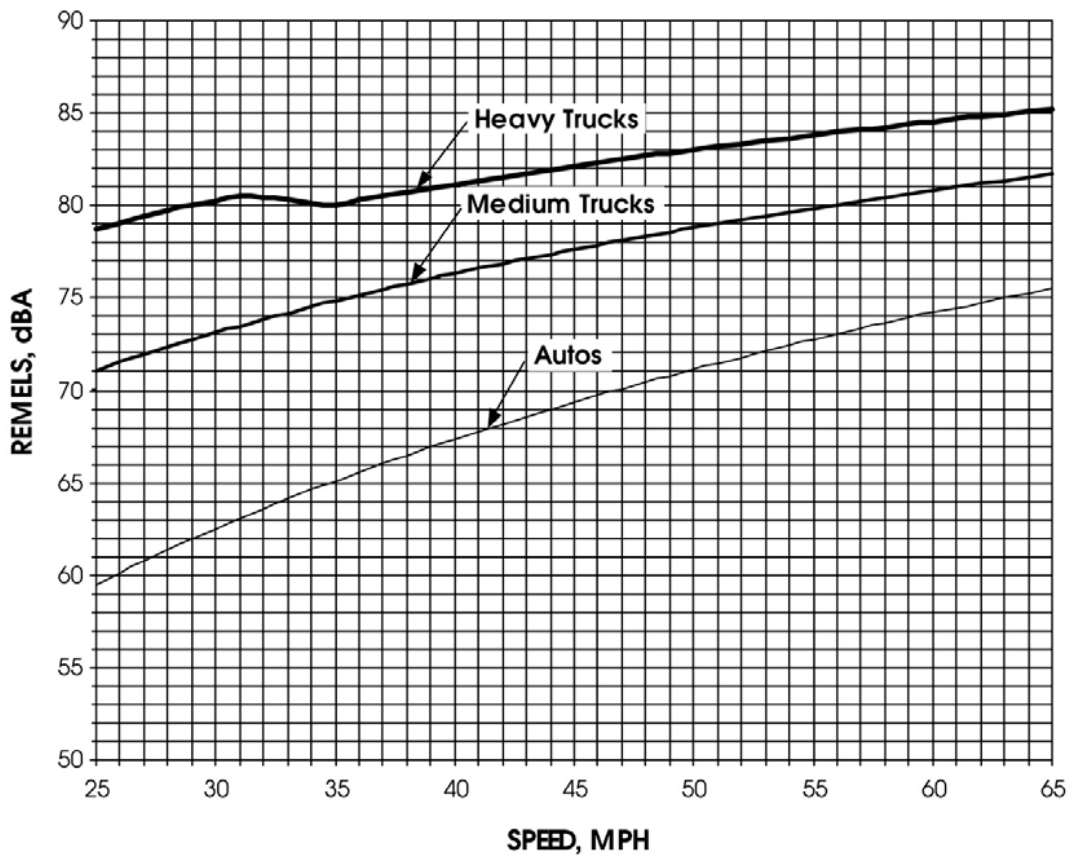


APPENDIX F
NOISE MODELING DATA

The future facilities proposed under the Solid Waste Integrated Resources Plan (SWIRP) have the potential to generate noise resulting from the transport of solid waste to and from each proposed facility and employee trips generated. The increase in traffic resulting from implementation of SWIRP would increase the ambient noise levels at sensitive off-site locations in the vicinity where future facilities are proposed. Because traffic is considered to be a long-term noise source, a substantial permanent increase in ambient noise levels in the vicinity of future facilities could potentially occur.

Future noise impacts resulting from vehicular traffic on roadways were modeled using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) which includes the California specific vehicle noise curves (CALVENO), see Table 1. The noise computations use a series of regression formulas to calculate an energy average noise level for the different classes of vehicles (automobiles, medium truck, and heavy trucks) average daily traffic volumes (ADT), vehicle speed, and the percentage of vehicles on the road during the three time periods of the day. Traffic inputs were obtained for each proposed facility in the Traffic section of the report. Automobiles were assumed to be traveling at 40 miles per hour (mph) and heavy trucks were assumed to be traveling at 40 mph. The noise computations also calculated the CNEL value which applies an appropriate penalty for evening and nighttime hours. Traffic noise was evaluated under with project conditions.¹ Tables 2 and 3 present the noise model output and results

Table 1. California Vehicle Noise (Calveno) Reference Energy Mean Emission Levels (Remels), for Level Roads, Constant Speed, at 50 feet



¹ California Department of Transportation. Technical Noise Supplement-Technical Noise Supplement to the Traffic Noise Analysis Protocol. November 2009.

Table 2. SWIRP Noise Model Output

Facility Type	ADT Total	Vehicle Distribution			Autos						Heavy Trucks						Total Noise Levels
		Autos	Medium	Heavy Trucks	Volumes	Speeds		Noise Levels			Volumes	Speeds		Noise Levels			Total Day ⁷
					Day	Speed (mph)	Speed (kph)	Reference Energy Mean ¹	Traffic Flow Adjustment ²	Total Leq Day ³	Day	Speed (mph)	Speed (kph)	Reference Energy Evening ⁴	Traffic Flow Adjustment ⁵	Total Leq Day ⁶	
Composting Facilities	234	28	0	206	28	40	64	67.4	-16.89	50.5	206	40.0	64.4	81.2	-8.2	72.9	73.0
Material Recovery Facilities	204	80	0	124	80	40	64	67.4	-12.33	55.0	124	40.0	64.4	82.7	-10.4	72.2	72.3
Resource Recovery Center	72	30	0	42	30	40	64	67.4	-16.59	50.8	42	40.0	64.4	82.7	-15.1	67.5	67.6
Mixed Material Processing	220	100	0	120	100	40	64	67.4	-11.36	56.0	120	40.0	64.4	82.7	-10.6	72.1	72.2
Advanced Thermal Recycling	400	44	0	356	44	40	64	67.4	-14.92	52.4	356	40.0	64.4	82.7	-5.8	76.8	76.8
Alternative Technology (Biological)	138	28	0	110	28	40	64	67.4	-16.89	50.5	110	40.0	64.4	82.7	-10.9	71.7	71.7
Alternative Technology (Thermal)	122	44	0	78	44	40	64	67.4	-14.92	52.4	78	40.0	64.4	82.7	-12.4	70.2	70.3

Notes: The following calculations were used in the noise calculations presented in the table

1. Calculation used for Auto Reference Energy Mean:
 $5.2 + 38.8 \log_{10}(\text{speed, mph})$
2. Calculation used for Auto Traffic Flow Adjustment:
 $10(\log_{10}\{[(\text{Auto Volume})(3.14)(0.015)]/(\text{speed, mph})\})$
3. Calculation for Total Auto L_{eq}:
 (Auto Reference Energy Mean + Auto Traffic Flow Adjustment)
4. Calculation used for Heavy Truck Reference Energy Mean:
 $50.4 + 19.2 \log_{10}(\text{speed, mph})$
5. Calculation used for Heavy Truck Traffic Flow Adjustment:
 $10(\log_{10}\{[(\text{Auto Volume})(3.14)(0.015)]/(\text{speed, mph})\})$
6. Calculation for Total Heavy Truck L_{eq}:
 (Heavy Truck Reference Energy Mean + Heavy Truck Traffic Flow Adjustment)
7. Total Noise Level:
 $10 * \log_{10}((10^{(Total Auto L_{eq}/10)}) + (10^{(Total Heavy Truck L_{eq}/10)}))$

Table 3. SWIRP Noise Model Results

Facility Type	Trips per Day per Facility ⁽¹⁾	Anticipated Noise Generation at a Reference Distance of 50 feet (Leq)
Composting Facilities	440	73
Material Recovery Facilities	328	72
Resource Recovery Center	114	68
Mixed material processing	340	72
Advanced Thermal Recycling	756	77
Alternative Technology (Biological)	248	72
Alternative Technology (Thermal)	200	70