Appendix C

Noise Modeling Data

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	4,356	50.0
Residence 1	2440	55.0
		#NUM!

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	0.4
Grader	85	0.4
Dozer	85	0.4
Dozer	85	0.4
Excavator	85	0.4
Excavator	85	0.4

Ground Type	HARD
Source Height	12
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Grader	81.0
Grader	81.0
Dozer	81.0
Dozer	81.0
Excavator	81.0
Excavator	81.0
Combined Predicted Noise Level (L_{eq} dBA at 50 feet)	
	88.8

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{max} dBA)
Threshold	6,887	50.0
Residence 1	2440	59.0
		#NUM!

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	1
Grader	85	1
Dozer	85	1
Dozer	85	1
Excavator	85	1
Excavator	85	1

Ground Type	HARD
Source Height	12
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{max} dBA at 50 feet[3]
Grader	85.0
Grader	85.0
Dozer	85.0
Dozer	85.0
Excavator	85.0
Excavator	85.0
Combined Predicted Noise Level (L_{max} dBA at 50 feet)	
	92.8

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Operational Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	2,759	50.0
Residence 1	2440	51.1
		#NUM!

Equipment	Reference Emission Noise Levels (L_{eq}) at 50 feet[1]	Usage Factor[1]
Man Lift	85	0.2
Pickup Truck	55	0.4
Front End Loader	80	0.4
Flat Bed Truck	84	0.4
Flat Bed Truck	84	0.4
Pickup Truck	55	0.4

Ground Type	HARD
Source Height	12
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Man Lift	78.0
Pickup Truck	51.0
Front End Loader	76.0
Flat Bed Truck	80.0
Flat Bed Truck	80.0
Pickup Truck	51.0
Combined Predicted Noise Level (L_{eq} dBA at 50 feet)	
	84.8

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Operational Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{max} dBA)
Threshold	4,794	50.0
Residence 1	2440	55.9
		#NUM!

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Man Lift	85	1
Pickup Truck	55	1
Front End Loader	80	1
Flat Bed Truck	84	1
Flat Bed Truck	84	1
Pickup Truck	55	1

Ground Type	HARD
Source Height	12
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{max} dBA at 50 feet[3]
Man Lift	85.0
Pickup Truck	55.0
Front End Loader	80.0
Flat Bed Truck	84.0
Flat Bed Truck	84.0
Pickup Truck	55.0
Combined Predicted Noise Level (L_{max} dBA at 50 feet)	
	89.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Traffic Noise Spreadsheet Calculator

Project: **Fresno-Darling Rendering Plant**

Number	Name	Segment Description and Location From	To	Existing Conditions	Existing + Project Conditions	Δ Existing – Existing + Project
Summary of Net Changes						
1	Jensen Avenue	Project Access	Cornelia Avenue	56.4	56.7	0.3
2	Jensen Avenue	Cornelia Avenue	Brawley Avenue	65.9	66.3	0.4
3	Jensen Avenue	Brawley Avenue	Marks Avenue	68.3	68.7	0.3
4	Jensen Avenue	Marks Avenue	West Avenue	59.4	59.8	0.3
5	Jensen Avenue	West Avenue	Fruit Avenue	60.0	60.3	0.3
6	Cornelia Avenue	Church Avenue	Jensen Avenue	56.8	56.8	0.0
7	Cornelia Avenue	Jensen Avenue	North Avenue	57.1	57.7	0.6
8	Brawley Avenue	Church Avenue	Jensen Avenue	59.9	59.9	0.0
9	Brawley Avenue	Jensen Avenue	North Avenue	60.1	60.2	0.1
10	Marks Avenue	Church Avenue	Jensen Avenue	56.3	56.4	0.0
11	Marks Avenue	Jensen Avenue	North Avenue	55.4	55.5	0.0
12	West Avenue	Church Avenue	Jensen Avenue	45.5	45.5	0.0
13	West Avenue	Jensen Avenue	North Avenue	51.1	51.1	0.0

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Fresno-Darling Rendering Plant

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 10

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	Ldn, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	Jensen Avenue	Project Access	Cornelia Avenue	337	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.4	12	27	58	124
2	Jensen Avenue	Cornelia Avenue	Brawley Avenue	373	45	25	25	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	65.9	13	29	62	133
3	Jensen Avenue	Brawley Avenue	Marks Avenue	468	45	20	20	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.3	15	33	72	155
4	Jensen Avenue	Marks Avenue	West Avenue	483	45	80	80	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.4	16	34	73	158
5	Jensen Avenue	West Avenue	Fruit Avenue	499	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.0	16	35	75	161
6	Cornelia Avenue	Church Avenue	Jensen Avenue	112	45	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.8	6	13	28	60
7	Cornelia Avenue	Jensen Avenue	North Avenue	119	45	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.1	6	13	29	62
8	Brawley Avenue	Church Avenue	Jensen Avenue	93	45	25	25	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.9	5	11	24	53
9	Brawley Avenue	Jensen Avenue	North Avenue	71	45	20	20	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.1	4	9	20	44
10	Marks Avenue	Church Avenue	Jensen Avenue	201	35	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.3	6	12	26	55
11	Marks Avenue	Jensen Avenue	North Avenue	127	35	38	38	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.4	4	9	19	41
12	West Avenue	Church Avenue	Jensen Avenue	55	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.5	2	5	11	23
13	West Avenue	Jensen Avenue	North Avenue	41	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	51.1	2	4	9	19

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Fresno-Darling Rendering Plant

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor: 10

	Segment Description and Location			Input											Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]				
Number	Name	From	To	Peak Hour Volume	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	Ldn, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing + Project Conditions																		
1	Jensen Avenue	Project Access	Cornelia Avenue	360	45	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.7	13	28	60	130
2	Jensen Avenue	Cornelia Avenue	Brawley Avenue	413	45	25	25	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	66.3	14	31	66	142
3	Jensen Avenue	Brawley Avenue	Marks Avenue	507	45	20	20	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	68.7	16	35	76	163
4	Jensen Avenue	Marks Avenue	West Avenue	521	45	80	80	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.8	17	36	77	166
5	Jensen Avenue	West Avenue	Fruit Avenue	536	45	75	75	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.3	17	36	79	169
6	Cornelia Avenue	Church Avenue	Jensen Avenue	112	45	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.8	6	13	28	60
7	Cornelia Avenue	Jensen Avenue	North Avenue	137	45	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	57.7	7	15	32	68
8	Brawley Avenue	Church Avenue	Jensen Avenue	94	45	25	25	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.9	5	11	25	53
9	Brawley Avenue	Jensen Avenue	North Avenue	72	45	20	20	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	60.2	4	10	21	44
10	Marks Avenue	Church Avenue	Jensen Avenue	202	35	45	45	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	56.4	6	12	26	55
11	Marks Avenue	Jensen Avenue	North Avenue	128	35	38	38	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	55.5	4	9	19	41
12	West Avenue	Church Avenue	Jensen Avenue	55	35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	45.5	2	5	11	23
13	West Avenue	Jensen Avenue	North Avenue	41	35	35	35	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	51.1	2	4	9	19

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.