 26.7% | 36.4% | 0.0% |
| 7:00 AM | 9.3% | 20.0% | 0.0% | 4.3% | 10.0% | 50.0% | 4.8% | 12.5% | 37.5% |
| 8:00 AM | 2.8% | 0.0% | 0.0% | 3.6% | 0.0% | 82.4% | 3.3% | 0.0% | 72.7% |
| 9:00 AM | 5.6% | 16.7% | 0.0% | 4.7% | 4.5% | 72.7% | 4.5% | 6.7% | 60.0% |
| 10:00 AM | 8.3% | 33.3% | 11.1% | 5.3% | 12.0% | 68.0% | 5.5% | 16.7% | 55.6% |
| 11:00 AM | 8.3% | 44.4% | 11.1% | 5.3% | 16.0% | 68.0% | 5.5% | 22.2% | 55.6% |

| Start of Hour | Existing Conditions | | | Alt 1 & 2 Conditions, 2011 | | | Alt 1 & 2 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 PM | 5.6% | 33.3% | 16.7% | 4.7% | 9.1% | 77.3% | 4.5% | 13.3% | 66.7% |
| 1:00 PM | 11.1% | 25.0% | 8.3% | 5.6% | 11.5% | 57.7% | 6.1% | 15.0% | 45.0% |
| 2:00 PM | 8.3% | 11.1% | 11.1% | 4.1% | 5.3% | 57.9% | 4.5% | 6.7% | 46.7% |
| 3:00 PM | 10.2% | 18.2% | 0.0% | 28.8% | 28.1% | 0.0% | 27.3% | 35.6% | 0.0% |
| 4:00 PM | 6.5% | 0.0% | 0.0% | 1.5% | 0.0% | 0.0% | 2.1% | 0.0% | 0.0% |
| 5:00 PM | 2.8% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% |
| 6:00 PM | 5.6% | 0.0% | 0.0% | 1.3% | 0.0% | 0.0% | 1.8% | 0.0% | 0.0% |
| 7:00 PM | 1.9% | 50.0% | 0.0% | 0.4% | 50.0% | 0.0% | 0.6% | 50.0% | 0.0% |
| 8:00 PM | 0.9% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% |
| 9:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 10:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 11:00 PM | 1.9% | 0.0% | 100.0% | 0.4% | 0.0% | 100.0% | 0.6% | 0.0% | 100.0% |

VPH = vehicles per hour

ADT = average daily traffic

MT = medium trucks (2 axles, 6 wheels)

HT = heavy trucks (3 or more axles)

Table E2-7 summarizes hourly vehicle percentage patterns used in the traffic noise model for I-10 west of Highway 177 under Alternative 3.

**Table E2-7.
Hourly Traffic Distributions Used for Traffic Noise Modeling: I-10 West of Highway 177**

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 1.0% | 5.0% | 0.1% | 0.0% | 4.3% | 0.1% | 0.0% | 4.3% |
| 1:00 AM | 0.1% | 1.5% | 6.0% | 0.1% | 0.0% | 4.3% | 0.1% | 0.0% | 4.3% |
| 2:00 AM | 0.2% | 2.0% | 7.0% | 0.2% | 2.2% | 6.5% | 0.2% | 2.2% | 6.5% |
| 3:00 AM | 0.2% | 3.0% | 9.0% | 0.2% | 2.2% | 8.7% | 0.2% | 2.2% | 8.7% |
| 4:00 AM | 0.4% | 3.0% | 12.0% | 0.4% | 3.3% | 12.0% | 0.4% | 3.3% | 12.0% |
| 5:00 AM | 0.6% | 4.5% | 16.0% | 0.6% | 4.3% | 15.9% | 0.6% | 4.3% | 15.9% |
| 6:00 AM | 1.5% | 5.0% | 24.0% | 1.9% | 9.6% | 18.5% | 1.7% | 9.2% | 20.7% |
| 7:00 AM | 3.5% | 5.5% | 30.0% | 3.5% | 5.4% | 30.5% | 3.5% | 5.4% | 30.3% |
| 8:00 AM | 6.0% | 5.8% | 38.0% | 6.0% | 5.8% | 38.3% | 6.0% | 5.8% | 38.2% |
| 9:00 AM | 7.0% | 6.0% | 47.0% | 7.0% | 6.0% | 47.3% | 7.0% | 6.0% | 47.2% |
| 10:00 AM | 8.0% | 6.6% | 50.0% | 7.9% | 6.5% | 50.3% | 8.0% | 6.6% | 50.1% |
| 11:00 AM | 9.0% | 6.4% | 51.0% | 8.9% | 6.3% | 51.3% | 9.0% | 6.4% | 51.1% |
| 12:00 PM | 10.5% | 6.1% | 47.0% | 10.4% | 6.1% | 47.2% | 10.5% | 6.1% | 47.1% |
| 1:00 PM | 13.0% | 5.8% | 42.0% | 12.9% | 5.8% | 42.1% | 12.9% | 5.8% | 42.1% |
| 2:00 PM | 9.0% | 5.6% | 37.0% | 8.9% | 5.6% | 37.1% | 9.0% | 5.6% | 37.1% |

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 3:00 PM | 8.0% | 5.5% | 27.0% | 8.4% | 6.5% | 25.6% | 8.2% | 6.4% | 26.2% |
| 4:00 PM | 7.5% | 5.0% | 22.0% | 7.4% | 5.0% | 22.0% | 7.5% | 5.0% | 22.0% |
| 5:00 PM | 6.0% | 4.0% | 17.0% | 5.9% | 4.0% | 17.0% | 6.0% | 4.0% | 17.0% |
| 6:00 PM | 3.5% | 3.0% | 15.0% | 3.5% | 3.0% | 15.0% | 3.5% | 3.0% | 15.0% |
| 7:00 PM | 2.0% | 2.2% | 14.0% | 2.0% | 2.2% | 13.9% | 2.0% | 2.2% | 13.9% |
| 8:00 PM | 1.7% | 1.8% | 12.0% | 1.7% | 1.8% | 12.0% | 1.7% | 1.8% | 12.0% |
| 9:00 PM | 1.0% | 1.6% | 8.0% | 1.0% | 1.7% | 7.8% | 1.0% | 1.7% | 7.8% |
| 10:00 PM | 0.7% | 1.5% | 7.0% | 0.7% | 1.2% | 6.8% | 0.7% | 1.2% | 6.8% |
| 11:00 PM | 0.5% | 1.0% | 5.0% | 0.5% | 0.9% | 5.2% | 0.5% | 0.9% | 5.2% |

VPH = vehicles per hour
ADT = average daily traffic
MT = medium trucks (2 axles, 6 wheels)
HT = heavy trucks (3 or more axles)

Table E2-8 summarizes hourly vehicle percentage patterns used in the traffic noise model for I-10 east of Highway 177 under Alternative 3.

Table E2-8.
Hourly Traffic Distributions Used for Traffic Noise Modeling: I-10 East of Highway 177

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 1.0% | 6.0% | 0.1% | 0.0% | 4.8% | 0.1% | 0.0% | 4.8% |
| 1:00 AM | 0.1% | 1.5% | 7.0% | 0.1% | 0.0% | 4.8% | 0.1% | 0.0% | 4.8% |
| 2:00 AM | 0.2% | 2.0% | 8.0% | 0.2% | 2.3% | 7.0% | 0.2% | 2.3% | 7.0% |
| 3:00 AM | 0.2% | 3.0% | 10.0% | 0.2% | 2.3% | 9.3% | 0.2% | 2.3% | 9.3% |
| 4:00 AM | 0.4% | 3.5% | 16.0% | 0.4% | 3.5% | 16.3% | 0.4% | 3.5% | 16.3% |
| 5:00 AM | 0.6% | 4.5% | 21.0% | 0.6% | 4.7% | 21.1% | 0.6% | 4.7% | 21.1% |
| 6:00 AM | 1.5% | 5.0% | 29.0% | 1.8% | 6.5% | 24.2% | 1.6% | 6.7% | 27.0% |
| 7:00 AM | 3.5% | 5.5% | 35.0% | 3.5% | 5.4% | 35.4% | 3.5% | 5.5% | 35.2% |
| 8:00 AM | 6.0% | 6.0% | 43.0% | 6.0% | 6.0% | 43.3% | 6.0% | 6.0% | 43.2% |
| 9:00 AM | 7.0% | 6.5% | 52.0% | 7.0% | 6.4% | 52.3% | 7.0% | 6.5% | 52.2% |
| 10:00 AM | 8.0% | 7.0% | 55.0% | 8.0% | 7.0% | 55.3% | 8.0% | 7.0% | 55.2% |
| 11:00 AM | 9.0% | 7.2% | 56.0% | 9.0% | 7.2% | 56.3% | 9.0% | 7.2% | 56.1% |
| 12:00 PM | 10.5% | 7.0% | 52.0% | 10.5% | 7.0% | 52.2% | 10.5% | 7.0% | 52.1% |
| 1:00 PM | 13.0% | 6.8% | 47.0% | 12.9% | 6.8% | 47.1% | 13.0% | 6.8% | 47.1% |
| 2:00 PM | 9.0% | 6.5% | 42.0% | 8.9% | 6.5% | 42.1% | 9.0% | 6.5% | 42.1% |
| 3:00 PM | 8.0% | 6.0% | 32.0% | 8.2% | 6.3% | 30.9% | 8.1% | 6.3% | 31.6% |
| 4:00 PM | 7.5% | 5.4% | 27.0% | 7.4% | 5.4% | 27.0% | 7.5% | 5.4% | 27.0% |
| 5:00 PM | 6.0% | 4.9% | 22.0% | 5.9% | 4.9% | 22.0% | 6.0% | 4.9% | 22.0% |
| 6:00 PM | 3.5% | 3.9% | 19.0% | 3.5% | 3.9% | 19.0% | 3.5% | 3.9% | 19.0% |

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 7:00 PM | 2.0% | 3.0% | 17.0% | 2.0% | 3.0% | 17.1% | 2.0% | 3.0% | 17.1% |
| 8:00 PM | 1.7% | 2.0% | 15.0% | 1.7% | 1.9% | 15.1% | 1.7% | 1.9% | 15.1% |
| 9:00 PM | 1.0% | 1.6% | 10.0% | 1.0% | 1.4% | 9.8% | 1.0% | 1.4% | 9.8% |
| 10:00 PM | 0.7% | 1.5% | 9.0% | 0.7% | 1.3% | 9.3% | 0.7% | 1.3% | 9.3% |
| 11:00 PM | 0.5% | 1.0% | 6.0% | 0.5% | 0.9% | 5.6% | 0.5% | 0.9% | 5.6% |

VPH = vehicles per hour

ADT = average daily traffic

MT = medium trucks (2 axles, 6 wheels)

HT = heavy trucks (3 or more axles)

Table E2-9 summarizes hourly vehicle percentage patterns used in the traffic noise model for Highway 177 south of Kaiser Road under Alternative 3.

**Table E2-9.
Hourly Traffic Distributions Used for Traffic Noise Modeling: Highway 177
South of Kaiser Road**

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.1% | 0.3% | 2.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| 1:00 AM | 0.1% | 0.3% | 2.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| 2:00 AM | 0.2% | 0.4% | 2.3% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% |
| 3:00 AM | 0.2% | 0.5% | 2.8% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% |
| 4:00 AM | 0.4% | 0.6% | 3.0% | 0.3% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% |
| 5:00 AM | 0.6% | 1.5% | 3.5% | 0.5% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% |
| 6:00 AM | 1.5% | 2.0% | 7.0% | 6.0% | 22.3% | 1.3% | 4.3% | 26.4% | 1.9% |
| 7:00 AM | 3.5% | 4.0% | 9.0% | 3.4% | 3.4% | 18.2% | 3.4% | 3.6% | 14.3% |
| 8:00 AM | 6.0% | 4.0% | 10.0% | 5.7% | 3.4% | 17.7% | 5.8% | 3.5% | 14.8% |
| 9:00 AM | 7.0% | 4.5% | 11.0% | 6.6% | 4.1% | 18.0% | 6.8% | 4.2% | 15.1% |
| 10:00 AM | 8.0% | 5.0% | 9.0% | 7.5% | 4.6% | 15.5% | 7.7% | 4.8% | 12.8% |
| 11:00 AM | 9.0% | 5.3% | 7.5% | 8.4% | 5.1% | 13.4% | 8.6% | 5.2% | 10.9% |
| 12:00 PM | 10.5% | 4.8% | 9.0% | 9.6% | 4.4% | 14.0% | 10.0% | 4.5% | 11.9% |
| 1:00 PM | 12.9% | 5.0% | 8.0% | 11.6% | 5.0% | 11.6% | 12.1% | 5.1% | 9.8% |
| 2:00 PM | 9.1% | 3.5% | 7.0% | 8.2% | 3.3% | 10.3% | 8.5% | 3.3% | 8.6% |
| 3:00 PM | 8.0% | 3.0% | 6.0% | 11.7% | 12.9% | 3.6% | 10.3% | 12.7% | 4.4% |
| 4:00 PM | 7.5% | 2.0% | 7.2% | 6.5% | 1.8% | 7.1% | 6.9% | 1.8% | 7.1% |
| 5:00 PM | 6.0% | 1.5% | 7.8% | 5.2% | 1.5% | 7.4% | 5.5% | 1.5% | 7.4% |
| 6:00 PM | 3.5% | 1.0% | 7.3% | 3.0% | 1.3% | 7.6% | 3.2% | 1.3% | 7.6% |
| 7:00 PM | 2.0% | 0.6% | 5.0% | 1.7% | 0.0% | 4.4% | 1.8% | 0.0% | 4.4% |
| 8:00 PM | 1.7% | 0.4% | 3.0% | 1.5% | 0.0% | 2.6% | 1.6% | 0.0% | 2.6% |
| 9:00 PM | 1.0% | 0.3% | 2.5% | 0.9% | 0.0% | 4.3% | 0.9% | 0.0% | 4.3% |

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 10:00 PM | 0.7% | 0.3% | 2.0% | 0.6% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% |
| 11:00 PM | 0.5% | 0.3% | 2.0% | 0.4% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% |

VPH = vehicles per hour

ADT = average daily traffic

MT = medium trucks (2 axles, 6 wheels)

HT = heavy trucks (3 or more axles)

Table E2-10 summarizes hourly vehicle percentage patterns used in the traffic noise model for Kaiser Road south of Lake Tamarisk under Alternative 3.

**Table E2-10.
Hourly Traffic Distributions Used for Traffic Noise Modeling: Kaiser Road
South of Lake Tamarisk**

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 1:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 3:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 4:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 5:00 AM | 2.8% | 33.3% | 0.0% | 0.7% | 33.3% | 0.0% | 0.9% | 33.3% | 0.0% |
| 6:00 AM | 8.3% | 22.2% | 0.0% | 29.3% | 27.3% | 0.0% | 25.6% | 35.8% | 0.0% |
| 7:00 AM | 9.3% | 20.0% | 0.0% | 4.2% | 10.5% | 47.4% | 5.1% | 12.5% | 37.5% |
| 8:00 AM | 2.8% | 0.0% | 0.0% | 3.3% | 0.0% | 80.0% | 3.5% | 0.0% | 72.7% |
| 9:00 AM | 5.6% | 16.7% | 0.0% | 4.4% | 5.0% | 70.0% | 4.7% | 6.7% | 60.0% |
| 10:00 AM | 8.3% | 33.3% | 11.1% | 5.1% | 13.0% | 65.2% | 5.7% | 16.7% | 55.6% |
| 11:00 AM | 8.3% | 44.4% | 11.1% | 5.1% | 17.4% | 65.2% | 5.7% | 22.2% | 55.6% |
| 12:00 PM | 5.6% | 33.3% | 16.7% | 4.4% | 10.0% | 75.0% | 4.7% | 13.3% | 66.7% |
| 1:00 PM | 11.1% | 25.0% | 8.3% | 5.3% | 12.5% | 54.2% | 6.3% | 15.0% | 45.0% |
| 2:00 PM | 8.3% | 11.1% | 11.1% | 3.8% | 5.9% | 52.9% | 4.7% | 6.7% | 46.7% |
| 3:00 PM | 10.2% | 18.2% | 0.0% | 29.7% | 26.9% | 0.0% | 26.3% | 34.9% | 0.0% |
| 4:00 PM | 6.5% | 0.0% | 0.0% | 1.6% | 0.0% | 0.0% | 2.2% | 0.0% | 0.0% |
| 5:00 PM | 2.8% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% |
| 6:00 PM | 5.6% | 0.0% | 0.0% | 1.3% | 0.0% | 0.0% | 1.9% | 0.0% | 0.0% |
| 7:00 PM | 1.9% | 50.0% | 0.0% | 0.4% | 50.0% | 0.0% | 0.6% | 50.0% | 0.0% |
| 8:00 PM | 0.9% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% |
| 9:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 10:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 11:00 PM | 1.9% | 0.0% | 100.0% | 0.4% | 0.0% | 100.0% | 0.6% | 0.0% | 100.0% |

VPH = vehicles per hour

ADT = average daily traffic
 MT = medium trucks (2 axles, 6 wheels)
 HT = heavy trucks (3 or more axles)

Table E2-11 summarizes hourly vehicle percentage patterns used in the traffic noise model for Kaiser Road Between Lake Tamarisk and the solar farm site under Alternative 3.

**Table E2-11.
 Hourly Traffic Distributions Used for Traffic Noise Modeling: Kaiser Road
 Between Lake Tamarisk and the Solar Farm Site**

| Start of Hour | Existing Conditions | | | Alt 3 Conditions, 2011 | | | Alt 3 Conditions, 2012 | | |
|---------------|---------------------|----------|----------|------------------------|----------|----------|------------------------|----------|----------|
| | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH | VPH % ADT | MT % VPH | HT % VPH |
| 12:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 1:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 3:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 4:00 AM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 5:00 AM | 2.8% | 33.3% | 0.0% | 0.7% | 33.3% | 0.0% | 0.9% | 33.3% | 0.0% |
| 6:00 AM | 8.3% | 22.2% | 0.0% | 29.3% | 27.3% | 0.0% | 25.6% | 35.8% | 0.0% |
| 7:00 AM | 9.3% | 20.0% | 0.0% | 4.2% | 10.5% | 47.4% | 5.1% | 12.5% | 37.5% |
| 8:00 AM | 2.8% | 0.0% | 0.0% | 3.3% | 0.0% | 80.0% | 3.5% | 0.0% | 72.7% |
| 9:00 AM | 5.6% | 16.7% | 0.0% | 4.4% | 5.0% | 70.0% | 4.7% | 6.7% | 60.0% |
| 10:00 AM | 8.3% | 33.3% | 11.1% | 5.1% | 13.0% | 65.2% | 5.7% | 16.7% | 55.6% |
| 11:00 AM | 8.3% | 44.4% | 11.1% | 5.1% | 17.4% | 65.2% | 5.7% | 22.2% | 55.6% |
| 12:00 PM | 5.6% | 33.3% | 16.7% | 4.4% | 10.0% | 75.0% | 4.7% | 13.3% | 66.7% |
| 1:00 PM | 11.1% | 25.0% | 8.3% | 5.3% | 12.5% | 54.2% | 6.3% | 15.0% | 45.0% |
| 2:00 PM | 8.3% | 11.1% | 11.1% | 3.8% | 5.9% | 52.9% | 4.7% | 6.7% | 46.7% |
| 3:00 PM | 10.2% | 18.2% | 0.0% | 29.7% | 26.9% | 0.0% | 26.3% | 34.9% | 0.0% |
| 4:00 PM | 6.5% | 0.0% | 0.0% | 1.6% | 0.0% | 0.0% | 2.2% | 0.0% | 0.0% |
| 5:00 PM | 2.8% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% |
| 6:00 PM | 5.6% | 0.0% | 0.0% | 1.3% | 0.0% | 0.0% | 1.9% | 0.0% | 0.0% |
| 7:00 PM | 1.9% | 50.0% | 0.0% | 0.4% | 50.0% | 0.0% | 0.6% | 50.0% | 0.0% |
| 8:00 PM | 0.9% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% |
| 9:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 10:00 PM | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 11:00 PM | 1.9% | 0.0% | 100.0% | 0.4% | 0.0% | 100.0% | 0.6% | 0.0% | 100.0% |

VPH = vehicles per hour
 ADT = average daily traffic
 MT = medium trucks (2 axles, 6 wheels)
 HT = heavy trucks (3 or more axles)

REFERENCES

Barry, T. M. and J. A. Reagan. 1978. **FHWA Highway Traffic Noise Prediction Model. FHWA-RD-77-108.** US Federal Highway Administration. Washington, DC.

California Department of Transportation. 2007. **Caltrans 2007 Truck Count Data (spreadsheet).** Internet website: www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm. Accessed on June 4, 2010.

California Department of Transportation. 2008. **Caltrans 2008 Annual Average Daily Traffic Data (spreadsheet).** Internet website: www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm. Accessed on June 4, 2010.

Federal Highway Administration. 1998. **FHWA Traffic Noise Model User's Guide (Version 1.0). FHWA-PD-96-009.** Office of Environment and Planning. Washington, DC.

Federal Highway Administration. 2004a. **FHWA Traffic Noise Model User's Guide (Version 2.5 Addendum).** Office of Environment and Planning. Washington, DC.

Federal Highway Administration. 2004b. **FHWA Traffic Noise Model Version 2.5 Look-up Tables Users Manual. FHWA-HEP-05-008.** Office of Environment and Planning. Washington, DC.

Hernandez, Kroone & Associates. 2010. **Traffic Study for Desert Sunlight Solar Farm, Desert Center, California.** Prepared for Tetra Tech. San Bernardino, CA.