

Appendix 3C

**Noise Modeling Results for
Mule Creek State Prison Infill Site**

Appendix 3C - 2

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Single Housing Unit				Input										Output					
Noise Level Descriptor: CNEL Site Conditions: Soft Traffic Input: ADT Traffic K-Factor:				Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7} Distance to Contour, (feet) ₃								
																ADT	Speed (mph)	Near	Far
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	CNEL, (dBA) _{5,6,7}	70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	9,514	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.7	14	31	67	144	
2	Michigan Bar Road	North of	SR 104	2,291	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.4	20	42	91	196	
3	Preston Road	North of	SR 124	7,615	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	27	58	124	
4	Preston Road	South of	SR 124	9,425	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.7	14	31	67	143	
5	S Church Street	South of	Main Street	6,059	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.7	11	23	50	107	
6	S Ione Street	South of	Main Street	6,255	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.9	11	24	51	109	
7	SR 104	West of	Michigan Bar Road	2,479	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	59.5	19	42	90	195	
8	SR 104	East of	MCSP Driveway	4,526	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.1	29	63	135	291	
9	SR 124	North of	SR 104	4,544	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	62.1	29	63	137	294	
10	SR 88	West of	SR 124	9,459	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.5	57	123	265	572	
11	SR 88	East of	SR 124	8,544	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.0	53	115	248	534	

*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.

Appendix 3C - 3

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Single Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Approved Projects Conditions																			
1	Main Street	Preston Avenue	S Church	11,670	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.6	17	36	77	165	
2	Michigan Bar Road	North of	SR 104	2,560	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.9	21	46	98	212	
3	Preston Road	North of	SR 124	8,960	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.4	14	30	64	139	
4	Preston Road	South of	SR 124	11,540	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.5	16	35	76	164	
5	S Church Street	South of	Main Street	7,370	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.6	12	26	56	122	
6	S Ione Street	South of	Main Street	7,710	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.8	13	27	58	125	
7	SR 104	West of	Michigan Bar Road	2,870	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.1	21	46	100	215	
8	SR 104	East of	MCSP Driveway	5,520	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.9	33	71	154	332	
9	SR 124	North of	SR 104	5,590	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.0	34	73	157	338	
10	SR 88	West of	SR 124	10,160	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	129	278	600	
11	SR 88	East of	SR 124	10,520	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.9	61	132	285	614	

*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.

Appendix 3C - 4

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Single Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Approved Projects + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	11,784	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.6	17	36	77	166	
2	Michigan Bar Road	North of	SR 104	2,651	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	60.0	22	47	101	217	
3	Preston Road	North of	SR 124	9,175	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.5	14	30	65	141	
4	Preston Road	South of	SR 124	11,665	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.6	17	36	77	165	
5	S Church Street	South of	Main Street	7,429	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.6	12	26	57	122	
6	S Ione Street	South of	Main Street	7,765	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.8	13	27	58	126	
7	SR 104	West of	Michigan Bar Road	2,949	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.2	22	47	101	218	
8	SR 104	East of	MCSP Driveway	5,746	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	63.1	34	73	158	341	
9	SR 124	North of	SR 104	5,634	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.1	34	73	158	339	
10	SR 88	West of	SR 124	10,219	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	130	280	602	
11	SR 88	East of	SR 124	10,564	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	67.0	62	133	286	616	

*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.

Appendix 3C - 5

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Single Housing Unit				Input										Output				
Noise Level Descriptor: CNEL Site Conditions: Soft Traffic Input: ADT Traffic K-Factor:				Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7} Distance to Contour, (feet) ₃							
																ADT	Speed (mph)	Near
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	70 dBA	65 dBA	60 dBA	55 dBA	
Cumulative Conditions																		
1	Main Street	Preston Avenue	S Church	13,050	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.1	18	38	83	178
2	Michigan Bar Road	North of	SR 104	2,560	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.9	21	46	98	212
3	Preston Road	North of	SR 124	8,960	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.4	14	30	64	139
4	Preston Road	South of	SR 124	12,460	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.9	17	37	80	173
5	S Church Street	South of	Main Street	7,480	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	26	57	123
6	S Ione Street	South of	Main Street	9,220	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	30	66	141
7	SR 104	West of	Michigan Bar Road	2,870	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.1	21	46	100	215
8	SR 104	East of	MCSP Driveway	5,520	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.9	33	71	154	332
9	SR 104	North of	SR 104	6,430	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.7	37	80	172	371
10	SR 88	West of	SR 124	10,160	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	129	278	600
11	SR 88	East of	SR 124	14,820	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	68.4	77	166	358	772

*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.

Appendix 3C - 6

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Single Housing Unit				Input										Output					
Noise Level Descriptor: CNEL Site Conditions: Soft Traffic Input: ADT Traffic K-Factor:				Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7} Distance to Contour, (feet) ₃								
																ADT	Speed (mph)	Near	Far
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	CNEL, (dBA) _{5,6,7}	70 dBA	65 dBA	60 dBA	55 dBA	
Cumulative + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	13,164	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.1	18	39	83	179	
2	Michigan Bar Road	North of	SR 104	2,651	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	60.0	22	47	101	217	
3	Preston Road	North of	SR 124	9,175	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.5	14	30	65	141	
4	Preston Road	South of	SR 124	12,585	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.9	17	37	81	174	
5	S Church Street	South of	Main Street	7,539	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	27	57	124	
6	S Ione Street	South of	Main Street	9,275	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	142	
7	SR 104	West of	Michigan Bar Road	2,949	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.2	22	47	101	218	
8	SR 104	East of	MCSP Driveway	5,746	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	63.1	34	73	158	341	
9	SR 104	North of	SR 104	6,474	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.7	37	80	173	372	
10	SR 88	West of	SR 124	10,219	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	130	280	602	
11	SR 88	East of	SR 124	14,864	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	68.4	77	167	359	773	

*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.

Appendix 3C - 7

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing Conditions																			
1	Main Street	Preston Avenue	S Church	9,400	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	143	
2	Michigan Bar Road	North of	SR 104	2,200	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.2	19	41	89	191	
3	Preston Road	North of	SR 124	7,400	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.6	12	26	57	122	
4	Preston Road	South of	SR 124	9,300	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	142	
5	S Church Street	South of	Main Street	6,000	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.7	11	23	49	106	
6	S Ione Street	South of	Main Street	6,200	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.8	11	23	50	108	
7	SR 104	West of	Michigan Bar Road	2,400	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	59.3	19	41	88	190	
8	SR 104	East of	MCSP Driveway	4,300	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	61.9	28	61	130	281	
9	SR 124	North of	SR 104	4,500	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	62.1	29	63	136	292	
10	SR 88	West of	SR 124	9,400	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.5	57	123	264	570	
11	SR 88	East of	SR 124	8,500	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.0	53	115	247	533	

*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.

Appendix 3C - 8

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL

Site Conditions: Soft

Traffic Input: ADT

Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	9,621	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.7	15	31	67	145	
2	Michigan Bar Road	North of	SR 104	2,376	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.5	20	43	93	201	
3	Preston Road	North of	SR 124	7,814	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.8	13	27	59	127	
4	Preston Road	South of	SR 124	9,542	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.7	14	31	67	145	
5	S Church Street	South of	Main Street	6,115	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.8	11	23	50	107	
6	S Ione Street	South of	Main Street	6,306	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	55.9	11	24	51	110	
7	SR 104	West of	Michigan Bar Road	2,553	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	59.6	20	43	92	198	
8	SR 104	East of	MCSP Driveway	4,735	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.3	30	65	139	300	
9	SR 124	North of	SR 104	4,584	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	62.2	30	64	137	296	
10	SR 88	West of	SR 124	9,515	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.5	57	124	267	574	
11	SR 88	East of	SR 124	8,584	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.1	54	116	249	536	

*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.

Appendix 3C - 9

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Approved Projects Conditions																			
1	Main Street	Preston Avenue	S Church	11,670	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.6	17	36	77	165	
2	Michigan Bar Road	North of	SR 104	2,560	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.9	21	46	98	212	
3	Preston Road	North of	SR 124	8,960	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.4	14	30	64	139	
4	Preston Road	South of	SR 124	11,540	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.5	16	35	76	164	
5	S Church Street	South of	Main Street	7,370	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.6	12	26	56	122	
6	S Ione Street	South of	Main Street	7,710	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.8	13	27	58	125	
7	SR 104	West of	Michigan Bar Road	2,870	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.1	21	46	100	215	
8	SR 104	East of	MCSP Driveway	5,520	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.9	33	71	154	332	
9	SR 124	North of	SR 104	5,590	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.0	34	73	157	338	
10	SR 88	West of	SR 124	10,160	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	129	278	600	
11	SR 88	East of	SR 124	10,520	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.9	61	132	285	614	

*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.

Appendix 3C - 10

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Existing + Approved Projects + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	11,891	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.7	17	36	78	167	
2	Michigan Bar Road	North of	SR 104	2,736	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	60.1	22	48	103	221	
3	Preston Road	North of	SR 124	9,374	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	143	
4	Preston Road	South of	SR 124	11,782	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.6	17	36	77	166	
5	S Church Street	South of	Main Street	7,485	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	26	57	123	
6	S Ione Street	South of	Main Street	7,816	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.8	13	27	59	127	
7	SR 104	West of	Michigan Bar Road	3,023	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.3	22	48	103	222	
8	SR 104	East of	MCSP Driveway	5,955	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	63.3	35	75	162	349	
9	SR 124	North of	SR 104	5,674	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.1	34	73	158	341	
10	SR 88	West of	SR 124	10,275	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	130	281	604	
11	SR 88	East of	SR 124	10,604	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	67.0	62	133	286	617	

*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.

Appendix 3C - 11

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Cumulative Conditions																			
1	Main Street	Preston Avenue	S Church	13,050	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.1	18	38	83	178	
2	Michigan Bar Road	North of	SR 104	2,560	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.9	21	46	98	212	
3	Preston Road	North of	SR 124	8,960	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.4	14	30	64	139	
4	Preston Road	South of	SR 124	12,460	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.9	17	37	80	173	
5	S Church Street	South of	Main Street	7,480	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	26	57	123	
6	S Ione Street	South of	Main Street	9,220	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	30	66	141	
7	SR 104	West of	Michigan Bar Road	2,870	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.1	21	46	100	215	
8	SR 104	East of	MCSP Driveway	5,520	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	62.9	33	71	154	332	
9	SR 124	North of	SR 104	6,430	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.7	37	80	172	371	
10	SR 88	West of	SR 124	10,160	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	129	278	600	
11	SR 88	East of	SR 124	14,820	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	68.4	77	166	358	772	

*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.

Appendix 3C - 12

Traffic Noise Model Calculations



Project: Level II Infill Correctional Facilities Project - MCSP - Double Infill Housing Unit

Noise Level Descriptor: CNEL
 Site Conditions: Soft
 Traffic Input: ADT
 Traffic K-Factor:

Segment Description and Location				Input										Output					
				ADT	Speed (mph)	Distance to Directional Centerline, (feet) ₄		Traffic Distribution Characteristics					CNEL, (dBA) _{5,6,7}	Distance to Contour, (feet) ₃					
Number	Name	From	To			Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night		70 dBA	65 dBA	60 dBA	55 dBA	
Cumulative + Infill Conditions																			
1	Main Street	Preston Avenue	S Church	13,271	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	59.1	18	39	84	180	
2	Michigan Bar Road	North of	SR 104	2,736	55	90	112	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	60.1	22	48	103	221	
3	Preston Road	North of	SR 124	9,374	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	143	
4	Preston Road	South of	SR 124	12,702	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	58.9	17	38	81	175	
5	S Church Street	South of	Main Street	7,595	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	56.7	12	27	58	124	
6	S Ione Street	South of	Main Street	9,326	25	74	123	96.8%	1.2%	2.0%	83.0%	5.0%	12.0%	57.6	14	31	66	142	
7	SR 104	West of	Michigan Bar Road	3,023	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	60.3	22	48	103	222	
8	SR 104	East of	MCSP Driveway	5,955	50	86	112	93.9%	2.0%	4.1%	83.0%	5.0%	12.0%	63.3	35	75	162	349	
9	SR 124	North of	SR 104	6,514	50	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	63.7	37	81	174	374	
10	SR 88	West of	SR 124	10,275	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	66.8	60	130	281	604	
11	SR 88	East of	SR 124	14,904	55	86	112	93.7%	2.0%	4.3%	83.0%	5.0%	12.0%	68.5	77	167	359	774	

*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.

