Valley Link
Connecting People, Housing, and Jobs

Appendix G:

Noise and Vibration

Appendix G: Noise and Vibration

Contents

Table G-1: Operational Noise Analysis – Detailed Results and Impact Conclusions

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
12-02	Dublin	MFR	2	8	69	69.7	48.4	69.7	0.7	1.1	2.9	No	No
12-03	Dublin	MFR	2	8	69.2	69.3	48.3	69.3	0.1	1.1	2.9	No	No
11-01	Pleasanton	SFR	2	1	67.3	68.3	47.5	68.3	1.0	1.2	3.2	No	No
11-02	Pleasanton	SFR	2	1	67	68.3	47.5	68.3	1.3	1.2	3.2	Yes	No
11-03	Pleasanton	SFR	2	1	66.7	68.8	47.5	68.8	2.1	1.2	3.2	Yes	No
11-04	Pleasanton	SFR	2	1	66.8	69.4	47.6	69.4	2.6	1.2	3.2	Yes	No
10-01	Pleasanton	MFR	2	5	51.5	50.6	44.7	51.6	0.1	4.2	8.8	No	No
10-02	Pleasanton	MFR	2	5	52	51.6	42.7	52.1	0.1	4.2	8.8	No	No
10-03	Pleasanton	MFR	2	5	52.5	51.9	42.5	52.4	0.0	3.8	8.2	No	No
10-04	Pleasanton	MFR	2	5	54.3	53.9	43	54.2	0.0	3.5	7.6	No	No
10-05	Pleasanton	MFR	2	3	54.5	54.1	43.1	54.4	0.0	3.2	7.1	No	No
10-06	Pleasanton	MFR	2	3	54.3	54.1	44.8	54.6	0.3	3.5	7.6	No	No
10-07	Pleasanton	MFR	2	3	55.7	55.3	42.4	55.5	0.0	2.9	6.6	No	No
10-08	Pleasanton	MFR	2	3	54.9	54.5	45.3	55.0	0.1	3.2	7.1	No	No
10-09	Pleasanton	MFR	2	5	66.6	59.4	46.6	59.6	0.0	1.2	3.2	No	No
10-10	Pleasanton	MFR	2	5	62.1	59.2	45.8	59.4	0.0	1.7	4.4	No	No
10-11	Pleasanton	MFR	2	5	59.9	58.5	42.1	58.6	0.0	2.0	5.0	No	No
10-12	Pleasanton	MFR	2	5	59.5	58.4	40.6	58.5	0.0	2.0	5.0	No	No
10-13	Pleasanton	MFR	2	5	59	58.2	39.9	58.3	0.0	2.2	5.4	No	No
10-14	Pleasanton	MFR	2	5	58.9	58.2	40.2	58.3	0.0	2.2	5.4	No	No
10-15	Pleasanton	MFR	2	3	58.8	58.1	39.7	58.2	0.0	2.2	5.4	No	No
10-16	Pleasanton	MFR	2	3	60.3	59.8	47.4	60.0	0.0	2.0	5.0	No	No
10-17	Pleasanton	SFR	2	2	51.6	51.2	44.9	52.1	0.5	4.2	8.8	No	No
10-18	Pleasanton	SFR	2	2	54.1	53.8	45.3	54.4	0.3	3.5	7.6	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
10-19	Pleasanton	SFR	2	2	55.7	55.3	45.7	55.8	0.1	2.9	6.6	No	No
10-20	Pleasanton	SFR	2	2	55.9	55.7	45.7	56.1	0.2	2.9	6.6	No	No
10-21	Pleasanton	SFR	2	2	57.2	55.8	45.8	56.2	0.0	2.6	6.2	No	No
10-22	Pleasanton	SFR	2	2	58.8	56.9	45.9	57.2	0.0	2.2	5.4	No	No
10-23	Pleasanton	SFR	2	2	59.2	57	46	57.3	0.0	2.2	5.4	No	No
10-24	Pleasanton	SFR	2	2	60.1	57	46.1	57.3	0.0	2.0	5.0	No	No
10-25	Pleasanton	SFR	2	2	59.7	57.5	46.2	57.8	0.0	2.0	5.0	No	No
10-26	Pleasanton	SFR	2	2	56.5	56.5	46.4	56.9	0.4	2.6	6.2	No	No
10-27	Pleasanton	SFR	2	2	57.1	57.2	47	57.6	0.5	2.6	6.2	No	No
10-28	Pleasanton	SFR	2	2	55.6	55.5	46.5	56.0	0.4	2.9	6.6	No	No
10-29	Pleasanton	SFR	2	2	56.6	56.5	47.1	57.0	0.4	2.6	6.2	No	No
10-30	Pleasanton	SFR	2	2	57.7	57.2	47.1	57.6	0.0	2.4	5.8	No	No
10-31	Pleasanton	SFR	2	1	52.6	52.2	45.5	53.0	0.4	3.8	8.2	No	No
10-32	Pleasanton	SFR	2	1	53.2	52.8	46.1	53.6	0.4	3.8	8.2	No	No
10-33	Pleasanton	SFR	2	1	54.5	54.1	45.9	54.7	0.2	3.2	7.1	No	No
10-34	Pleasanton	SFR	2	1	56.2	56	46.2	56.4	0.2	2.9	6.6	No	No
10-35	Pleasanton	SFR	2	1	56.9	55.6	46.8	56.1	0.0	2.6	6.2	No	No
10-36	Pleasanton	SFR	2	1	57.9	57.5	46.8	57.9	0.0	2.4	5.8	No	No
10-37	Pleasanton	SFR	2	1	58.3	57.9	47	58.2	0.0	2.4	5.8	No	No
10-38	Pleasanton	SFR	2	1	58.4	58.1	47.2	58.4	0.0	2.4	5.8	No	No
10-39	Pleasanton	SFR	2	1	58.6	58.3	47.4	58.6	0.0	2.2	5.4	No	No
10-40	Pleasanton	SFR	2	1	55.7	55.6	46.9	56.1	0.4	2.9	6.6	No	No
10-41	Pleasanton	SFR	2	1	56.9	56.7	47.8	57.2	0.3	2.6	6.2	No	No
10-42	Pleasanton	SFR	2	1	55.9	55.7	47.4	56.3	0.4	2.9	6.6	No	No
10-43	Pleasanton	SFR	2	1	51.8	51.6	47	52.9	1.1	4.2	8.8	No	No
10-44	Pleasanton	SFR	2	1	52.8	52.9	47.3	54.0	1.2	3.8	8.2	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
10-45	Pleasanton	SFR	2	1	55.5	55.5	47.1	56.1	0.6	2.9	6.6	No	No
10-46	Pleasanton	SFR	2	1	57	56.4	47.4	56.9	0.0	2.6	6.2	No	No
10-47	Pleasanton	SFR	2	1	55.7	55.6	47.1	56.2	0.5	2.9	6.6	No	No
10-48	Pleasanton	SFR	2	1	59	58.6	47.4	58.9	0.0	2.2	5.4	No	No
10-49	Pleasanton	SFR	2	1	57.8	57.9	47.8	58.3	0.5	2.4	5.8	No	No
10-50	Pleasanton	SFR	2	1	57	57	47.8	57.5	0.5	2.6	6.2	No	No
10-51	Pleasanton	SFR	2	1	58.3	58.4	47.9	58.8	0.5	2.4	5.8	No	No
10-52	Pleasanton	SFR	2	1	57.9	58	48	58.4	0.5	2.4	5.8	No	No
10-53	Pleasanton	SFR	2	1	58.6	58	48	58.4	0.0	2.2	5.4	No	No
10-54	Pleasanton	SFR	2	1	54	53.6	46.5	54.4	0.4	3.5	7.6	No	No
10-55	Pleasanton	SFR	2	1	57.2	56.9	47.7	57.4	0.2	2.6	6.2	No	No
10-56	Pleasanton	SFR	2	1	58.2	57.7	47.5	58.1	0.0	2.4	5.8	No	No
10-57	Pleasanton	SFR	2	1	58.1	57.7	47.4	58.1	0.0	2.4	5.8	No	No
10-58	Pleasanton	SFR	2	1	58.3	57.9	47.7	58.3	0.0	2.4	5.8	No	No
10-59	Pleasanton	SFR	2	1	58.4	58	47.9	58.4	0.0	2.4	5.8	No	No
10-60	Pleasanton	SFR	2	1	58.5	58.1	47.7	58.5	0.0	2.2	5.4	No	No
10-61	Pleasanton	SFR	2	1	58.8	58.4	47.8	58.8	0.0	2.2	5.4	No	No
10-62	Pleasanton	SFR	2	1	58.7	58.5	48.5	58.9	0.2	2.2	5.4	No	No
10-63	Pleasanton	SFR	2	1	61.6	61.3	49.4	61.6	0.0	1.7	4.4	No	No
10-64	Pleasanton	SFR	2	1	56.6	56.4	48.2	57.0	0.4	2.6	6.2	No	No
10-65	Pleasanton	SFR	2	1	58.5	58.2	48.2	58.6	0.1	2.2	5.4	No	No
10-66	Pleasanton	SFR	2	1	57.1	56.9	48	57.4	0.3	2.6	6.2	No	No
10-67	Pleasanton	SFR	2	1	57.9	57.7	48.2	58.2	0.3	2.4	5.8	No	No
10-68	Pleasanton	SFR	2	1	56.9	56.9	48.2	57.4	0.5	2.6	6.2	No	No
10-69	Pleasanton	SFR	2	1	56.8	58.3	48.3	58.7	1.9	2.6	6.2	No	No
10-70	Pleasanton	SFR	2	1	61.3	59.1	48.3	59.4	0.0	1.9	4.7	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
10-71	Pleasanton	SFR	2	1	61.2	61.3	49.4	61.6	0.4	1.9	4.7	No	No
10-72	Pleasanton	SFR	2	1	59.9	59.8	48.8	60.1	0.2	2.0	5.0	No	No
10-73	Pleasanton	SFR	2	1	58.6	58.5	48.8	58.9	0.3	2.2	5.4	No	No
10-74	Pleasanton	SFR	2	1	58.3	58.3	48.9	58.8	0.5	2.4	5.8	No	No
10-75	Pleasanton	SFR	2	1	59.9	59.5	49	59.9	0.0	2.0	5.0	No	No
10-76	Pleasanton	SFR	2	1	61.1	60.4	49	60.7	0.0	1.9	4.7	No	No
10-77	Pleasanton	SFR	2	1	61.3	60.9	50.3	61.3	0.0	1.9	4.7	No	No
10-78	Pleasanton	SFR	2	1	60.7	60.3	51.8	60.9	0.2	1.9	4.7	No	No
10-79	Pleasanton	SFR	2	1	61.2	60.7	51.8	61.2	0.0	1.9	4.7	No	No
10-80	Pleasanton	SFR	2	1	62	61.5	51.5	61.9	0.0	1.7	4.4	No	No
10-81	Pleasanton	SFR	2	1	62.1	61.7	51.5	62.1	0.0	1.7	4.4	No	No
10-82	Pleasanton	SFR	2	1	62.4	62	51.5	62.4	0.0	1.7	4.4	No	No
10-83	Pleasanton	SFR	2	1	63.6	63.1	51.3	63.4	0.0	1.5	3.9	No	No
10-84	Pleasanton	SFR	2	1	62.7	62.2	51.5	62.6	0.0	1.6	4.1	No	No
10-85	Pleasanton	SFR	2	1	63	62.5	51.4	62.8	0.0	1.6	4.1	No	No
10-86	Pleasanton	SFR	2	1	63.1	62.6	51.4	62.9	0.0	1.6	4.1	No	No
10-87	Pleasanton	SFR	2	1	65.1	64.7	51.2	64.9	0.0	1.4	3.6	No	No
10-88	Pleasanton	SFR	2	1	62.8	62.5	50	62.7	0.0	1.6	4.1	No	No
10-89	Pleasanton	SFR	2	1	67.3	66.9	51.5	67.0	0.0	1.2	3.2	No	No
10-90	Pleasanton	SFR	2	1	67.3	66.9	51.4	67.0	0.0	1.2	3.2	No	No
10-91	Pleasanton	SFR	2	1	65.8	65.6	50.6	65.7	0.0	1.3	3.4	No	No
10-92	Pleasanton	SFR	2	1	65.9	65.7	50.7	65.8	0.0	1.3	3.4	No	No
10-93	Pleasanton	SFR	2	1	67.6	67.3	51.9	67.4	0.0	1.2	3.1	No	No
10-94	Pleasanton	SFR	2	1	67.4	67.1	51.9	67.2	0.0	1.2	3.2	No	No
10-95	Pleasanton	SFR	2	1	65.2	65	50.6	65.2	0.0	1.4	3.6	No	No
10-96	Pleasanton	SFR	2	1	64.4	64.2	50.4	64.4	0.0	1.5	3.9	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
10-97	Pleasanton	SFR	2	1	67.1	66.8	51.3	66.9	0.0	1.2	3.2	No	No
10-98	Pleasanton	SFR	2	1	67.4	67.1	51.7	67.2	0.0	1.2	3.2	No	No
10-99	Pleasanton	SFR	2	1	63.4	63.3	50.3	63.5	0.1	1.6	4.1	No	No
10-100	Pleasanton	SFR	2	1	63.6	63.6	50.4	63.8	0.2	1.5	3.9	No	No
10-101	Pleasanton	SFR	2	1	67.5	67.2	51.9	67.3	0.0	1.2	3.1	No	No
10-102	Pleasanton	SFR	2	1	64.6	64.3	50.1	64.5	0.0	1.4	3.6	No	No
10-103	Pleasanton	SFR	2	1	64.4	64.2	50.2	64.4	0.0	1.5	3.9	No	No
10-104	Pleasanton	SFR	2	1	67	66.6	51.4	66.7	0.0	1.2	3.2	No	No
10-105	Pleasanton	SFR	2	1	67.1	66.7	51.5	66.8	0.0	1.2	3.2	No	No
10-106	Pleasanton	SFR	2	1	64.4	63.9	50.2	64.1	0.0	1.5	3.9	No	No
10-107	Pleasanton	SFR	2	1	64.9	64.5	50.4	64.7	0.0	1.4	3.6	No	No
10-108	Pleasanton	SFR	2	1	67.2	66.7	51.5	66.8	0.0	1.2	3.2	No	No
10-109	Pleasanton	SFR	2	1	67.2	66.7	51.6	66.8	0.0	1.2	3.2	No	No
10-110	Pleasanton	SFR	2	1	65.4	64.6	50.6	64.8	0.0	1.4	3.6	No	No
10-111	Pleasanton	MFR	2	2	58.2	58	47.6	58.4	0.2	2.4	5.8	No	No
10-112	Pleasanton	MFR	2	2	57.7	57.6	47.1	58.0	0.3	2.4	5.8	No	No
10-113	Pleasanton	MFR	2	2	57.2	57.4	46.5	57.7	0.5	2.6	6.2	No	No
10-114	Pleasanton	MFR	2	2	57.2	57.7	46.8	58.0	0.8	2.6	6.2	No	No
10-115	Pleasanton	MFR	2	2	57.2	58.1	46.7	58.4	1.2	2.6	6.2	No	No
10-116	Pleasanton	MFR	2	2	58.1	58.5	46.5	58.8	0.7	2.4	5.8	No	No
10-117	Pleasanton	MFR	2	2	58	59.1	46.9	59.4	1.4	2.4	5.8	No	No
10-118	Pleasanton	MFR	2	2	59.7	60.6	47	60.8	1.1	2.0	5.0	No	No
10-119	Pleasanton	MFR	2	2	61	60.5	49.1	60.8	0.0	1.9	4.7	No	No
10-120	Pleasanton	MFR	2	2	59.4	59.3	48.4	59.6	0.2	2.2	5.4	No	No
10-121	Pleasanton	MFR	2	2	59.2	59.1	48	59.4	0.2	2.2	5.4	No	No
10-122	Pleasanton	MFR	2	1	59.1	59.4	49.4	59.8	0.7	2.2	5.4	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
10-123	Pleasanton	MFR	2	1	60.5	60.4	49.1	60.7	0.2	1.9	4.7	No	No
10-124	Pleasanton	MFR	2	2	59.1	59.2	48	59.5	0.4	2.2	5.4	No	No
10-125	Pleasanton	MFR	2	2	59.3	59.7	47.8	60.0	0.7	2.2	5.4	No	No
10-126	Pleasanton	MFR	2	2	59.1	59.7	48	60.0	0.9	2.2	5.4	No	No
10-127	Pleasanton	MFR	2	1	60.7	60.7	49.1	61.0	0.3	1.9	4.7	No	No
10-128	Pleasanton	MFR	2	1	60.4	60.7	49.2	61.0	0.6	2.0	5.0	No	No
10-129	Pleasanton	MFR	2	2	61.4	61.4	48.5	61.6	0.2	1.9	4.7	No	No
10-130	Pleasanton	MFR	2	2	64.7	65.5	49.1	65.6	0.9	1.4	3.6	No	No
10-131	Pleasanton	MFR	2	1	62.9	62.3	50.1	62.6	0.0	1.6	4.1	No	No
10-132	Pleasanton	MFR	2	1	62.7	61.9	50.3	62.2	0.0	1.6	4.1	No	No
10-133	Pleasanton	MFR	2	1	66.9	66.2	51.5	66.3	0.0	1.2	3.2	No	No
10-134	Pleasanton	MFR	2	1	62.3	61.4	50.3	61.7	0.0	1.7	4.4	No	No
10-135	Pleasanton	MFR	2	1	64.2	63.6	50.3	63.8	0.0	1.5	3.9	No	No
10-136	Pleasanton	MFR	2	1	68.1	67.4	51.3	67.5	0.0	1.2	3.1	No	No
10-137	Pleasanton	MFR	2	1	64.1	63.7	50.2	63.9	0.0	1.5	3.9	No	No
10-138	Pleasanton	MFR	2	1	66.4	66.9	50.5	67.0	0.6	1.3	3.4	No	No
10-143	Pleasanton	MFR	2	1	66.9	66.3	51.5	66.4	0.0	1.2	3.2	No	No
10-144	Pleasanton	MFR	2	1	66.9	66.2	51.6	66.3	0.0	1.2	3.2	No	No
10-145	Pleasanton	MFR	2	1	67	66.3	51.4	66.4	0.0	1.2	3.2	No	No
10-146	Pleasanton	MFR	2	1	67.3	66.6	51.5	66.7	0.0	1.2	3.2	No	No
10-147	Pleasanton	MFR	2	1	67.6	67	51.5	67.1	0.0	1.2	3.1	No	No
10-148	Pleasanton	MFR	2	1	68.2	67.6	51.5	67.7	0.0	1.2	3.1	No	No
10-149	Dublin	MFR	2	1	68.3	67.9	51.5	68.0	0.0	1.2	3.1	No	No
10-150	Dublin	MFR	2	1	68.1	68	51.4	68.1	0.0	1.2	3.1	No	No
10-151	Dublin	Daycare	3	1	61.8	63.5	46.4	63.6	1.8	4.1	8.2	No	No
09-02	Dublin	Restaurant	3	1	64.7	61.3	45.5	61.4	0.0	3.4	7.1	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
09-03	Livermore	Restaurant	3	1	67	63.9	46.5	64.0	0.0	3.1	6.5	No	No
09-04	Livermore	Medical	2	1	67.4	68.1	47.1	68.1	0.7	1.2	3.2	No	No
09-05	Livermore	Playground	3	1	66.8	67.4	46.7	67.4	0.6	3.1	6.5	No	No
06-01	Alameda County	Place of Worship	3	1	66.6	67.9	45.9	67.9	1.3	3.1	6.5	No	No
06-02	Livermore	Golf Course	3	1	74.8	75.7	49.6	75.7	0.9	1.2	4.9	No	No
06-03	Livermore	Golf Course	3	1	66.8	69.1	48.8	69.1	2.3	3.1	6.5	No	No
06-04	Livermore	Golf Course	3	1	61	64.2	43.7	64.2	3.2	4.3	8.6	No	No
09-01	Livermore	SFR	2	1	73.6	74.6	50	74.6	1.0	0.5	2.3	Yes	No
08-01	Livermore	Public	3	1	72.6	73.9	51.5	73.9	1.3	1.8	5.2	No	No
08-02	Livermore	Hotel	2	1	73.2	75.6	50.3	75.6	2.4	0.6	2.4	Yes	Yes
08-03	Livermore	Hotel	2	1	63.7	63.9	45.6	64.0	0.3	1.5	3.9	No	No
08-04	Livermore	Hotel	2	1	54.8	54.9	43.7	55.2	0.4	3.2	7.1	No	No
08-05	Livermore	Hotel	2	1	56.6	52.7	46.3	53.6	0.0	2.6	6.2	No	No
08-06	Livermore	Hotel	2	1	54.6	58.3	43.6	58.4	3.8	3.2	7.1	Yes	No
05-01	Livermore	Recreation	3	1	74.7	73.6	52.1	73.6	0.0	1.2	4.9	No	No
05-02	Livermore	Recreation	3	1	66.9	65	48.6	65.1	0.0	3.1	6.5	No	No
05-03	Livermore	Recreation	3	1	69.6	69.3	49.2	69.3	0.0	2.7	5.8	No	No
05-04	Livermore	Recreation	3	1	71.4	70.6	49.4	70.6	0.0	2.6	5.6	No	No
05-05	Livermore	Recreation	3	1	67.2	65.6	48	65.7	0.0	3.1	6.5	No	No
07-02	Livermore	SFR	2	1	64.9	66.3	38.7	66.3	1.4	1.4	3.6	Yes	No
07-03	Livermore	MFR	2	1	57.5	57.4	46.2	57.7	0.2	2.4	5.8	No	No
07-04	Livermore	MFR	2	2	53.4	54.5	46.4	55.1	1.7	3.8	8.2	No	No
07-05	Livermore	MFR	2	2	54	55	46.7	55.6	1.6	3.5	7.6	No	No
07-06	Livermore	MFR	2	2	52.8	53.9	46.9	54.7	1.9	3.8	8.2	No	No
07-07	Livermore	MFR	2	2	53.8	54.7	47.1	55.4	1.6	3.5	7.6	No	No
07-08	Livermore	MFR	2	2	55	55.6	47.3	56.2	1.2	3.2	7.1	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
07-09	Livermore	MFR	2	2	61.2	61.1	47.6	61.3	0.1	1.9	4.7	No	No
07-10	Livermore	MFR	2	2	54.4	55.3	46.6	55.8	1.4	3.5	7.6	No	No
07-11	Livermore	MFR	2	3	53.8	54.9	46.8	55.5	1.7	3.5	7.6	No	No
07-12	Livermore	MFR	2	3	53.5	54.6	46.9	55.3	1.8	3.5	7.6	No	No
07-13	Livermore	MFR	2	2	52.7	53.9	47.1	54.7	2.0	3.8	8.2	No	No
07-14	Livermore	MFR	2	2	53.2	54.1	47.2	54.9	1.7	3.8	8.2	No	No
07-15	Livermore	MFR	2	3	53.9	54.7	47.4	55.4	1.5	3.5	7.6	No	No
07-16	Livermore	MFR	2	3	53.6	54.4	47.4	55.2	1.6	3.5	7.6	No	No
07-17	Livermore	MFR	2	2	52.8	53.7	47.4	54.6	1.8	3.8	8.2	No	No
07-18	Livermore	MFR	2	2	53.1	53.9	47.6	54.8	1.7	3.8	8.2	No	No
07-19	Livermore	MFR	2	3	53.9	54.5	47.7	55.3	1.4	3.5	7.6	No	No
07-20	Livermore	MFR	2	3	54	54.6	47.8	55.4	1.4	3.5	7.6	No	No
07-21	Livermore	MFR	2	2	53.3	54	48	55.0	1.7	3.8	8.2	No	No
07-22	Livermore	MFR	2	2	53.5	54.2	48.1	55.2	1.7	3.5	7.6	No	No
07-23	Livermore	MFR	2	3	53.8	54.9	48.3	55.8	2.0	3.5	7.6	No	No
07-24	Livermore	MFR	2	2	64.2	63.5	47.2	63.6	0.0	1.5	3.9	No	No
07-25	Livermore	MFR	2	4	61.7	60.1	47.9	60.4	0.0	1.7	4.4	No	No
07-26	Livermore	MFR	2	4	60.7	60.8	48.3	61.0	0.3	1.9	4.7	No	No
07-27	Livermore	MFR	2	4	61.3	62.5	48.7	62.7	1.4	1.9	4.7	No	No
07-28	Livermore	MFR	2	2	68.8	68.8	48.1	68.8	0.0	1.1	2.9	No	No
07-29	Livermore	MFR	2	3	69	69	48.2	69.0	0.0	1.1	2.9	No	No
07-30	Livermore	MFR	2	3	69.1	69.2	48.3	69.2	0.1	1.1	2.9	No	No
07-31	Livermore	MFR	2	2	69.3	69.5	48.5	69.5	0.2	1.1	2.9	No	No
07-32	Livermore	MFR	2	2	69.9	70.3	48.6	70.3	0.4	1.0	2.8	No	No
07-33	Livermore	MFR	2	3	70	70.6	48.8	70.6	0.6	1.0	2.8	No	No
07-34	Livermore	MFR	2	3	69.3	69.7	48.9	69.7	0.4	1.1	2.9	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
07-35	Livermore	MFR	2	2	69.7	70.1	49	70.1	0.4	1.0	2.8	No	No
07-36	Livermore	MFR	2	2	70.1	71	49.2	71.0	0.9	1.0	2.8	No	No
07-37	Livermore	MFR	2	3	70.1	71.4	49.3	71.4	1.3	1.0	2.8	Yes	No
07-38	Livermore	MFR	2	3	70.3	71.6	49.4	71.6	1.3	1.0	2.8	Yes	No
07-39	Livermore	MFR	2	2	70.8	71.9	49.4	71.9	1.1	1.0	2.6	Yes	No
07-40	Livermore	MFR	2	2	71.9	72.6	49.5	72.6	0.7	0.8	2.5	No	No
07-41	Livermore	MFR	2	2	72.3	72.9	49.6	72.9	0.6	0.8	2.5	No	No
04-01	Livermore	SFR	2	1	59.6	60.5	45.8	60.6	1.0	2.0	5.0	No	No
04-02	Livermore	SFR	2	1	61.6	61.3	46.1	61.4	0.0	1.7	4.4	No	No
04-03	Livermore	SFR	2	1	60.3	59.9	46.2	60.1	0.0	2.0	5.0	No	No
04-04	Livermore	SFR	2	1	60.8	60	46.4	60.2	0.0	1.9	4.7	No	No
04-05	Livermore	SFR	2	1	61.8	61	46.8	61.2	0.0	1.7	4.4	No	No
04-06	Livermore	SFR	2	2	57.2	56.5	45.6	56.8	0.0	2.6	6.2	No	No
04-07	Livermore	SFR	2	1	62.5	62.1	47.7	62.3	0.0	1.6	4.1	No	No
04-08	Livermore	SFR	2	1	57.6	59.7	47.1	59.9	2.3	2.4	5.8	No	No
04-09	Livermore	SFR	2	2	59.1	58.1	46.2	58.4	0.0	2.2	5.4	No	No
04-10	Livermore	SFR	2	2	57.7	57.4	45.6	57.7	0.0	2.4	5.8	No	No
04-11	Livermore	SFR	2	1	63.9	62.7	48.2	62.9	0.0	1.5	3.9	No	No
04-12	Livermore	SFR	2	1	61.4	60.3	47.7	60.5	0.0	1.9	4.7	No	No
04-13	Livermore	SFR	2	2	58.3	58.9	46.7	59.2	0.9	2.4	5.8	No	No
04-14	Livermore	SFR	2	3	56.8	55.7	45.6	56.1	0.0	2.6	6.2	No	No
04-15	Livermore	SFR	2	1	64.3	63.6	48.6	63.7	0.0	1.5	3.9	No	No
04-16	Livermore	SFR	2	2	61.8	60.8	47.9	61.0	0.0	1.7	4.4	No	No
04-17	Livermore	SFR	2	3	57.6	56.9	46.9	57.3	0.0	2.4	5.8	No	No
04-18	Livermore	SFR	2	2	56.5	56	45.9	56.4	0.0	2.6	6.2	No	No
04-19	Livermore	SFR	2	1	65.6	65.5	48.8	65.6	0.0	1.3	3.4	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
04-20	Livermore	SFR	2	1	65.5	64.9	48.6	65.0	0.0	1.3	3.4	No	No
04-21	Livermore	SFR	2	1	63.1	62	48.6	62.2	0.0	1.6	4.1	No	No
04-22	Livermore	SFR	2	2	57.8	57.6	47.7	58.0	0.2	2.4	5.8	No	No
04-23	Livermore	SFR	2	3	56.9	56.8	46.7	57.2	0.3	2.6	6.2	No	No
04-24	Livermore	SFR	2	2	56.5	56.2	45.8	56.6	0.1	2.6	6.2	No	No
04-25	Livermore	SFR	2	1	66.3	65.8	48.3	65.9	0.0	1.3	3.4	No	No
04-26	Livermore	SFR	2	1	64.3	63.7	49	63.8	0.0	1.5	3.9	No	No
04-27	Livermore	SFR	2	2	61.5	60.7	48.4	60.9	0.0	1.7	4.4	No	No
04-28	Livermore	SFR	2	3	60.5	58.4	47.6	58.7	0.0	1.9	4.7	No	No
04-29	Livermore	SFR	2	1	60.5	58.9	46.6	59.1	0.0	1.9	4.7	No	No
04-30	Livermore	SFR	2	1	66.4	66	48.6	66.1	0.0	1.3	3.4	No	No
04-31	Livermore	SFR	2	1	63	62.3	48.9	62.5	0.0	1.6	4.1	No	No
04-32	Livermore	SFR	2	2	57.9	57.9	48.2	58.3	0.4	2.4	5.8	No	No
04-33	Livermore	SFR	2	3	57.2	57.7	47.2	58.1	0.9	2.6	6.2	No	No
04-34	Livermore	SFR	2	4	61.1	60.8	46.2	60.9	0.0	1.9	4.7	No	No
04-35	Livermore	SFR	2	1	66.9	66.4	49.4	66.5	0.0	1.2	3.2	No	No
04-36	Livermore	SFR	2	1	63.3	62.8	48.7	63.0	0.0	1.6	4.1	No	No
04-37	Livermore	SFR	2	1	63.4	62.9	48.3	63.0	0.0	1.6	4.1	No	No
04-38	Livermore	SFR	2	1	62.9	62.5	48.1	62.7	0.0	1.6	4.1	No	No
04-39	Livermore	SFR	2	1	61.5	60.9	47.5	61.1	0.0	1.7	4.4	No	No
04-40	Livermore	SFR	2	1	61.1	60.4	47.1	60.6	0.0	1.9	4.7	No	No
04-41	Livermore	SFR	2	2	59.2	58.9	46.5	59.1	0.0	2.2	5.4	No	No
04-42	Livermore	SFR	2	1	62	61.9	47.8	62.1	0.1	1.7	4.4	No	No
04-43	Livermore	SFR	2	1	63.2	63.1	47.7	63.2	0.0	1.6	4.1	No	No
04-44	Livermore	SFR	2	1	63.4	63.4	47.5	63.5	0.1	1.6	4.1	No	No
04-45	Livermore	SFR	2	1	63.7	63.9	47.5	64.0	0.3	1.5	3.9	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
04-46	Livermore	SFR	2	1	63.9	64.3	47.6	64.4	0.5	1.5	3.9	No	No
04-47	Livermore	SFR	2	1	64.2	64.7	47.6	64.8	0.6	1.5	3.9	No	No
04-48	Livermore	SFR	2	1	63.9	64.8	47.6	64.9	1.0	1.5	3.9	No	No
04-49	Livermore	SFR	2	1	65.2	65	47.5	65.1	0.0	1.4	3.6	No	No
04-50	Livermore	SFR	2	1	62.5	64.8	47.4	64.9	2.4	1.6	4.1	Yes	No
04-51	Livermore	SFR	2	1	62.5	64.8	47.5	64.9	2.4	1.6	4.1	Yes	No
04-52	Livermore	SFR	2	1	62.5	65.1	47.6	65.2	2.7	1.6	4.1	Yes	No
04-53	Livermore	SFR	2	1	61.7	61.8	47.6	62.0	0.3	1.7	4.4	No	No
04-54	Livermore	SFR	2	1	62	61.8	47.3	62.0	0.0	1.7	4.4	No	No
04-55	Livermore	SFR	2	1	62.7	62.7	47.4	62.8	0.1	1.6	4.1	No	No
04-56	Livermore	SFR	2	1	62.8	63.2	47.3	63.3	0.5	1.6	4.1	No	No
04-57	Livermore	SFR	2	1	62.6	63.3	47.2	63.4	0.8	1.6	4.1	No	No
04-58	Livermore	SFR	2	1	62.9	63.5	47.3	63.6	0.7	1.6	4.1	No	No
04-59	Livermore	SFR	2	1	61.2	61.4	47.1	61.6	0.4	1.9	4.7	No	No
04-60	Livermore	SFR	2	1	61.9	64	47.2	64.1	2.2	1.7	4.4	Yes	No
04-63	Alameda County	SFR	2	2	61	60.7	46.9	60.9	0.0	1.9	4.7	No	No
04-65	Alameda County	SFR	2	2	59.7	62	46.9	62.1	2.4	2.0	5.0	Yes	No
04-66	Livermore	SFR	2	1	60	59.4	47	59.6	0.0	2.0	5.0	No	No
04-67	Livermore	SFR	2	1	59.7	60.2	46.7	60.4	0.7	2.0	5.0	No	No
04-68	Livermore	SFR	2	3	56.5	56	46.3	56.4	0.0	2.6	6.2	No	No
04-69	Livermore	SFR	2	3	57.7	57.2	47.3	57.6	0.0	2.4	5.8	No	No
04-70	Livermore	SFR	2	2	60.8	59.2	48.3	59.5	0.0	1.9	4.7	No	No
04-71	Livermore	SFR	2	1	58.7	58.2	46.3	58.5	0.0	2.2	5.4	No	No
07-01	Livermore	Place of Worship	3	1	60.3	60.3	41.5	60.4	0.1	4.6	9.0	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
13-01	Livermore	SFR	2	1	75.2	77.3	50.5	77.3	2.1	0.4	2.2	Yes	No
10-141	Livermore	Hotel	2	1	60.4	63.9	45.7	64.0	3.6	2.0	5.0	Yes	No
10-142	Livermore	School	3	1	61.8	61	47.8	61.2	0.0	4.1	8.2	No	No
02-30	Livermore	SFR	2	1	75.2	76.5	51.5	76.5	1.3	0.4	2.2	Yes	No
02-33	Livermore	SFR	2	1	64.4	65.3	48.9	65.4	1.0	1.5	3.9	No	No
02-34	Livermore	SFR	2	1	65.9	67.4	49.7	67.5	1.6	1.3	3.4	Yes	No
02-35	Livermore	SFR	2	1	54.9	56.5	50.1	57.4	2.5	3.2	7.1	No	No
02-36	Livermore	SFR - Take	2	1	70.3	69.5	54.4	69.6	0.0	1.0	2.8	No	No
01-10	Livermore	MFR	2	2	49.8	51.9	47.9	53.4	3.6	5.0	10.0	No	No
01-13	Livermore	MFR	2	2	50.7	51.9	48.4	53.5	2.8	4.6	9.4	No	No
01-14	Livermore	MFR	2	2	52	53	48.3	54.3	2.3	4.2	8.8	No	No
01-15	Livermore	MFR	2	2	52.3	53.3	48.3	54.5	2.2	4.2	8.8	No	No
01-16	Livermore	MFR	2	2	54.9	57.6	48.2	58.1	3.2	3.2	7.1	Yes	No
01-18	Livermore	MFR	2	2	56	57.5	49	58.1	2.1	2.9	6.6	No	No
01-19	Livermore	MFR	2	2	59.4	60.7	49.5	61.0	1.6	2.2	5.4	No	No
01-20	Livermore	MFR	2	12	57.5	58.6	49.2	59.1	1.6	2.4	5.8	No	No
01-21	Livermore	MFR	2	6	56	56.9	50	57.7	1.7	2.9	6.6	No	No
01-22	Livermore	MFR	2	6	62	60.6	51.1	61.1	0.0	1.7	4.4	No	No
01-23	Livermore	MFR	2	6	61.8	61.3	51.2	61.7	0.0	1.7	4.4	No	No
01-24	Livermore	MFR	2	6	61	61.4	52.7	61.9	0.9	1.9	4.7	No	No
01-25	Livermore	MFR	2	6	62.9	63.7	52.8	64.0	1.1	1.6	4.1	No	No
01-26	Livermore	MFR	2	6	65.7	66	54	66.3	0.6	1.3	3.4	No	No
01-27	Livermore	MFR	2	6	65.6	66.4	54.2	66.7	1.1	1.3	3.4	No	No
01-28	Livermore	MFR	2	12	59.2	57.8	49.4	58.4	0.0	2.2	5.4	No	No
01-29	Livermore	MFR	2	6	59.9	58.7	50.2	59.3	0.0	2.0	5.0	No	No
01-30	Livermore	MFR	2	6	62	60.2	51.4	60.7	0.0	1.7	4.4	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
01-31	Livermore	MFR	2	1	63.8	61.3	52.3	61.8	0.0	1.5	3.9	No	No
01-32	Livermore	SFR	2	1	64	61.7	52.6	62.2	0.0	1.5	3.9	No	No
01-33	Livermore	SFR	2	1	63.9	62.1	52.6	62.6	0.0	1.5	3.9	No	No
01-34	Livermore	SFR	2	1	66	65.2	53.9	65.5	0.0	1.3	3.4	No	No
01-35	Livermore	SFR	2	1	65.6	65.2	53.9	65.5	0.0	1.3	3.4	No	No
01-36	Livermore	SFR	2	1	66.2	65.1	53.7	65.4	0.0	1.3	3.4	No	No
01-37	Livermore	SFR	2	1	65.9	65.4	54.2	65.7	0.0	1.3	3.4	No	No
01-38	Livermore	SFR	2	1	65.9	65.5	54.2	65.8	0.0	1.3	3.4	No	No
01-39	Livermore	SFR	2	2	55.7	54.7	49.7	55.9	0.2	2.9	6.6	No	No
01-40	Livermore	SFR	2	2	55.3	54.2	49.5	55.5	0.2	3.2	7.1	No	No
01-41	Livermore	SFR	2	2	56.8	55.2	50.4	56.4	0.0	2.6	6.2	No	No
01-42	Livermore	SFR	2	2	56.7	54.9	50.2	56.2	0.0	2.6	6.2	No	No
01-43	Livermore	SFR	2	2	59.5	56.3	51.2	57.5	0.0	2.0	5.0	No	No
01-44	Livermore	SFR	2	2	60.1	59.4	51.1	60.0	0.0	2.0	5.0	No	No
01-45	Livermore	SFR	2	1	64.2	61.8	52.6	62.3	0.0	1.5	3.9	No	No
01-46	Livermore	SFR	2	1	63.7	60.7	52.4	61.3	0.0	1.5	3.9	No	No
01-47	Livermore	SFR	2	2	60.8	57.6	51.6	58.6	0.0	1.9	4.7	No	No
01-48	Livermore	SFR	2	2	59.4	56	50.7	57.1	0.0	2.2	5.4	No	No
01-49	Livermore	SFR	2	2	58.1	55.6	50	56.7	0.0	2.4	5.8	No	No
01-50	Livermore	SFR	2	2	56.3	53.9	49.4	55.2	0.0	2.9	6.6	No	No
01-51	Livermore	SFR	2	2	60.2	58.2	50.6	58.9	0.0	2.0	5.0	No	No
01-52	Livermore	SFR	2	2	61	57.8	50.7	58.6	0.0	1.9	4.7	No	No
01-53	Livermore	SFR	2	2	61.4	57.4	50.8	58.3	0.0	1.9	4.7	No	No
01-54	Livermore	SFR	2	2	61.2	57.3	50.9	58.2	0.0	1.9	4.7	No	No
01-55	Livermore	SFR	2	2	59.8	58.3	50.9	59.0	0.0	2.0	5.0	No	No
01-56	Livermore	SFR	2	1	63.5	61.2	52.2	61.7	0.0	1.5	3.9	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA) Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail	Relative Increase	Effect Threshold[4] Moderate	Severe	Noise Effect? Moderate	Severe
01-57	Livermore	SFR	2	1	63.8	62.4	52.5	62.8	0.0	1.5	3.9	No	No
01-58	Livermore	SFR	2	1	64.3	62.6	52.7	63.0	0.0	1.5	3.9	No	No
01-59	Livermore	SFR	2	1	64.1	62.3	52.7	62.8	0.0	1.5	3.9	No	No
01-60	Livermore	SFR	2	1	64.1	62.2	52.7	62.7	0.0	1.5	3.9	No	No
01-61	Livermore	SFR	2	1	64.2	62.9	52.7	63.3	0.0	1.5	3.9	No	No
01-62	Livermore	SFR	2	1	64.3	62.1	52.8	62.6	0.0	1.5	3.9	No	No
01-63	Livermore	SFR	2	1	64.4	62	52.8	62.5	0.0	1.5	3.9	No	No
01-64	Livermore	SFR	2	1	64.5	62	52.9	62.5	0.0	1.4	3.6	No	No
01-65	Livermore	SFR	2	1	64.3	61.9	52.8	62.4	0.0	1.5	3.9	No	No
01-66	Livermore	SFR	2	1	64.4	62	52.8	62.5	0.0	1.5	3.9	No	No
01-67	Livermore	SFR	2	1	57.4	56.8	47.9	57.3	0.0	2.6	6.2	No	No
01-68	Livermore	SFR	2	1	59.3	58.6	49.4	59.1	0.0	2.2	5.4	No	No
01-69	Livermore	SFR	2	1	59.7	59.2	49.8	59.7	0.0	2.0	5.0	No	No
01-70	Livermore	SFR	2	1	64.8	64.8	52.1	65.0	0.2	1.4	3.6	No	No
01-71	Livermore	SFR	2	1	66.4	66.1	53.4	66.3	0.0	1.3	3.4	No	No
01-72	Livermore	SFR	2	1	66.3	65.4	53.5	65.7	0.0	1.3	3.4	No	No
01-73	Livermore	SFR	2	1	66.4	65.8	53.9	66.1	0.0	1.3	3.4	No	No
01-74	Livermore	SFR	2	1	66.2	65.5	54.4	65.8	0.0	1.3	3.4	No	No
01-75	Livermore	SFR	2	1	66	65.2	54	65.5	0.0	1.3	3.4	No	No
01-76	Livermore	SFR	2	1	66.1	65.2	54.2	65.5	0.0	1.3	3.4	No	No
01-77	Livermore	SFR	2	1	66	65.1	53.9	65.4	0.0	1.3	3.4	No	No
01-78	Livermore	SFR	2	1	66	65	53.9	65.3	0.0	1.3	3.4	No	No
01-79	Livermore	SFR	2	1	66	65.1	54.1	65.4	0.0	1.3	3.4	No	No
01-80	Livermore	SFR	2	1	66	65.1	54.1	65.4	0.0	1.3	3.4	No	No
01-81	Livermore	SFR	2	1	65.8	64.8	53	65.1	0.0	1.3	3.4	No	No
01-82	Livermore	SFR	2	1	65.7	64.8	52.4	65.0	0.0	1.3	3.4	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
01-83	Livermore	SFR	2	1	65.5	64.7	50.8	64.9	0.0	1.3	3.4	No	No
01-84	Livermore	SFR	2	1	65.8	64.9	51.4	65.1	0.0	1.3	3.4	No	No
01-85	Livermore	SFR	2	2	57.6	56.9	49.2	57.6	0.0	2.4	5.8	No	No
01-86	Livermore	SFR	2	2	55.8	55.5	49.5	56.5	0.7	2.9	6.6	No	No
01-87	Livermore	SFR	2	2	58.5	57.3	49.7	58.0	0.0	2.2	5.4	No	No
01-88	Livermore	SFR	2	1	61.9	61.6	50.9	62.0	0.1	1.7	4.4	No	No
01-91	Livermore	SFR	2	1	55.7	55.6	48.9	56.4	0.7	2.9	6.6	No	No
01-92	Livermore	SFR	2	1	56.4	56.4	49.2	57.2	0.8	2.9	6.6	No	No
01-93	Livermore	SFR	2	1	57.5	57.4	49.7	58.1	0.6	2.4	5.8	No	No
01-94	Livermore	SFR	2	1	58.4	58.5	50.1	59.1	0.7	2.4	5.8	No	No
01-95	Livermore	SFR	2	1	60.8	59.9	50.6	60.4	0.0	1.9	4.7	No	No
01-96	Livermore	MFR	2	2	55.3	55.5	49	56.4	1.1	3.2	7.1	No	No
01-97	Livermore	MFR	2	2	55.7	55.9	48.7	56.7	1.0	2.9	6.6	No	No
01-98	Livermore	MFR	2	2	55.1	55.4	48.5	56.2	1.1	3.2	7.1	No	No
01-99	Livermore	MFR	2	2	55.2	55.5	48.5	56.3	1.1	3.2	7.1	No	No
01-100	Livermore	MFR	2	1	58.9	57.2	50.2	58.0	0.0	2.2	5.4	No	No
01-102	Livermore	MFR	2	2	56.8	57	49.9	57.8	1.0	2.6	6.2	No	No
01-103	Livermore	MFR	2	2	56.1	56.5	49.5	57.3	1.2	2.9	6.6	No	No
01-104	Livermore	MFR	2	2	56.4	56.7	49.3	57.4	1.0	2.9	6.6	No	No
01-105	Livermore	MFR	2	2	56.1	56.5	49.3	57.3	1.2	2.9	6.6	No	No
01-106	Livermore	MFR	2	2	56.4	56.8	49.4	57.5	1.1	2.9	6.6	No	No
01-107	Livermore	MFR	2	2	56.6	56.8	49.2	57.5	0.9	2.6	6.2	No	No
01-108	Livermore	MFR	2	2	58	58.1	51.4	58.9	0.9	2.4	5.8	No	No
01-109	Livermore	MFR	2	2	58.6	58.8	51	59.5	0.9	2.2	5.4	No	No
01-110	Livermore	MFR	2	2	58.8	59	51.1	59.7	0.9	2.2	5.4	No	No
01-111	Livermore	MFR	2	2	57.8	58.1	50.8	58.8	1.0	2.4	5.8	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
01-112	Livermore	MFR	2	2	57.8	58	50.8	58.8	1.0	2.4	5.8	No	No
01-113	Livermore	MFR	2	2	58.1	58.2	50.5	58.9	0.8	2.4	5.8	No	No
01-114	Livermore	MFR	2	1	63.7	63.3	51.7	63.6	0.0	1.5	3.9	No	No
01-115	Livermore	MFR	2	2	64	63.5	50.5	63.7	0.0	1.5	3.9	No	No
01-116	Livermore	MFR	2	2	63.8	63.5	50.5	63.7	0.0	1.5	3.9	No	No
01-117	Livermore	MFR	2	2	63.5	63.2	50.9	63.4	0.0	1.5	3.9	No	No
01-118	Livermore	MFR	2	2	63.5	63.1	51.1	63.4	0.0	1.5	3.9	No	No
01-119	Livermore	MFR	2	2	62.8	62.4	51.6	62.7	0.0	1.6	4.1	No	No
01-120	Livermore	MFR	2	2	56.7	56.6	48.3	57.2	0.5	2.6	6.2	No	No
01-121	Livermore	MFR	2	1	58	58.1	49.1	58.6	0.6	2.4	5.8	No	No
01-122	Livermore	MFR	2	2	58.6	58.5	49.6	59.0	0.4	2.2	5.4	No	No
01-123	Livermore	MFR	2	2	59.5	59.2	50.5	59.7	0.2	2.0	5.0	No	No
01-124	Livermore	MFR	2	2	60.7	60.5	51.5	61.0	0.3	1.9	4.7	No	No
01-125	Livermore	MFR	2	2	63.3	62.9	52.8	63.3	0.0	1.6	4.1	No	No
01-127	Livermore	MFR	2	2	57.7	57.9	48.7	58.4	0.7	2.4	5.8	No	No
01-128	Livermore	MFR	2	1	58.3	58.3	49.4	58.8	0.5	2.4	5.8	No	No
01-129	Livermore	MFR	2	1	58.6	58.6	49.7	59.1	0.5	2.2	5.4	No	No
01-130	Livermore	MFR	2	1	58.9	58.8	50.2	59.4	0.5	2.2	5.4	No	No
01-131	Livermore	MFR	2	1	59.1	59	51	59.6	0.5	2.2	5.4	No	No
01-132	Livermore	MFR	2	1	58.5	58.6	51.7	59.4	0.9	2.2	5.4	No	No
01-133	Livermore	MFR	2	1	64.2	63.9	52.9	64.2	0.0	1.5	3.9	No	No
01-134	Livermore	MFR	2	1	65.7	65	53.5	65.3	0.0	1.3	3.4	No	No
01-135	Livermore	MFR	2	2	56.4	56.6	48	57.2	0.8	2.9	6.6	No	No
01-136	Livermore	SFR	2	2	57.3	57.4	48.4	57.9	0.6	2.6	6.2	No	No
01-137	Livermore	SFR	2	2	58	58.1	49.1	58.6	0.6	2.4	5.8	No	No
01-138	Livermore	SFR	2	1	58.4	58.4	50	59.0	0.6	2.4	5.8	No	No

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					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
01-139	Livermore	SFR	2	1	59	59	50.5	59.6	0.6	2.2	5.4	No	No
01-140	Livermore	SFR	2	1	60	60	51.1	60.5	0.5	2.0	5.0	No	No
01-141	Livermore	SFR	2	1	61.8	61.6	51.8	62.0	0.2	1.7	4.4	No	No
01-142	Livermore	SFR	2	1	63.1	62.7	52.4	63.1	0.0	1.6	4.1	No	No
01-143	Livermore	SFR	2	1	65.3	64.9	53.4	65.2	0.0	1.4	3.6	No	No
01-145	Livermore	SFR	2	2	57	57.2	48.2	57.7	0.7	2.6	6.2	No	No
01-146	Livermore	SFR	2	2	57.5	57.7	48.9	58.2	0.7	2.4	5.8	No	No
01-147	Livermore	SFR	2	1	58.1	58.2	49.8	58.8	0.7	2.4	5.8	No	No
01-148	Livermore	SFR	2	1	58.7	58.8	50.3	59.4	0.7	2.2	5.4	No	No
01-149	Livermore	SFR	2	1	59.5	59.5	51.1	60.1	0.6	2.0	5.0	No	No
01-150	Livermore	SFR	2	1	61	60.8	51.9	61.3	0.3	1.9	4.7	No	No
01-151	Livermore	SFR	2	1	65.6	65.2	53.2	65.5	0.0	1.3	3.4	No	No
01-153	Livermore	SFR	2	1	61	61	47.8	61.2	0.2	1.9	4.7	No	No
01-154	Livermore	SFR	2	2	56.9	57.1	47.7	57.6	0.7	2.6	6.2	No	No
01-155	Livermore	SFR	2	1	60.4	60	48.9	60.3	0.0	2.0	5.0	No	No
01-156	Livermore	SFR	2	1	57.5	57.8	48.8	58.3	0.8	2.4	5.8	No	No
01-157	Livermore	SFR	2	1	58.1	58.3	48.8	58.8	0.7	2.4	5.8	No	No
01-158	Livermore	SFR	2	1	63.7	63.3	50.6	63.5	0.0	1.5	3.9	No	No
01-159	Livermore	SFR	2	1	65.7	65.4	51.7	65.6	0.0	1.3	3.4	No	No
01-160	Livermore	SFR	2	1	65.7	65.3	51.9	65.5	0.0	1.3	3.4	No	No
01-161	Livermore	SFR	2	1	65.4	65.1	52.1	65.3	0.0	1.4	3.6	No	No
01-164	Livermore	SFR	2	1	58.2	58.3	47.1	58.6	0.4	2.4	5.8	No	No
01-165	Livermore	SFR	2	1	59.5	59.6	47.9	59.9	0.4	2.0	5.0	No	No
01-166	Livermore	SFR	2	1	63.2	62.8	49.3	63.0	0.0	1.6	4.1	No	No
01-167	Livermore	SFR	2	1	59.5	59.6	48.8	59.9	0.4	2.0	5.0	No	No
01-168	Livermore	SFR	2	1	65.9	65.4	50.9	65.6	0.0	1.3	3.4	No	No

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01-171	Livermore	SFR	2	1	57.9	57.2	46.6	57.6	0.0	2.4	5.8	No	No
01-172	Livermore	SFR	2	1	59.9	59.3	47.1	59.6	0.0	2.0	5.0	No	No
01-173	Livermore	SFR	2	1	61.3	61	48.2	61.2	0.0	1.9	4.7	No	No
01-174	Livermore	SFR	2	1	65.9	65.4	50.4	65.5	0.0	1.3	3.4	No	No
01-226	Livermore	SFR	2	2	60.6	58.5	49.9	59.1	0.0	1.9	4.7	No	No
01-227	Livermore	SFR	2	2	62	58.6	50.1	59.2	0.0	1.7	4.4	No	No
01-228	Livermore	SFR	2	2	64.4	58.6	50.3	59.2	0.0	1.5	3.9	No	No
01-229	Livermore	MFR	2	2	60	59.8	49.2	60.2	0.2	2.0	5.0	No	No
01-230	Livermore	MFR	2	2	59.2	59.8	49.2	60.2	1.0	2.2	5.4	No	No
01-231	Livermore	MFR	2	2	58.8	59.4	49.1	59.8	1.0	2.2	5.4	No	No
01-232	Livermore	MFR	2	2	58.4	59.7	49	60.1	1.7	2.4	5.8	No	No
01-233	Livermore	MFR	2	2	57.6	59.8	48.9	60.1	2.5	2.4	5.8	Yes	No
01-234	Livermore	MFR	2	2	57.7	60.1	48.8	60.4	2.7	2.4	5.8	Yes	No
10-139	Livermore	Hotel	2	1	69	69.8	51.9	69.9	0.9	1.1	2.9	No	No
02-01	Livermore	Place of Worship	2	1	72.6	69.7	49.6	69.7	0.0	0.6	2.4	No	No
02-02	Livermore	SFR	2	2	67.5	63.5	47	63.6	0.0	1.2	3.1	No	No
02-03	Livermore	SFR	2	1	66.5	62.3	47	62.4	0.0	1.2	3.2	No	No
02-04	Livermore	SFR	2	1	65.3	60.7	47	60.9	0.0	1.4	3.6	No	No
02-05	Livermore	SFR	2	2	67.9	63.2	47.6	63.3	0.0	1.2	3.1	No	No
02-06	Livermore	SFR	2	1	67.5	62.5	47.7	62.6	0.0	1.2	3.1	No	No
02-07	Livermore	SFR	2	2	66.7	63.1	47.5	63.2	0.0	1.2	3.2	No	No
02-08	Livermore	SFR	2	2	66.6	61.5	47.6	61.7	0.0	1.2	3.2	No	No
02-09	Livermore	SFR	2	2	68.6	63.2	48.2	63.3	0.0	1.1	2.9	No	No
02-10	Livermore	SFR	2	2	68.2	65.3	48	65.4	0.0	1.2	3.1	No	No
02-11	Livermore	SFR	2	2	67.2	64.7	48	64.8	0.0	1.2	3.2	No	No
02-12	Livermore	SFR	2	1	67.1	63.1	48	63.2	0.0	1.2	3.2	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
02-13	Livermore	SFR	2	2	70	63.2	49	63.4	0.0	1.0	2.8	No	No
02-14	Livermore	SFR	2	2	65.2	60.9	49	61.2	0.0	1.4	3.6	No	No
02-15	Livermore	SFR	2	2	64.5	60.3	49.1	60.6	0.0	1.4	3.6	No	No
02-16	Livermore	SFR	2	2	71.7	64.7	49.9	64.8	0.0	0.8	2.5	No	No
02-17	Livermore	SFR	2	2	70.1	66.7	50.2	66.8	0.0	1.0	2.8	No	No
02-18	Livermore	SFR	2	2	70.2	67.5	50	67.6	0.0	1.0	2.8	No	No
02-19	Livermore	SFR	2	1	72.3	68.3	50	68.4	0.0	0.8	2.5	No	No
02-20	Livermore	SFR	2	1	69.7	64.8	51.3	65.0	0.0	1.0	2.8	No	No
02-21	Livermore	SFR	2	1	72.5	67.6	51	67.7	0.0	0.6	2.4	No	No
02-22	Livermore	SFR	2	1	68.4	65.7	51.7	65.9	0.0	1.2	3.1	No	No
02-23	Livermore	SFR	2	1	72.7	67.9	51.6	68.0	0.0	0.6	2.4	No	No
02-24	Livermore	SFR	2	1	66.8	62.9	51.5	63.2	0.0	1.2	3.2	No	No
02-25	Livermore	SFR	2	1	69.2	63.9	51.6	64.1	0.0	1.1	2.9	No	No
02-26	Livermore	SFR	2	1	69.6	65.1	52.1	65.3	0.0	1.0	2.8	No	No
02-27	Livermore	SFR	2	1	66.6	62.4	52.3	62.8	0.0	1.2	3.2	No	No
02-28	Livermore	SFR	2	1	74.7	72.6	50.6	72.6	0.0	0.4	2.2	No	No
02-29	Livermore	SFR	2	1	64.4	65.3	47.5	65.4	1.0	1.5	3.9	No	No
02-31	Livermore	Restaurant	3	1	70.1	69.4	50.5	69.5	0.0	2.7	5.8	No	No
02-32	Livermore	Restaurant	3	1	64.7	65.6	48.4	65.7	1.0	3.4	7.1	No	No
01-199	Livermore	SFR	2	1	57.9	59.6	45.8	59.8	1.9	2.4	5.8	No	No
01-200	Livermore	SFR	2	1	64.5	65.7	46.3	65.7	1.2	1.4	3.6	No	No
01-201	Livermore	SFR	2	1	57.3	56.9	46.7	57.3	0.0	2.6	6.2	No	No
01-203	Livermore	SFR	2	1	54.2	53.8	46.7	54.6	0.4	3.5	7.6	No	No
01-204	Livermore	SFR	2	1	63.4	63.1	48	63.2	0.0	1.6	4.1	No	No
01-205	Livermore	SFR	2	1	62.9	62.5	47.8	62.6	0.0	1.6	4.1	No	No
01-206	Livermore	SFR	2	1	62.7	62.4	47.5	62.5	0.0	1.6	4.1	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
01-207	Livermore	SFR	2	1	61.8	61.8	47	61.9	0.1	1.7	4.4	No	No
01-209	Livermore	SFR	2	1	58.4	58.5	46.8	58.8	0.4	2.4	5.8	No	No
01-210	Livermore	SFR	2	1	58.9	58.6	47.1	58.9	0.0	2.2	5.4	No	No
01-211	Livermore	SFR	2	1	58.7	58.8	47.5	59.1	0.4	2.2	5.4	No	No
01-212	Livermore	SFR	2	1	59.1	59.1	47.8	59.4	0.3	2.2	5.4	No	No
01-213	Livermore	SFR	2	1	58.6	58.5	48.3	58.9	0.3	2.2	5.4	No	No
01-214	Livermore	SFR	2	1	59.1	58.8	48.7	59.2	0.1	2.2	5.4	No	No
01-215	Livermore	SFR	2	1	61.8	61.9	49.4	62.1	0.3	1.7	4.4	No	No
01-216	Livermore	SFR	2	1	61.2	61	50.2	61.4	0.1	1.9	4.7	No	No
01-217	Livermore	SFR	2	1	59.8	59.9	50	60.3	0.5	2.0	5.0	No	No
01-218	Livermore	SFR	2	1	60.9	60.8	49.3	61.1	0.2	1.9	4.7	No	No
01-219	Livermore	SFR	2	1	59.6	59.3	49.2	59.7	0.1	2.0	5.0	No	No
01-220	Livermore	SFR	2	1	59.2	58.8	48.8	59.2	0.0	2.2	5.4	No	No
01-221	Livermore	SFR	2	1	61	59.4	48.2	59.7	0.0	1.9	4.7	No	No
01-222	Livermore	SFR	2	1	60.5	58.5	47.8	58.9	0.0	1.9	4.7	No	No
01-223	Livermore	SFR	2	1	62.6	58.2	47.4	58.5	0.0	1.6	4.1	No	No
01-224	Livermore	SFR	2	1	60.3	57.7	47	58.1	0.0	2.0	5.0	No	No
01-225	Livermore	SFR	2	1	59.6	57.7	46.6	58.0	0.0	2.0	5.0	No	No
01-235	Livermore	Recreation	3	1	68.4	69.4	49.3	69.4	1.0	3.0	6.3	No	No
R-LT-10	Alameda County	Commercial	3	1	74.1	74.1	50.8	74.1	0.0	1.5	5.1	No	No
R-LT-11	Alameda County	Residential	2	1	62.4	62.4	45.9	62.5	0.1	1.7	4.4	No	No
R-LT-12	Alameda County	Residential	2	1	66.2	66.2	48.9	66.3	0.1	1.3	3.4	No	No

Receiver I.D. (From West to East)	Municipality	Land Use	FTA Land Use Cat.	Number of Representative Dwelling Units	Sound Level (Ldn, dBA)				Relative Increase	Effect Threshold[4]		Noise Effect?	
					Existing Condition[1]	Future Traffic Condition[2]	Future Rail Condition[3]	Future Traffic + Rail		Moderate	Severe	Moderate	Severe
R-LT-13	San Joaquin County	Residential	2	1	67.7	67.7	49.9	67.8	0.1	1.2	3.1	No	No
R-LT-14	San Joaquin County	Residential	2	1	63.4	63.4	44.9	63.5	0.1	1.6	4.1	No	No
R-LT-15	San Joaquin County	Residential	2	1	62.1	62.1	47.7	62.3	0.2	1.7	4.4	No	No

[1] Existing condition sound levels in the Tri-Valley Segment are based on the existing traffic noise modeling results presented in the Valley Link Rail Project Noise Study Report (AECOM 2024b). Existing condition sound levels in the Altamont Segment are based on the measured long-term noise monitoring data.

[2] Future traffic condition sound levels in the Tri-Valley Segment are based on the future traffic noise modeling results presented in the Valley Link Rail Project Noise Study Report (AECOM 2024b). Future traffic condition sound levels in the Altamont Segment are based on the measured long-term noise monitoring data (matching the existing condition).

[3] Future rail condition sound levels in the Tri-Valley Segment are modeled using the same methodology detailed in the Valley Link Rail Project FTA Noise and Vibration Technical Report (AECOM 2024a). Future rail condition sound levels in the Altamont Segment are based directly on the rail noise modeling results presented in the Valley Link Rail Project FTA Noise and Vibration Technical Report (AECOM 2024a).

[4] Effect thresholds are based on cumulative noise increase criteria prescribed in Figures 4-3 and 4-4 of the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2018).

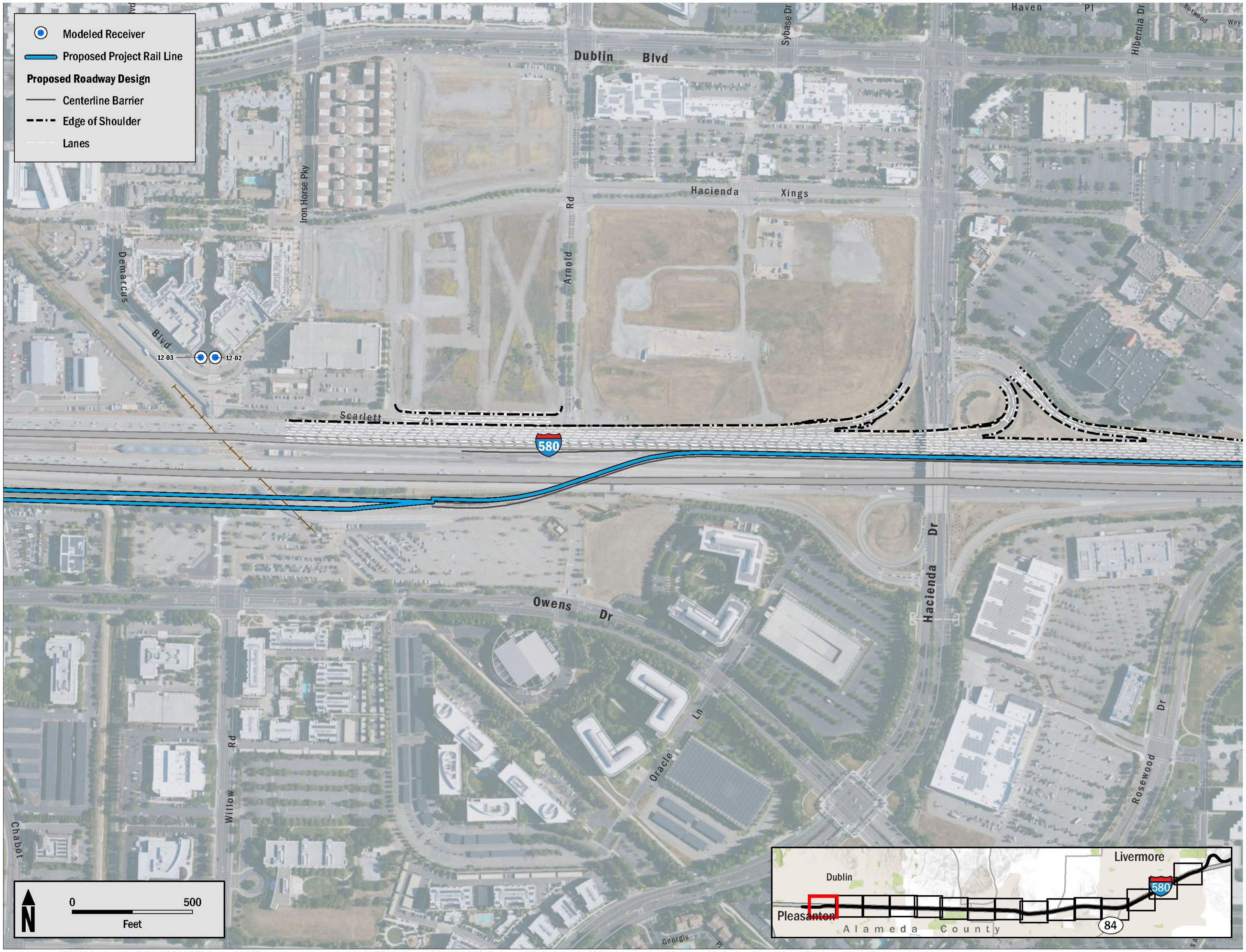

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Figure G3.13-1: Noise Receiver Locations (1 of 16)

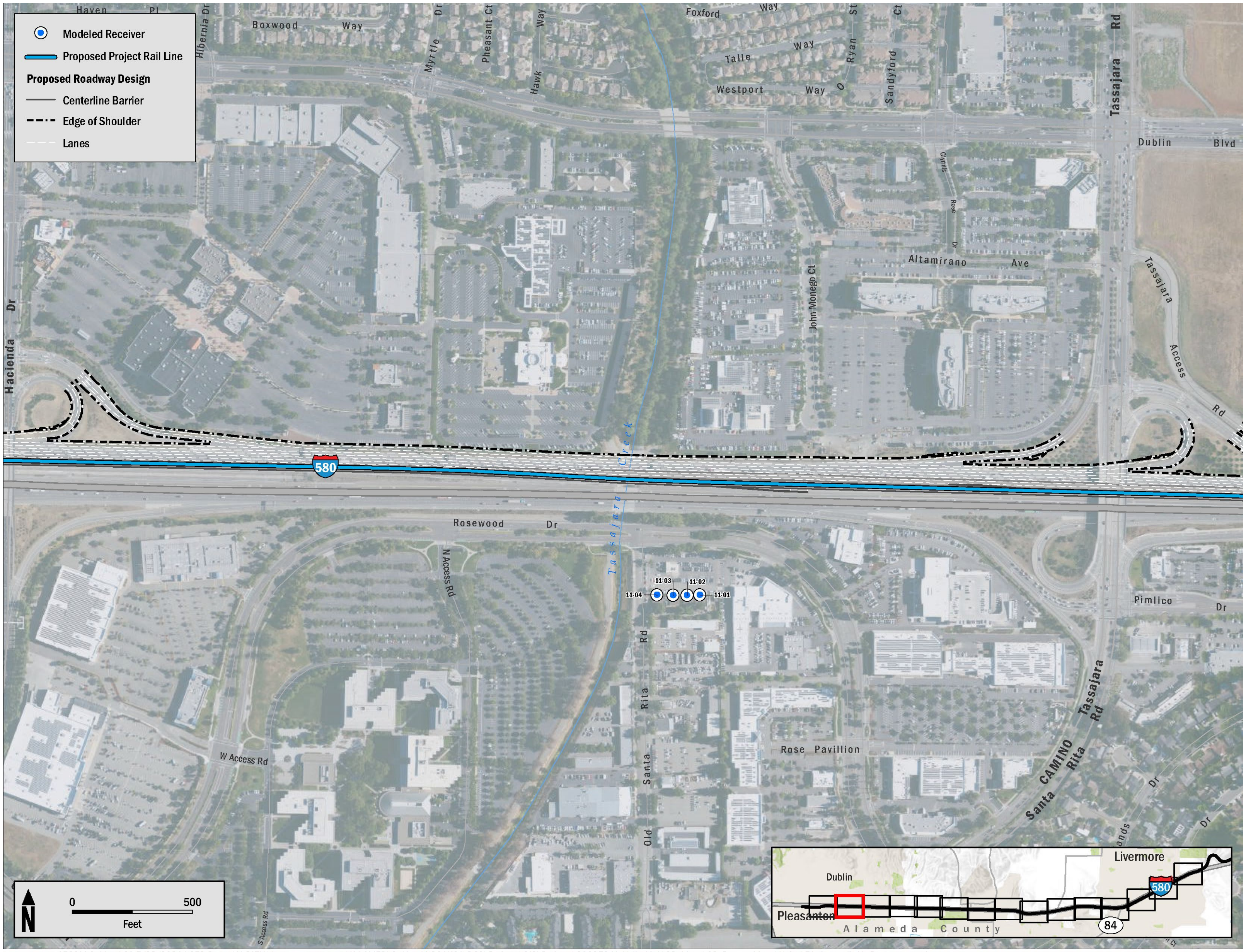

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Figure G3.13-2: Noise Receiver Locations (2 of 16)

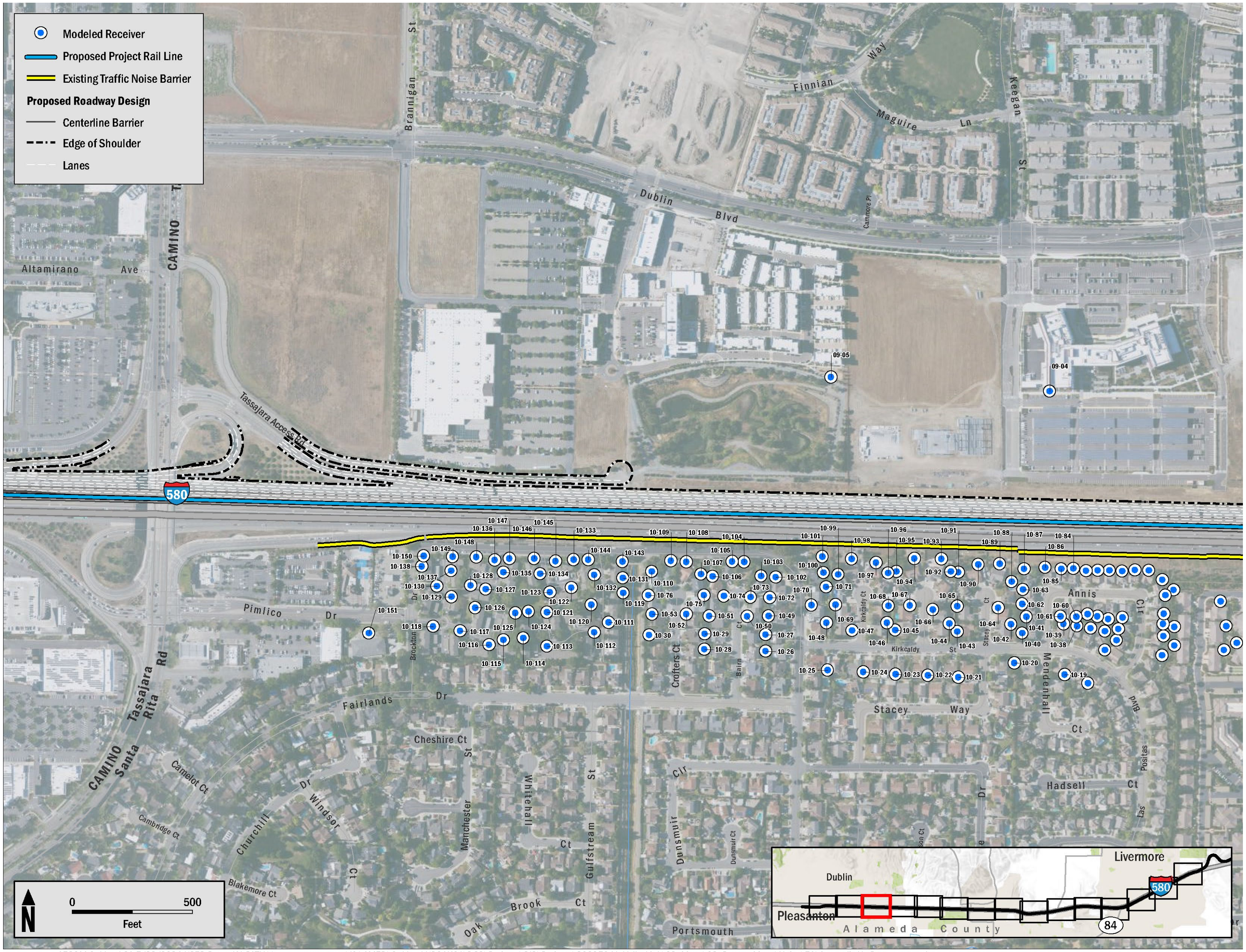

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Figure G3.13-3: Noise Receiver Locations (3 of 16)

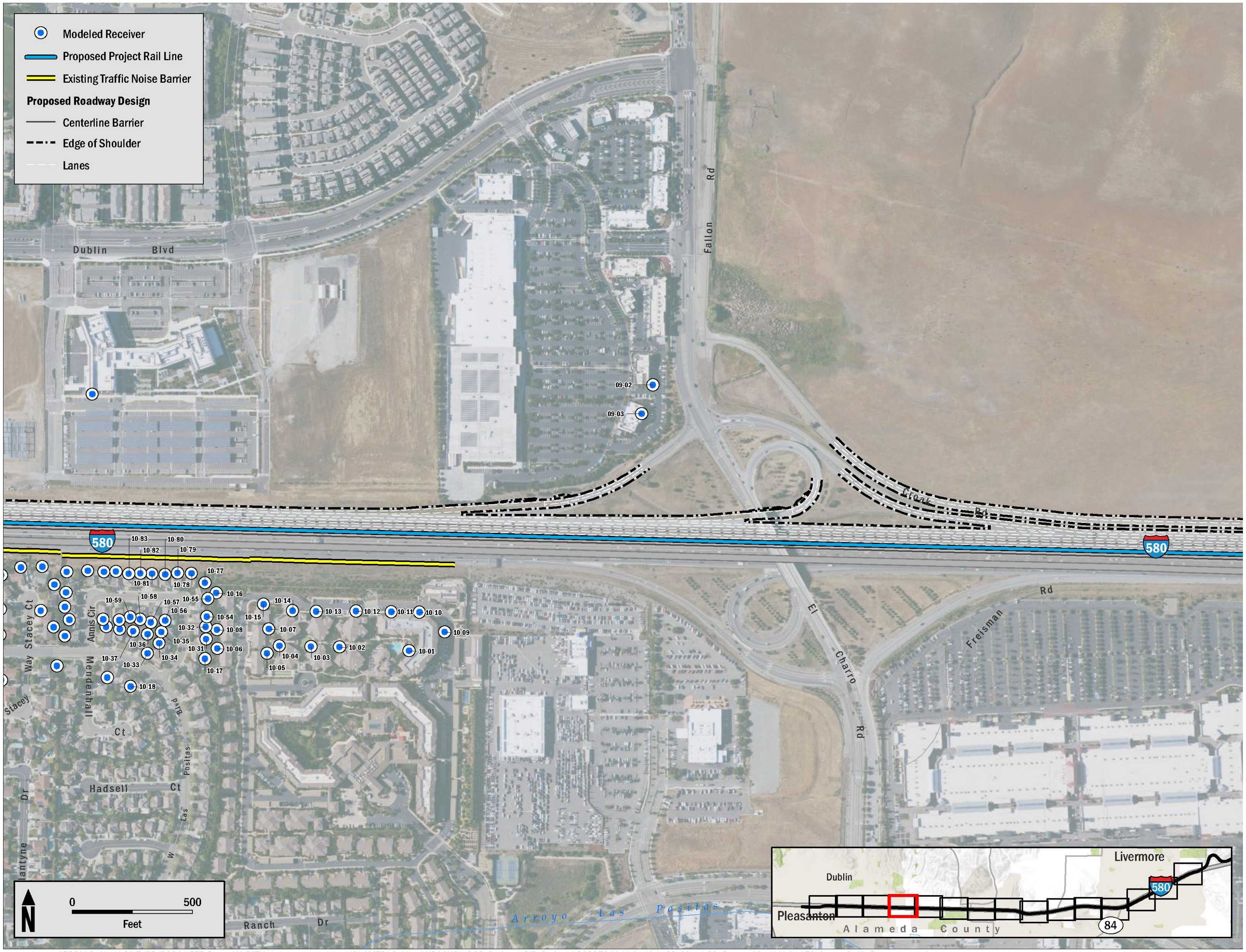

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Figure G3.13-4: Noise Receiver Locations (4 of 16)

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Figure G3.13-5: Noise Receiver Locations (5 of 16)

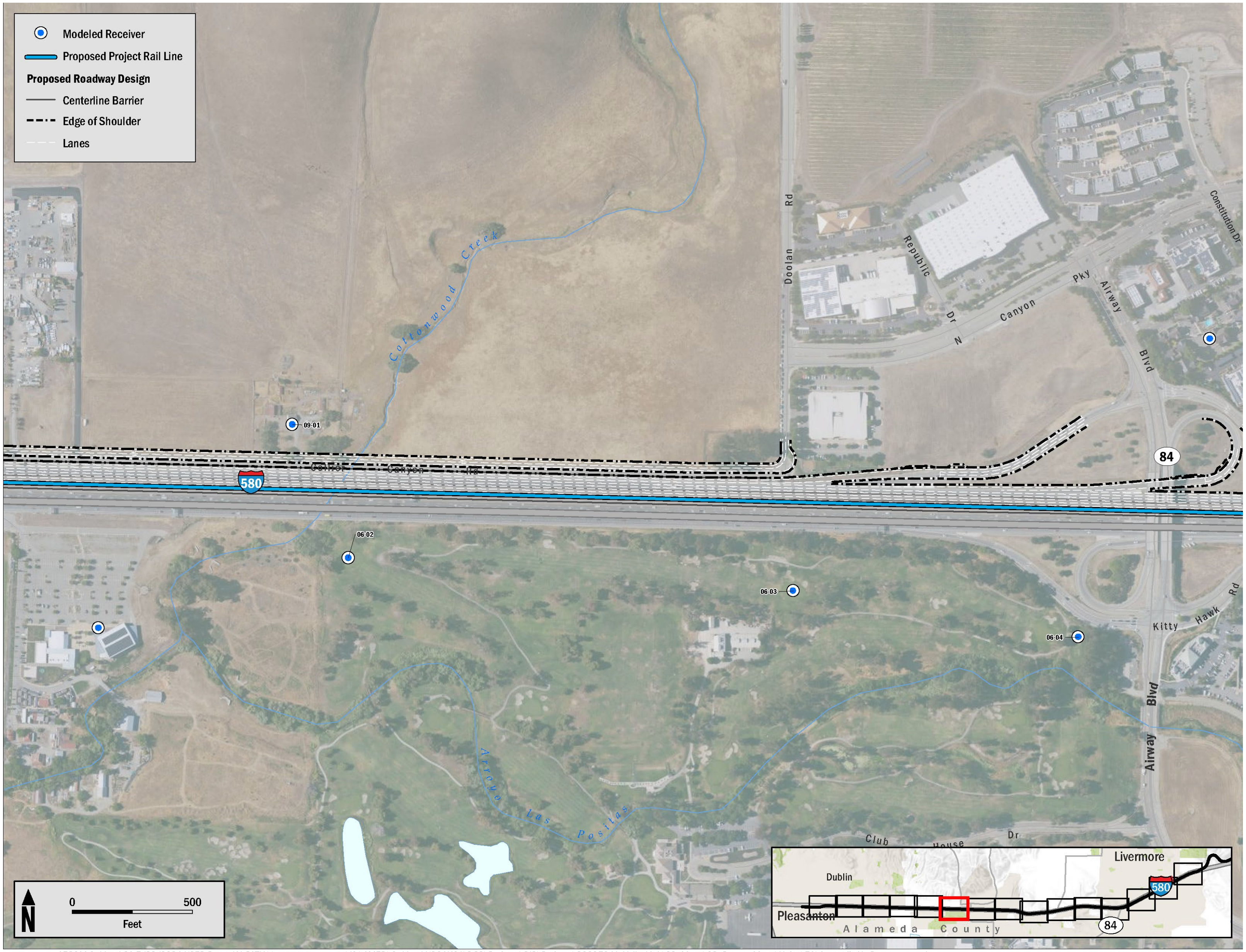

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Figure G3.13-6: Noise Receiver Locations (6 of 16)

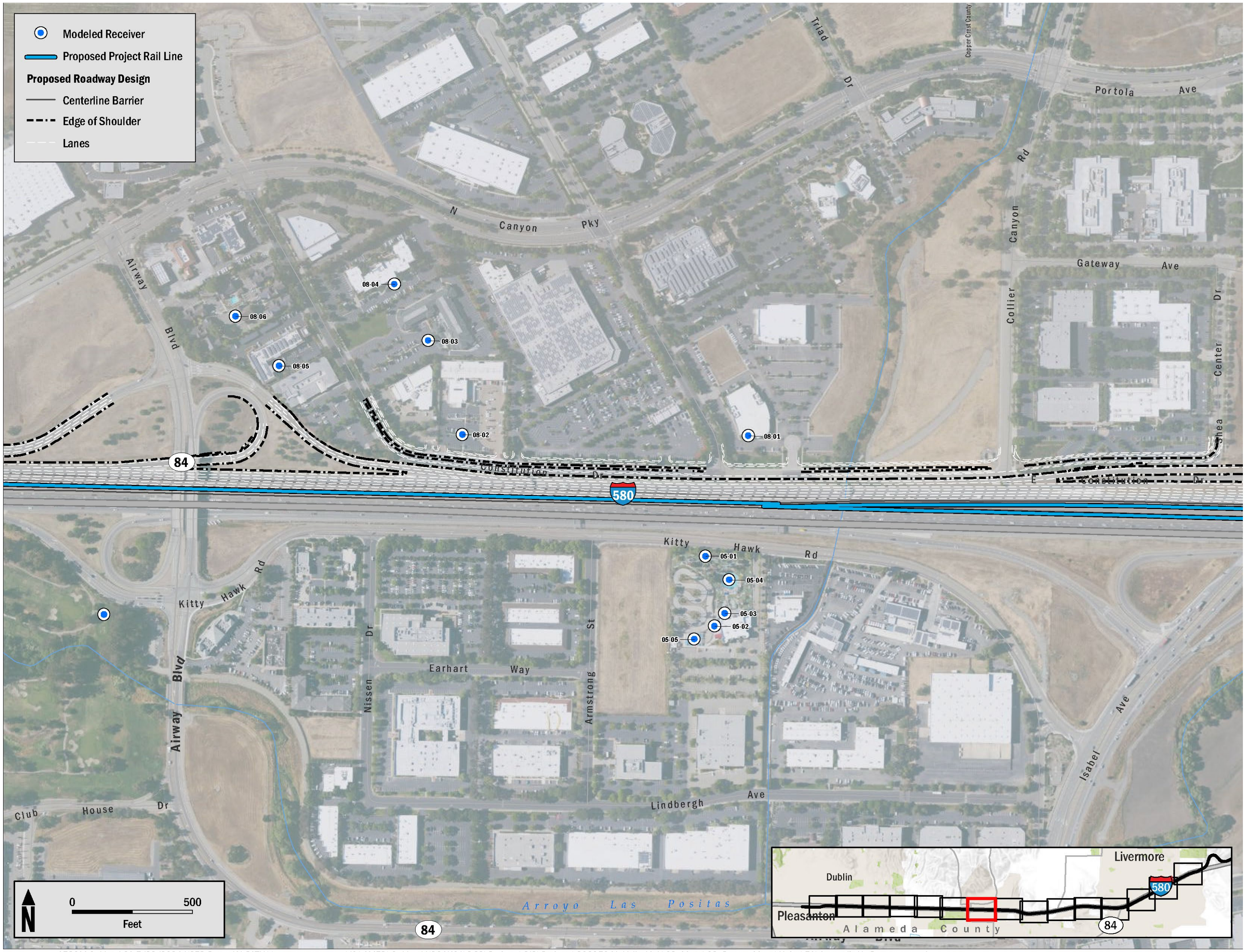

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Figure G3.13-7: Noise Receiver Locations (7 of 16)

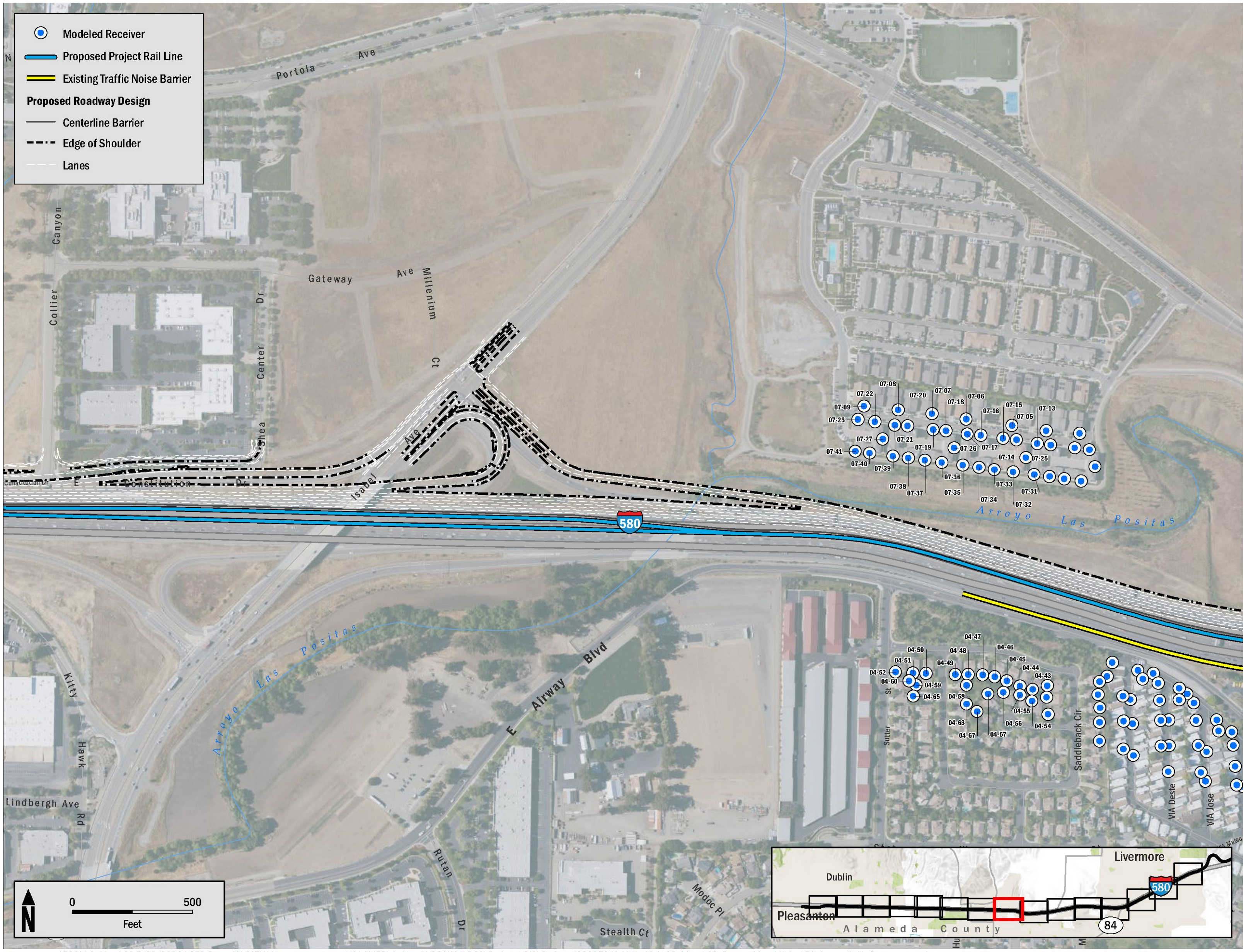

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Figure G3.13-8: Noise Receiver Locations (8 of 16)

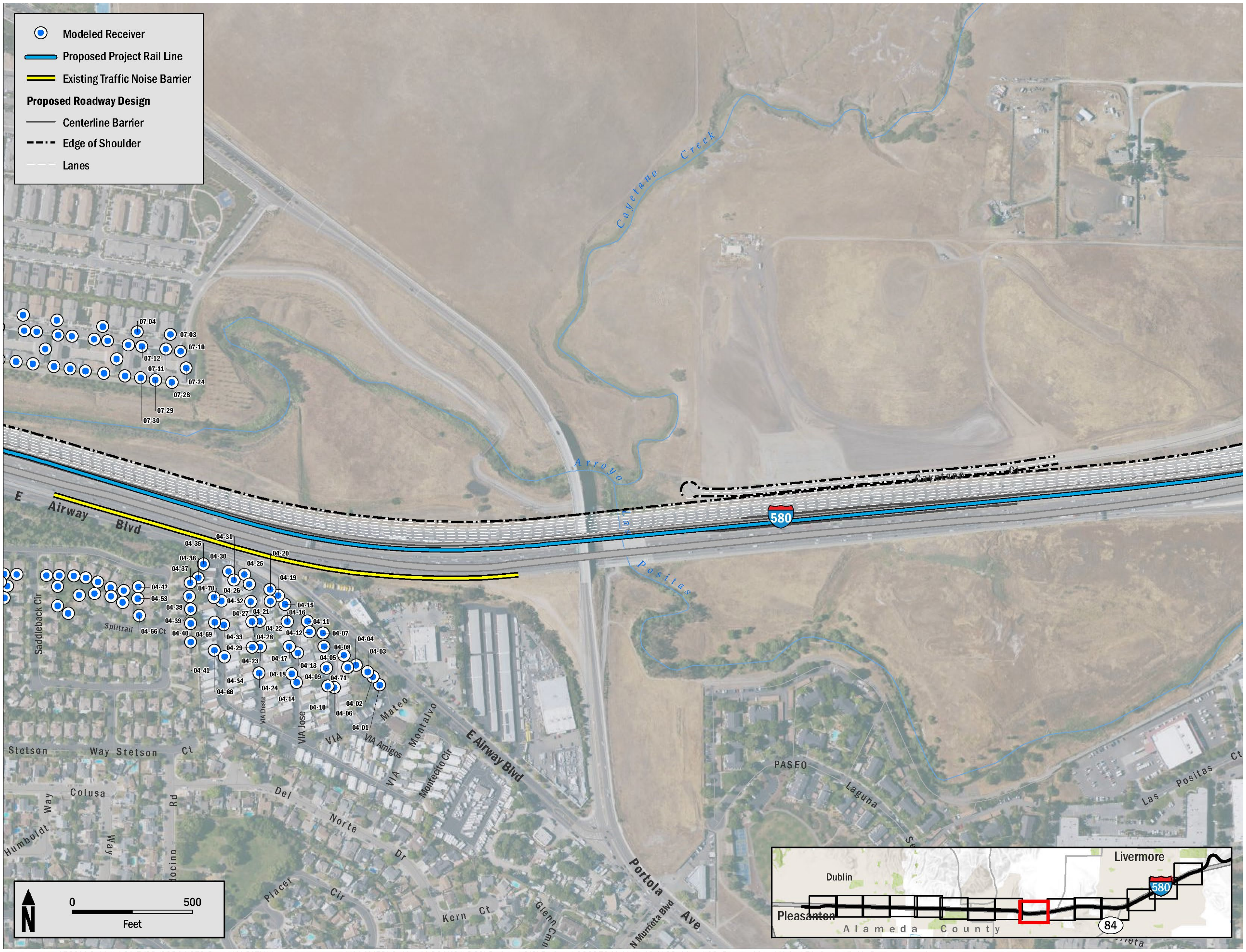

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Figure G3.13-9: Noise Receiver Locations (9 of 16)

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Figure G3.13-10: Noise Receiver Locations (10 of 16)

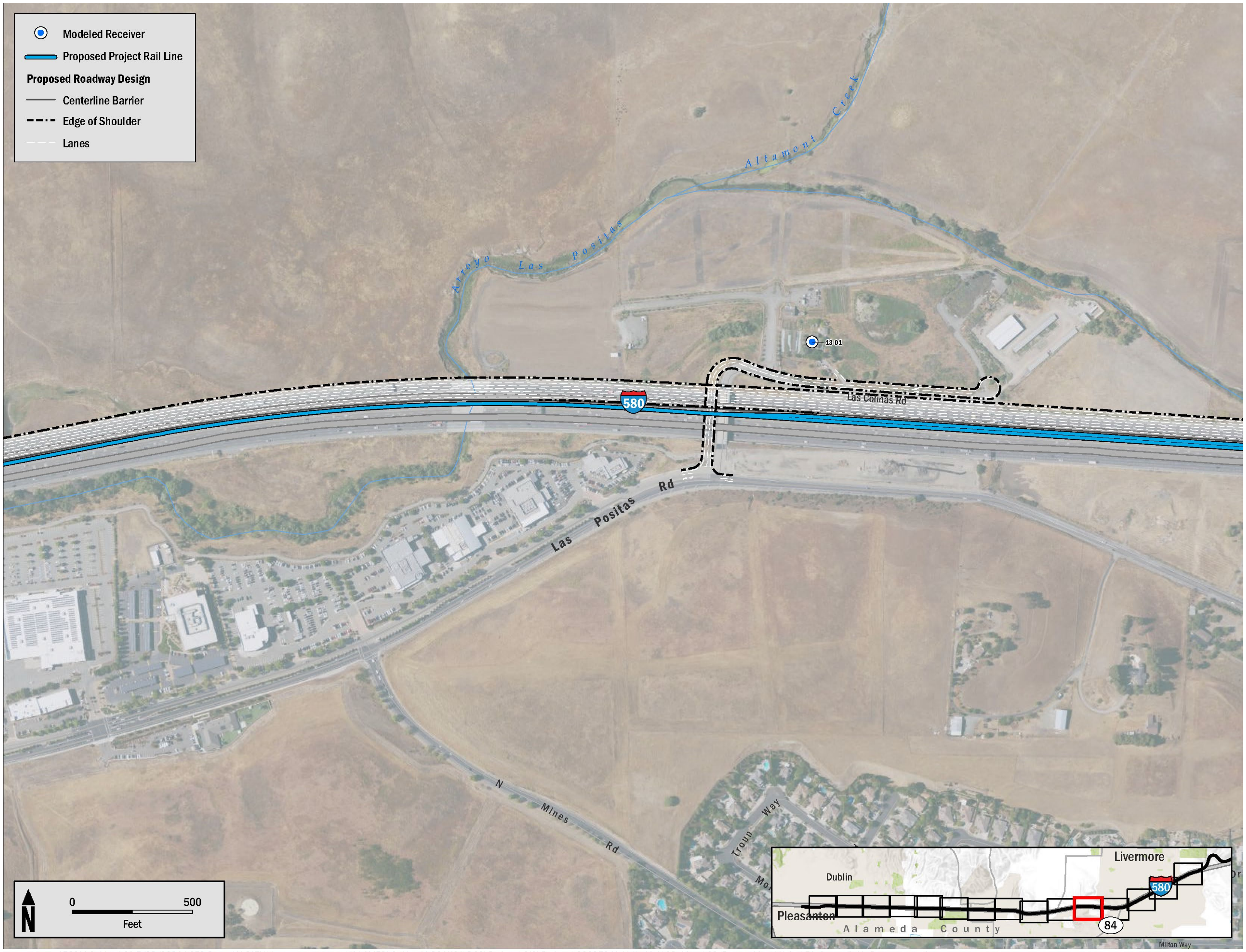

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Figure G3.13-11: Noise Receiver Locations (11 of 16)

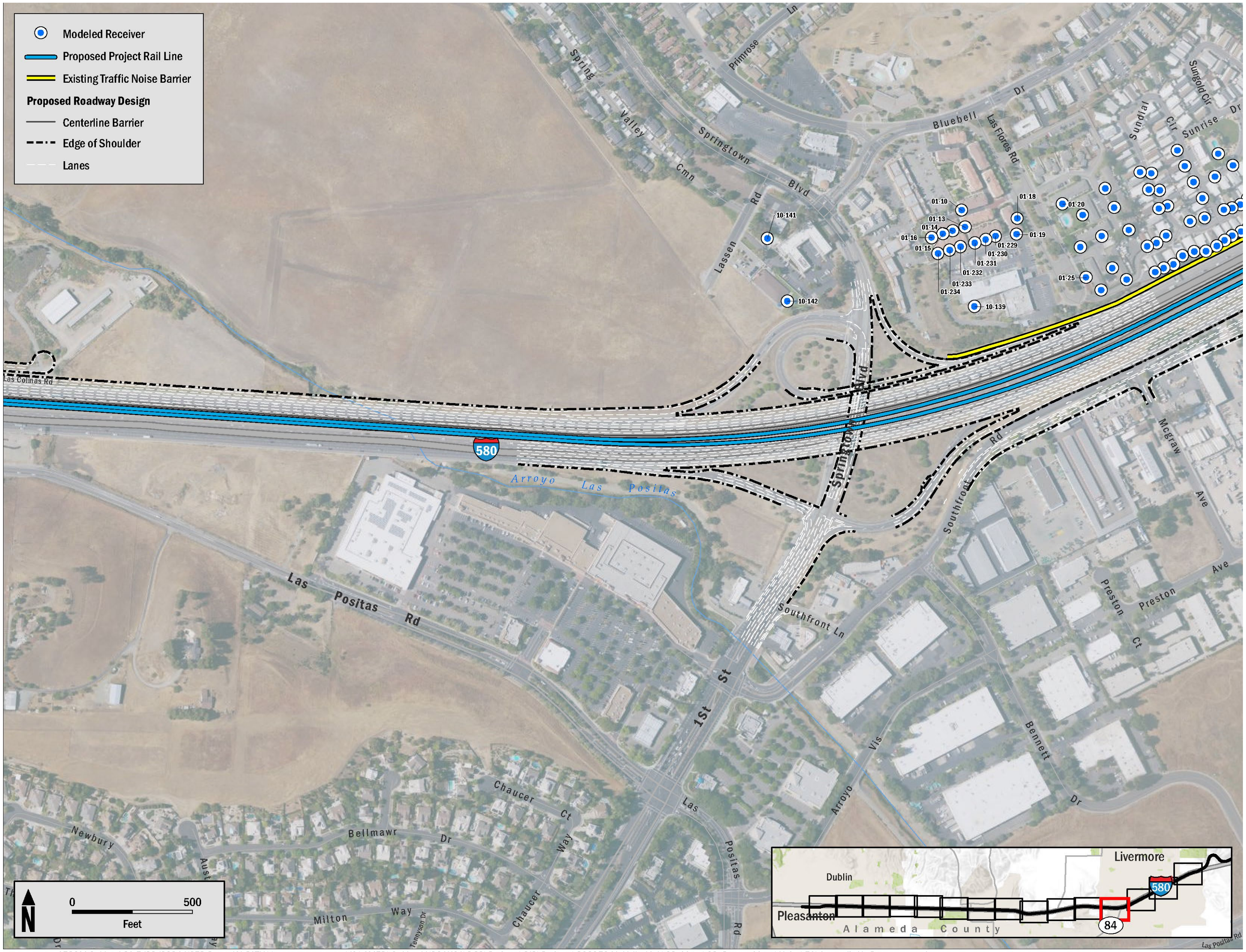

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Figure G3.13-12: Noise Receiver Locations (12 of 16)

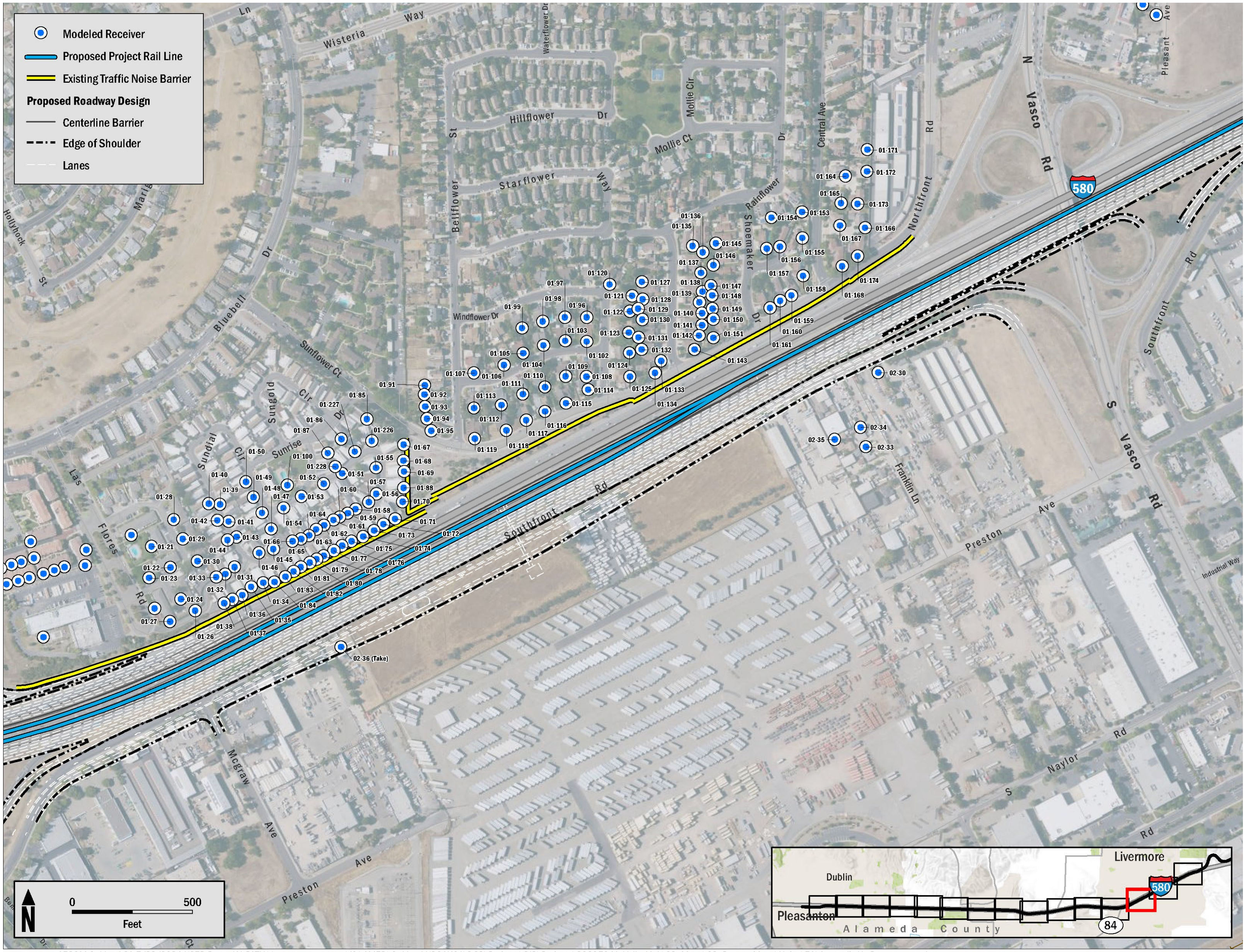

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Figure G3.13-13: Noise Receiver Locations (13 of 16)

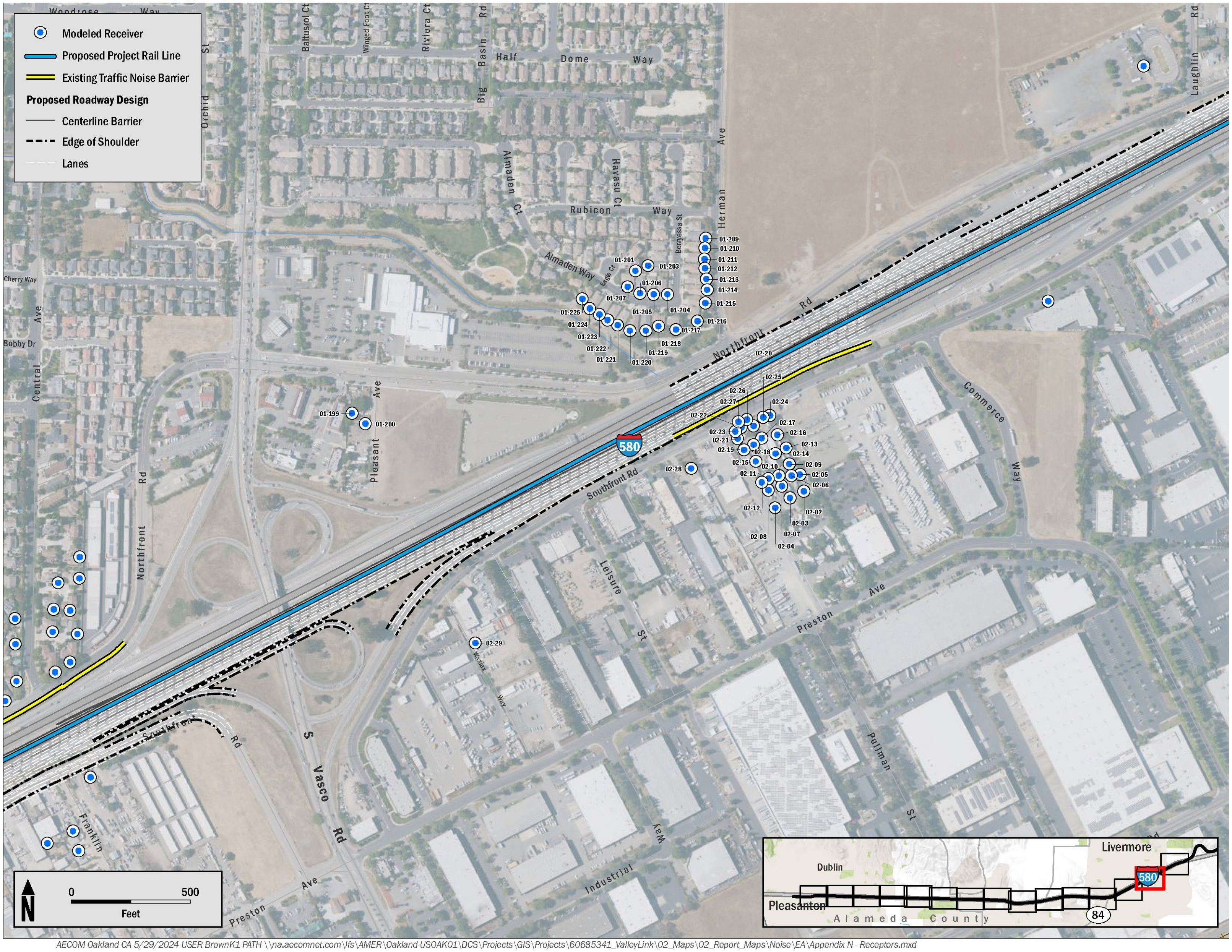

Figure G3.13-14: Noise Receiver Locations (14 of 16)

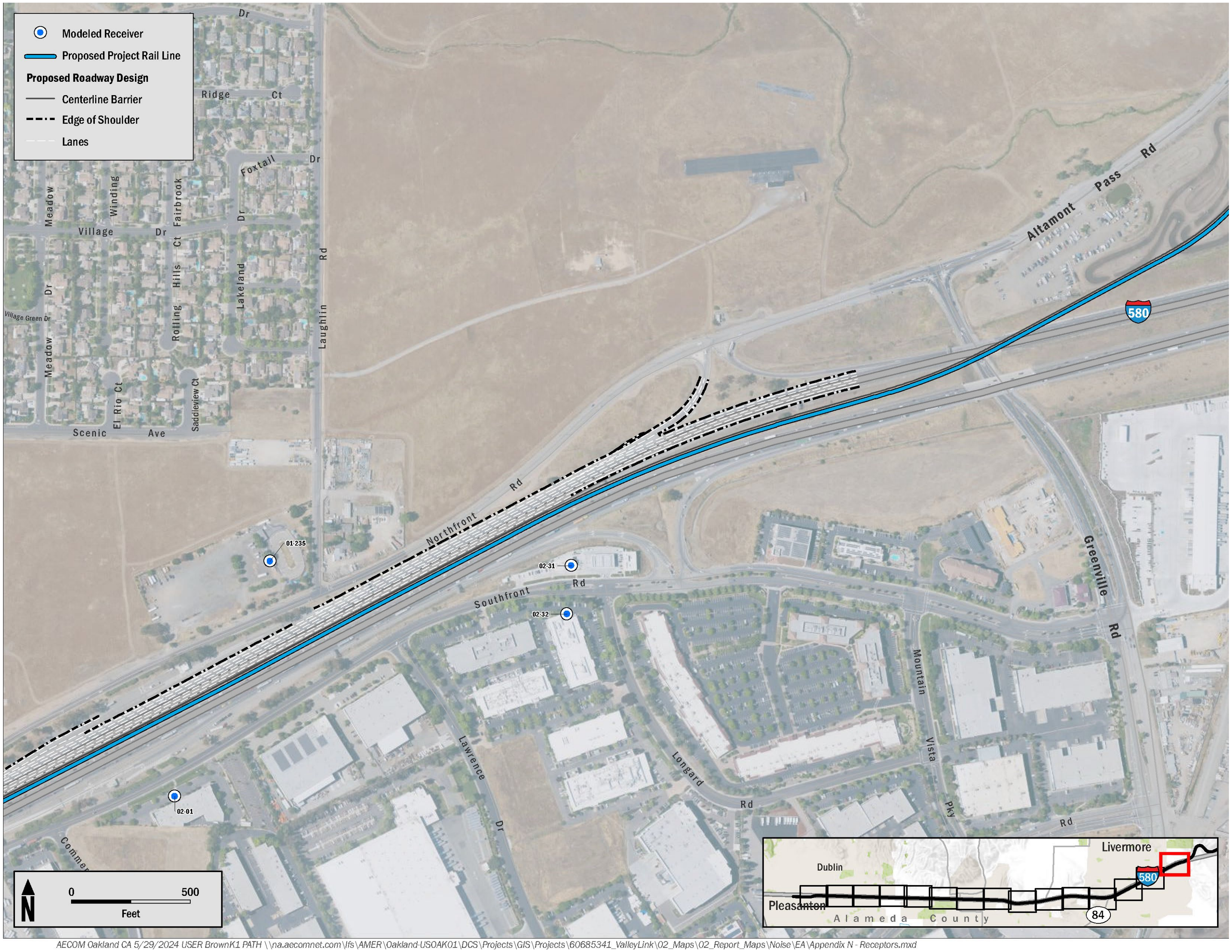

Figure G3.13-15: Noise Receiver Locations (15 of 16)

AECOM Oakland CA 5/29/2024 USER BrownK1 PATH \\na.aecomnet.com\lfs\AMER\Oakland-USOAK01\DCS\Projects\GIS\Projects\60685341_ValleyLink\02_Maps\02_Report_Maps\Noise\EA\Appendix N - Receptors.mxd

Figure G3.13-16: Noise Receiver Locations (16 of 16)

Valley Link Rail Project

FTA Noise and Vibration Technical Report

Alameda and San Joaquin Counties

Dublin/Pleasanton to Mountain House, California

Valley Link

Connecting People, Housing, and Jobs

Prepared for:

Tri-Valley—San Joaquin Valley Regional Rail Authority
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Prepared by:

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300 Lakeside Drive, Suite 400
Oakland, California 94612

AECOM Project No. 60685341—Valley Link Add5-Environmental

July 2024

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Acronyms and Abbreviations

ANSI	American National Standards Institute
BART	Bay Area Rapid Transit
dB	decibel
dBA	A-weighted decibels
C.F.R.	Code of Federal Regulations
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
I-580	Interstate 580
ISO	International Organization for Standardization
LDL	Larson Davis Laboratories
Ldn	day-night sound level
Leq	equivalent noise level, an average of the sound energy occurring over a specified time period
Lmax	maximum noise level, the highest instantaneous RMS sound level measured during a specified period
LT	long-term noise sites
Lv	vibration velocity level
mph	miles per hour
OMF	operations and maintenance facility
PPV	peak participle velocity
ROW	right-of-way
RMS	root-mean-square
SEL	sound exposure level
VdB	vibration velocity level, decibels

1. Summary

This technical report describes the regulatory and environmental settings for noise and vibration in the vicinity of the Valley Link Rail Project's (Valley Link) near-term and longer-term improvements. It also describes the noise and vibration adverse impacts on sensitive land uses that would result from the implementation of Valley Link and mitigation measures that would reduce significant impacts, where feasible and appropriate.

The Proposed Project would establish a new passenger rail service along a 22-mile corridor in Northern California between the existing Dublin/Pleasanton Bay Area Rapid Transit (BART) Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County. The Proposed Project would provide an all-day bidirectional passenger rail service at frequent intervals using zero-emission multiple unit vehicles (ZEMU). The alignment section pertinent to highway traffic noise analysis would be constructed within the existing Interstate 580 (I-580) freeway median from west of Hacienda Drive to west of Greenville Road in Alameda County. The Proposed Project would result in the horizontal shifting of existing lanes and interchange ramps outward from the original highway centerline thus potentially increasing traffic noise levels at noise-sensitive land uses in the project area.

This technical report contains the noise and vibration impact assessment for the Valley Link project. The report follows Federal Transit Administration (FTA) guidance in evaluating impacts and potential mitigation measures. The FTA Transit Noise and Vibration Impact Assessment Manual (2018) serves as a comprehensive guide for transportation professionals, engineers, and planners involved in the design, construction, and operation of transit systems. It outlines regulatory requirements, methodologies for assessing and mitigating noise and vibration impacts, and best practices for community engagement. The manual is a valuable resource for ensuring compliance with environmental standards, addressing community concerns, and adopting effective strategies to minimize the adverse effects of transportation projects on the surrounding environment. The manual provides guidance for various transit projects, including the development of new rail lines, bus rapid transit systems, and other public transportation infrastructure where noise and vibration considerations are critical to ensuring a sustainable and community-friendly transportation network.

The results of the noise and vibration impact assessment indicate that there would be no adverse noise or vibration impacts from the operation of the proposed project. There would also be no exceedances of the thresholds established from the FTA Transit Noise and Vibration Impact Assessment Manual from the operation of the proposed project. There would be substantial noise and vibration impacts from project construction. Construction impacts can be mitigated through the implementation of mitigation measures provided in this technical report.

This technical report, together with the accompanying traffic Noise Summary Report, is intended to be a supplement to the noise and vibration chapter in the Draft Environmental Assessment and Subsequent Draft Environmental Impact Report.

2. Project Description

The Proposed Project would construct a new passenger rail service along a 22-mile corridor between the existing Dublin/Pleasanton BART Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County. The Proposed Project would be constructed within a combination of the existing I-580 freeway median, the existing transportation corridor owned by Alameda County, the existing Caltrans ROW adjacent to the westbound I-580 freeway, and the new ROW to be acquired for the Proposed Project. **Figure 1** provides an overview of the entire project and the highway noise study vicinity.

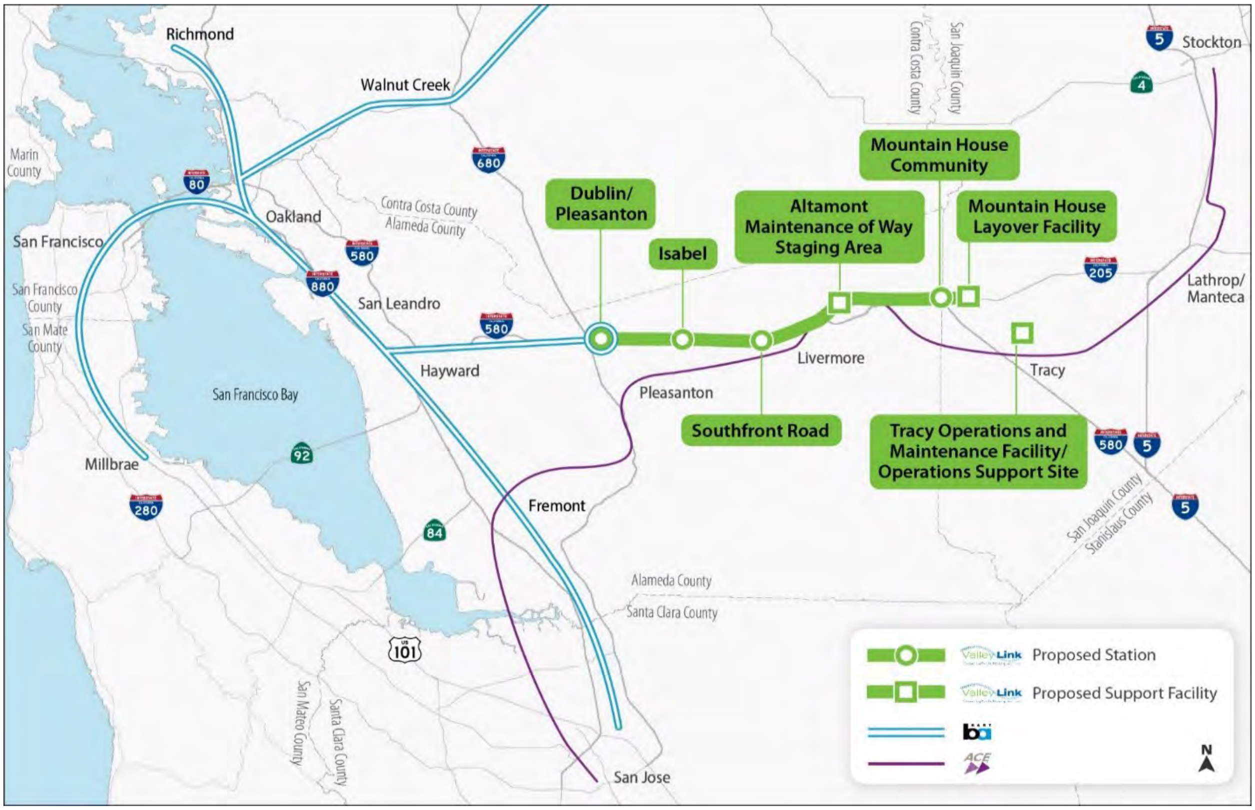


Figure 1. Proposed Project

2.1 Build Alternative

The Build Alternative would establish a frequent all-day bidirectional passenger rail service along a 22-mile corridor between the Dublin/Pleasanton BART Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County, including four new stations and three support facilities.

As shown in **Figure 1**, the construction would span the I-580 freeway median, an Alameda County-owned transportation corridor (formerly the Southern Pacific Transcontinental Railroad alignment), existing Caltrans right-of-way adjacent to westbound I-580, and newly acquired right-of-way.

In the Tri-Valley Section (Dublin/Pleasanton BART Station to east of Greenville Road), the rail alignment would transition from the Valley Link Dublin/Pleasanton Station via an elevated viaduct over eastbound I-580 lanes to the I-580 median. It would operate in the median to Greenville Road in Livermore, then transition to the Alameda County Transportation Corridor via another elevated viaduct. I-580 would be adjusted to maintain freeway lanes and interchange ramps. Most of this section would be single-track, with sidings at proposed stations for train passing.

In the Altamont Section (east of Greenville Road to the Mountain House Layover Facility [LF]), the rail would operate within the Alameda County Transportation Corridor right-of-way to just north of the existing railroad tunnel under I-580. The alignment would then extend southeast toward I-580 westbound lanes, continue east within the existing Caltrans right-of-way to the Mountain House Community Station, cross under Mountain House Parkway, and enter the proposed Mountain House LF site. New grade separations would be built along Altamont Pass Road west of Carroll Road, at Dyer Road, and west of the Union Pacific Railroad bridge near the Waste Management Altamont Landfill entrance.

2.1.1 Stations

The Build Alternative includes the construction and operation of four stations, described below from west to east.

Dublin/Pleasanton Station

The Dublin/Pleasanton Station would be constructed south of the eastbound I-580 freeway lanes in proximity to the existing Dublin/Pleasanton BART Station. Improvements that would be constructed include:

- A 642-foot-long by 30-foot-wide, double-track Valley Link aerial station platform
- Stairs, escalators, and elevators for vertical circulation within the station

Isabel Station

The Isabel Station would be constructed within the I-580 median with adjacent parking on a 24-acre site along East Airway Boulevard south of I-580 and east of the Isabel Avenue I-580 overcrossing in Livermore. Vehicular access to the station would be provided from East Airway Boulevard and would include restriping for left-turn lanes and a traffic signal at the East Airway Boulevard/Rutan Drive intersection. Improvements that would be constructed as part of the Isabel Station include:

- A 642-foot-long by 30-foot-wide, double-track, at-grade Valley Link station platform in the median of I-580.
- A surface parking lot providing 850 parking spaces (including accessible spaces), "kiss and ride," and bus bays.
- A pedestrian overcrossing from the parking lot over Arroyo Las Positas and eastbound I-580 to the median station platform, as well as a pedestrian overcrossing of westbound I-580 (construction depending on available funding), including elevators and stairs to the station platform and at both ends of the bridge.

Southfront Road Station

The Southfront Road Station in Livermore would be constructed within the I-580 median with adjacent parking south of I-580 on a 7-acre site along Southfront Road between McGraw Avenue and Franklin Lane. Vehicular access to the station would be provided from Southfront Road and station improvements would include:

- A 642-foot-long by 30-foot-wide, double-track, at-grade Valley Link station platform in the median of I-580.

- A surface parking lot providing 680 parking spaces (including accessible spaces), "kiss and ride," and bus bays.
- A pedestrian overcrossing from the parking lot over Southfront Road and eastbound I-580 to the median station platform including elevators and stairs to the station platform and at both ends of the bridge.
- Realignment of Southfront Road to accommodate shifting of the I-580 median, and new driveways for buses and vehicles into the station.
- Platform design that accommodates a potential pedestrian overcrossing to the north of I-580 (construction depending on available funding) subject to station area planning by the City of Livermore.

Mountain House Community Station

The Mountain House Community Station would be constructed north of I-205 on an approximately 54-acre site west of Mountain House Parkway near the I-205/Mountain House Parkway interchange. Access to the station would be provided from a new driveway along Mountain House Parkway. Improvements that would be constructed as part of the Mountain House Community Station include:

- A 642-foot-long by 30-foot-wide, at-grade, double-track Valley Link station platform.
- A surface parking lot north of the tracks providing 2,990 parking spaces (including accessible spaces), "kiss and ride," and bus bays.
- Two grade-separated pedestrian crossings from the parking lot to the platform, including stairs, ramps, and elevators.
- A future parking structure to meet 2040 parking demand for a total of up to approximately 5,980 parking spaces. The structure would add an additional parking level over the surface parking lot within the 54-acre site.

2.1.2 Operations and Maintenance Facilities

Altamont Maintenance of Way Staging Area

A MOW facility would be constructed on a 10-acre portion of the Alameda County Transportation Corridor ROW, approximately 2,250 feet east of Dyer Road. The MOW may be used as a contractor staging area during construction and would ultimately be designed to support the short-term storage of vehicle rolling stock, non-revenue vehicles and material laydown areas for maintenance of rail systems infrastructure during the revenue operations period. The site would include an office building of approximately 1,100 square feet with restrooms and parking available for employees. Expected functions of this site include track and systems personnel reporting when required. The Altamont MOW would include yard tracks for the storage of equipment, and waste capture and disposal features.

Mountain House Layover Facility

The Mountain House LF would be constructed on an approximately 75-acre site east of Mountain House Parkway and north of I-205. The Mountain House LF would support train layovers, storage, and light maintenance. Access to the site would be provided from Mountain House Parkway at a proposed four-way intersection that would also provide access to the Mountain House Community Station to the west. The Mountain House LF would include an administrative building with administrative, management, operations and security offices, and an operations building. The operations building would be used for:

- Interior and exterior vehicle cleaning
- Daily inspections

- Scheduled servicing
- Periodic preventive maintenance
- Fueling
- Exterior washing
- Component changeouts
- Sanding
- Trash collection

In addition, the operations building would also include:

- Two tracks for preventive maintenance
- One track for repairs

The Mountain House LF would also include yard tracks with enough capacity for the following:

- Two service and inspections tracks (one with an inspection pit)
- Storage tracks (18 vehicles for initial operations with ability to expand by 28 to 46 vehicles)
- One train wash rack on a separate track
- Fuel island with dispensers
- Gaseous hydrogen storage and vaporizers (if hydrogen vehicle selected)

All the common equipment for vehicle maintenance equipment would be provided, including shore power and air, fume ventilation, fluid servicing, small component repair shop, storage rooms, utilities and fire protection, and waste capture and disposal, and an emergency generator. The administrative building would include management, administrative, and security offices; and operations control center and dispatch center; conference rooms, day rooms and restrooms; utilities and fire protection; and an emergency generator.

Tracy Operations and Maintenance Facility/Operations Support Site

The Tracy Operations and Maintenance Facility/Operations Support Site (OMF/OSS) would be constructed on part of an approximately 200-acre property along West Schulte Road just west of the Owens-Brockway Glass Container Plant west of Tracy. The site would accommodate heavy maintenance vehicle and component rebuilds, non-revenue vehicle maintenance, buildings and stations maintenance, warehouse storage, as well as a Backup Control Center (BCC).

The warehouse and laydown area would include the BCC and dispatch, storage racks and storage rooms, exterior laydown areas, and restrooms.

The heavy maintenance building would include maintenance and supervisory offices, day rooms and restrooms, locker and changing rooms, bridge crane, shore power and air, fume ventilation, truck repair shop, rail vehicle cleaning, wheel truing, large and small component rebuild shop, storage, offices, employee rooms, utilities and fire protection, and waste capture and disposal.

The non-revenue vehicle and facility maintenance building would include maintenance and supervisory offices, shore power and air, bridge crane, fume ventilations, storage rooms, utilities and fire protection, and waste capture and disposal.

2.1.3 Vehicles

Consistent with the project purpose and need and implementing strategies identified in the Authority Board-adopted Sustainability Policy, the Build Alternative includes the use of zero-emission multiple unit vehicles (ZEMUs). The use of hydrogen vehicles is assumed for environmental documentation given recent State procurement activities and consistency with the State Rail Plan.

2.1.4 Conceptual Operating Plan

Valley Link trains would operate seven days a week between the Mountain House Community Station and the Dublin/Pleasant Station, with all trains stopping at the Isabel and Southfront Road stations. The first week-day train to depart the Mountain House Community Station will be timed to arrive at the Dublin/Pleasanton Station 11 minutes prior to the first BART departure at 5:06 AM. During weekdays, trains would operate from 4:25 AM to 8:30 PM, at 15-minute headways during peak periods and at 45-minute headways during non-peak periods. The last westbound weekday train would depart the Mountain House Community Station at 7:45 PM; and the last eastbound weekday train would depart the Dublin/Pleasanton Station at 8:30 PM. Weekend and holiday headways would be 45 minutes with trains operating from 8:00 AM until 8:00 PM.

3. Noise Fundamentals and Descriptors

Noise from transit systems is expressed in terms of a *source-path-receiver* framework. The *source* generates noise levels that depend on the type of source (e.g., a commuter train) and its operating characteristics (e.g., speed). The *receiver* is the noise-sensitive land use (e.g., residence, hospital, or school) exposed to noise from the source. In between the source and the receiver is the *path*, where the noise is reduced by distance, intervening buildings, and topography. Environmental noise impacts are assessed at the receiver. Noise criteria are established for the various types of receivers because not all receivers have the same noise sensitivity.

Noise is unwanted sound. Sound is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. All noise ordinances, and this noise analysis, use the *A-weighted decibel* (dBA) system, which measures what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds—similar to what humans hear. **Figure 2** shows typical A-weighted sound pressure levels for transit and non-transit sources.

Analysts use three primary noise measurement descriptors to assess noise impacts from traffic and transit projects. They are the *equivalent sound level* (Leq), the *day-night sound level* (Ldn), and the *sound exposure level* (SEL), defined below.

- **Leq:** The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour Leq is used for all traffic and commuter rail noise analyses at locations with daytime use, such as schools and libraries.
- **Ldn:** The Leq over a 24-hour period, with 10 dB added to nighttime sound levels (between 10 p.m. and 7 a.m.) to account for the greater sensitivity and lower background sound levels during this time. The Ldn is the primary noise-level descriptor for rail noise at residential land uses. **Figure 3** shows typical Ldn noise exposure levels.

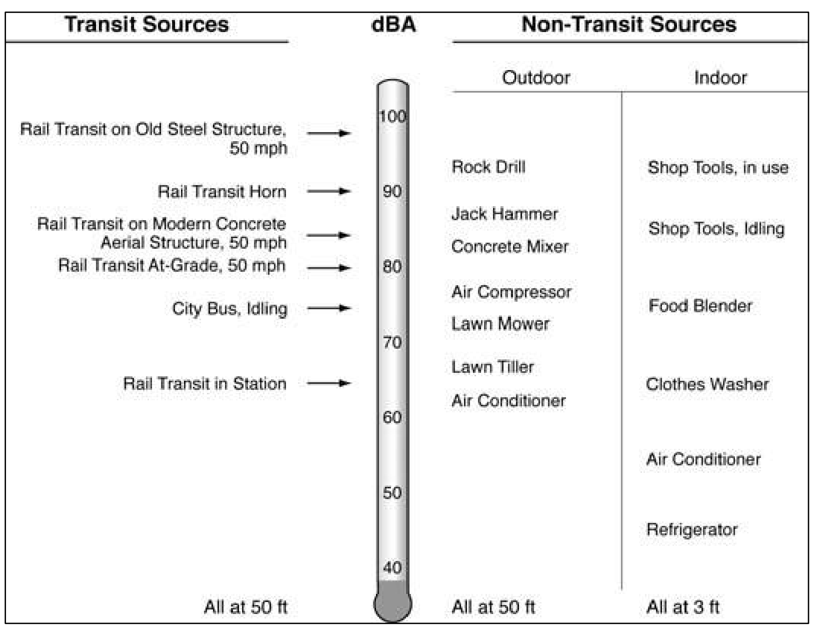


Figure 2. Typical A-weighted Sound Levels

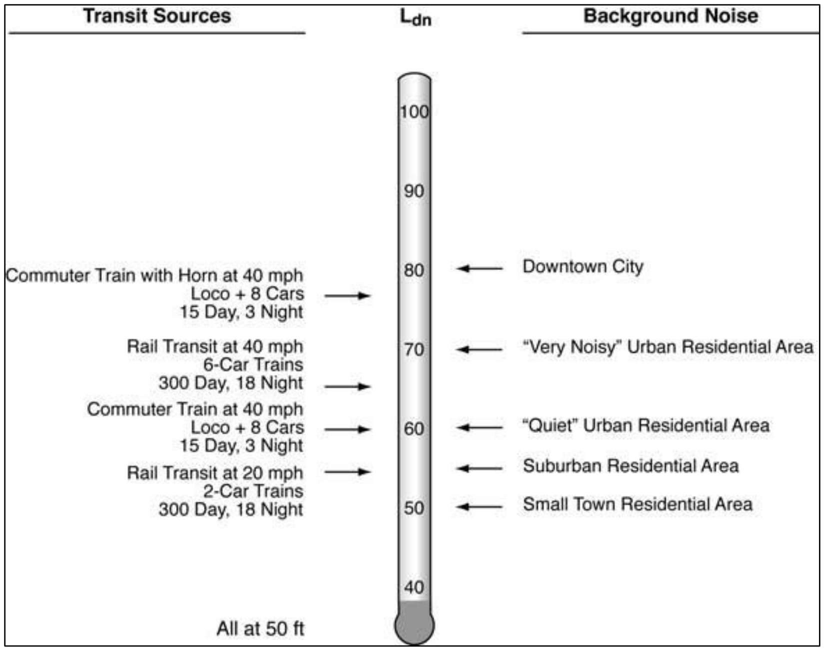


Figure 3. Typical Ldn Noise Exposure Levels

In addition to the Leq, Ldn, and SEL, Lmax is the loudest 1-second of noise over a measurement period. Lmax is used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations.

4. Vibration Fundamentals and Descriptors

Vibration from a transit system is also expressed in terms of a source-path-receiver framework. The source is the train rolling on the tracks, which generates vibration energy transmitted through the supporting structure under the tracks and into the ground. Once the vibration gets into the ground, it propagates through the various soil and rock strata—the path—to the foundations of nearby buildings—the receivers. Groundborne vibrations are generally reduced with distance depending on the local geological conditions. A receiver is a vibration-sensitive building (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers. Groundborne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces.

Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings. The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. In this analysis, vibration velocity (VdB) is the primary measure to evaluate the effects of vibration.

Figure 4 illustrates typical groundborne VdB levels for common sources and thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of VdB level (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.

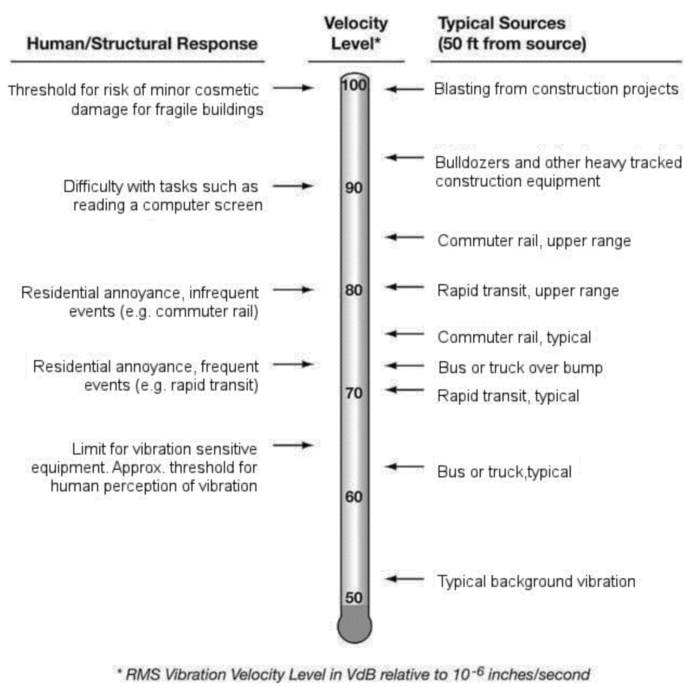


Figure 4. Typical Levels of Groundborne Vibration

5. Applicable Noise and Vibration Criteria

This section summarizes federal, state, regional, and local regulations related to noise and vibration and applicable to Valley Link.

5.1 Federal Railroad Administration Guidelines and Noise Emission Compliance-Regulation

The Federal Railroad Administration (FRA) has developed a guidance manual for assessing noise and vibration impacts from major rail projects. Although not at the level of a rule or a standard, FRA guidance is intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process.

The FRA also has a regulation governing compliance of noise emissions from interstate railroads. The FRA's Railroad Noise Emission Compliance Regulation (49 Code of Federal Regulations [C.F.R.] § 210) prescribes compliance requirements for enforcing railroad noise emission standards adopted by the U.S. Environmental Protection Agency (40 C.F.R. § 201).

5.2 Federal Transit Administration Guidelines

Similar to the FRA, the FTA has developed a guidance manual for assessing noise and vibration impacts from major rail projects intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process.

5.2.1 Construction Noise and Vibration Impact Assessment Criteria

Construction activities associated with a large transportation project often generate noise and vibration complaints even though they take place only for a limited time. For Valley Link, the construction noise and vibration impact is assessed where the exposure of noise- and vibration-sensitive receivers to construction-related noise or vibration is expected to occur at levels exceeding standards established by FTA and established thresholds for architectural and structural building damage (FTA 2018).

5.2.2 Construction Noise Impact Criteria

Table 1 presents the FTA noise assessment criteria for construction. The last column applies to construction activities that extend over 30 days near any given receiver. Ldn is used to assess impacts in residential areas, and 24-hour Leq is used in commercial and industrial areas. The 8-hour Leq and the 30-day average Ldn noise exposure from construction noise calculations uses the noise emission levels of the construction equipment, its location, and operating hours. The construction noise limits are normally assessed at the noise-sensitive receiver property line.

Table 1. FTA Construction Noise Assessment Criteria

Land Use	8-hour Leq, dBA		Noise Exposure, Ldn, dBA
	Day	Night	30-day Average
Residential	80	70	75[a]
Commercial	85	85	80[b]
Industrial	90	90	85[b]

Source: FTA 2018 (Table 7-3).

[a] In urban areas with very high ambient noise levels (Ldn greater than 65 dB), Ldn from construction operations should not exceed existing ambient noise levels + 10 dB.

[b] 24-hour Leq, not Ldn.

5.2.3 Construction Vibration Impact Criteria

Guidelines in the FTA guidance manual (FTA 2018) provide the basis for the construction vibration assessment. The FTA provides construction vibration criteria designed primarily to prevent building damage and to assess whether vibration might interfere with vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The FTA criteria include two ways to express vibration levels: 1) root-mean-square (RMS) VdB level (Lv, in VdB) for annoyance and activity interference and 2) peak particle velocity (PPV), which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

To avoid temporary annoyance to building occupants during construction or construction interference with vibration-sensitive equipment inside special-use buildings, such as a magnetic resonance imaging machine, the FTA recommends using the long-term operational vibration criteria provided in the section below.

Table 2 shows FTA building damage criteria for construction activity; the table lists PPV and approximate Lv limits for four building categories. These limits are used to estimate potential problems that should be addressed during final design.

Table 2. Construction Vibration Damage Criteria

Building Category	PPV (inch/sec)	Approximate Lv[a]
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2018 (Table 7-5).

[a] RMS = VdB level in VdB relative to 1 micro-inch/second.

5.2.4 Operational Noise Impact Criteria

The descriptors and criteria for assessing noise impact vary according to land use categories adjacent to the track. For land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), Ldn is the assessment parameter. For other land use types where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), Leq(h) for an hour of noise sensitivity that coincides with train activity is the assessment parameter. **Table 3** summarizes the three land use categories.

Table 3. FTA Noise-Sensitive Land Uses

Land Use Category	Noise Metric (dBA)	Land Use Category
1	Outdoor Leq(h)[a]	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and National Historic Landmarks with significant outdoor use.
2	Outdoor Ldn	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is of utmost importance.
3	Outdoor Leq(h)[a]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, and concert halls fall into this category, as well as places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

Source: FTA 2018.
[a] Leq for the noisiest hour of transit-related activity during hours of noise sensitivity.

The noise impact criteria used by the FTA are ambient based; the increase in future noise (future noise levels with Valley Link compared to existing noise levels) is assessed rather than the noise caused by each passing train. It is important to note that the criteria do not specify a comparison of future Valley Link noise with projections of future no-action noise. This is because comparison of a noise projection with an existing noise condition is more accurate than comparison of a projection with another noise projection (FRA 2012). Because background noise is expected to increase by the time Valley Link improvements start generating noise, this approach of using existing noise conditions is conservative. **Figure 5** shows FTA noise impact criteria for human annoyance.

Depending on the magnitude of the cumulative noise increases, FTA categorizes impacts as 1) no impact, 2) moderate impact, or 3) severe impact. Severe impact is where a significant percentage of people would be highly annoyed by the project's noise. Moderate impact is where the change in cumulative noise level would be noticeable to most people but may not be sufficient to generate strong, negative reactions.

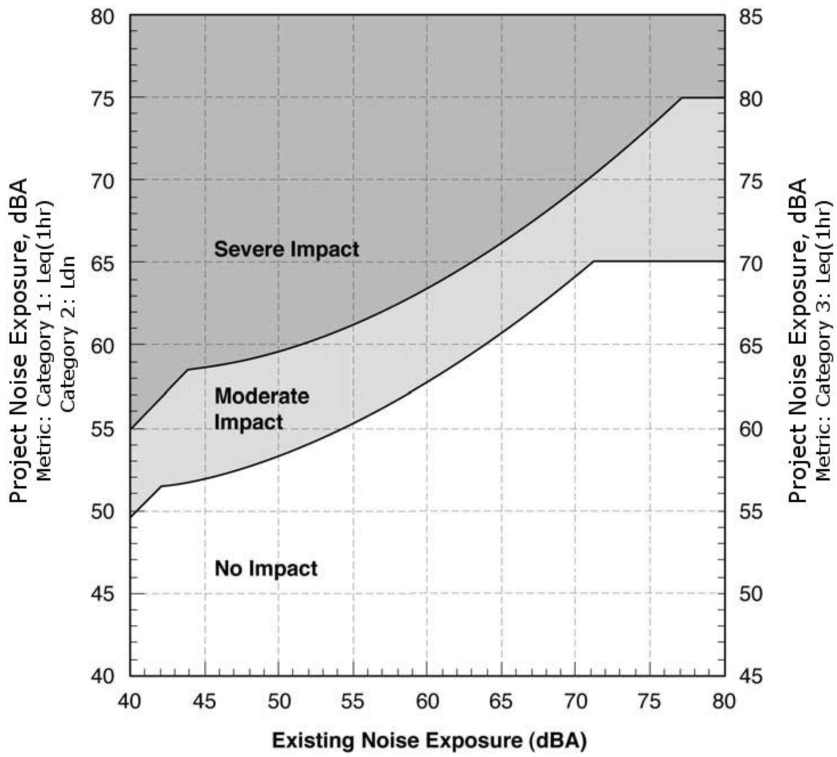


Figure 5. Noise Impact Criteria for Transit Projects

Although the curves in **Figure 5** are defined in terms of the project noise exposure and existing noise exposure, the increase in the cumulative noise—when project-generated noise is added to existing noise levels—is the basis for the criteria. To illustrate this point, **Figures 6 and 7** show the noise impact criteria for Category 1 and Category 2 land uses in terms of the allowable increase in the cumulative noise exposure. Because Ldn and Leq are measures of total acoustic energy, any new noise source in a community will cause an increase, even if the new source level is lower than the existing level. In **Figures 6 and 7**, the criterion for a moderate impact allows a noise exposure increase of 10 dB if the existing noise exposure is 42 dBA or less, but only a 1 dB increase when the existing noise exposure is 70 dBA.

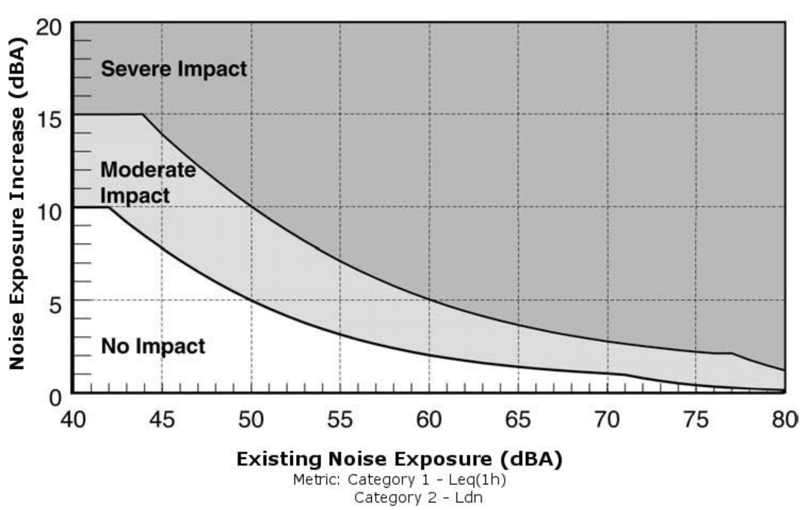


Figure 6. Increase in Cumulative Noise Levels Allowed by Criteria (Land Use Categories 1 and 2)

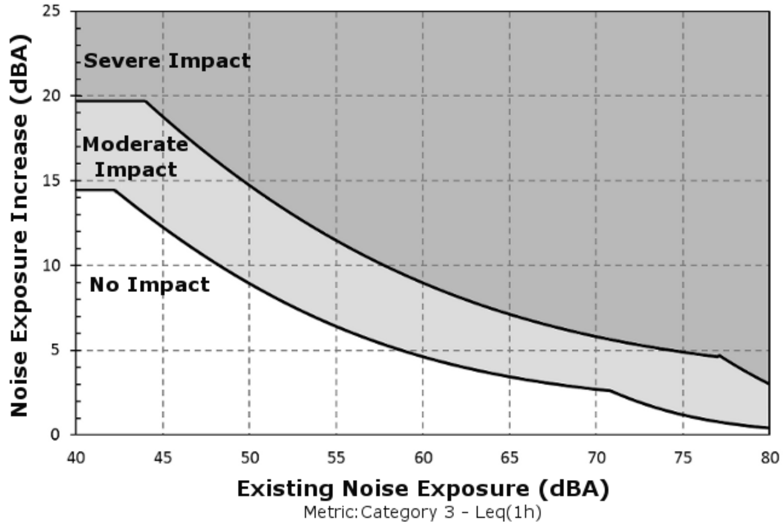


Figure 7. Increase in Cumulative Noise Levels Allowed by Criteria (Land Use Category 3)

As the existing level of ambient noise increases, the allowable level of transit noise increases, but the total amount that community noise exposure is allowed to increase is reduced. This accounts for the unexpected result of a project noise exposure lower than the existing noise exposure still causing an effect.

5.2.5 Operational Vibration Impact Criteria

The FTA provides guidelines to assess the human response to different levels of groundborne noise and vibration, as presented in **Table 4**. These levels represent the maximum vibration level of an individual train passby. A vibration event occurs each time a train passes the building or property and causes discernible vibration. "Frequent Events" are more than 70 vibration events per day, "Occasional Events" are 30 to 70 vibration events per day, and "Infrequent Events" are fewer than 30 vibration events per day. The guidelines also provide criteria for special buildings that are very sensitive to groundborne noise and vibration, such as concert halls, recording studios, and theaters. **Table 5** shows the impact criteria for special buildings.

Table 4. FTA Groundborne Vibration and Groundborne Noise Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re: 1 micro inch /second)			Groundborne Noise Impact Levels (dBA re: 20 Micro Pascals)		
	Frequent Events	Occasional Events	Infrequent Events	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[a]	65 VdB[a]	65 VdB[a]	N/A[b]	N/A[b]	N/A[b]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA

Land Use Category	Groundborne Vibration Impact Levels (VdB re: 1 micro inch /second)			Groundborne Noise Impact Levels (dBA re: 20 Micro Pascals)		
	Frequent Events	Occasional Events	Infrequent Events	Frequent Events	Occasional Events	Infrequent Events
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA
Source: FTA 2018. [a] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a detailed vibration analysis must be performed. [b] Vibration-sensitive equipment is generally not sensitive to groundborne noise.						

Table 5. FTA Groundborne Vibration and Groundborne Noise Impact Criteria for Special Buildings

Type of Building or Room	Groundborne Vibration Impact Levels (VdB re 1 micro inch/sec)		Groundborne Noise Impact Levels (dBA re 20 micro Pascals)	
	Frequent Events	Occasional or Infrequent Events	Frequent Events	Occasional or Infrequent Events
Concert halls	65 VdB	65 VdB	25 dBA	25 dBA
TV studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA
Source: FTA 2018.				

Groundborne vibration impacts from train operations inside vibration-sensitive buildings are defined by the VdB level, expressed in terms of VdB, and the number of vibration events per day from the same kind of source. **Table 4** summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable groundborne vibrations and acceptable groundborne noise. Groundborne noise is a low-frequency rumbling sound inside buildings caused by vibrations of floors, walls, and ceilings. Groundborne noise is generally not a problem for buildings near railroad tracks at or above grade, because the airborne noise from trains typically overshadows effects of groundborne noise. Groundborne noise becomes an issue in cases where airborne noise cannot be heard, such as for buildings near tunnels.

Tables 4 and 5 include separate FTA criteria for groundborne noise. Although the criteria are expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are significantly lower than airborne noise criteria to account for the annoying low-frequency character of groundborne noise. Because airborne noise often masks groundborne noise for aboveground (i.e., at-grade or elevated) railroad tracks, groundborne noise criteria apply primarily to operations in a tunnel, where airborne noise is not a factor, and to buildings with sensitive interior spaces that are well insulated from exterior noise.

One factor not incorporated in the criteria is existing vibration. Except near railroad tracks, the existing environment does not usually include a substantial number of perceptible groundborne vibration or noise events. However, rail projects sometimes use parts of existing rail routes. The criteria presented in **Tables 4**

and 5 do not indicate how to account for existing vibration, a common situation for rail projects using existing rail rights-of-way (ROWs). Representative scenarios for existing vibrations can be assessed using the following methods:

Infrequently used rail route: Use the vibration criteria from **Tables 4 and 5** when the existing rail traffic consists of four trains or fewer per day.

- **Moderately used rail route:** If the existing rail traffic consists of 5 to 12 trains per day with vibration that substantially exceeds the impact criteria, there would be no effect as long as the project vibration levels are at least 5 VdB less than the existing vibration. Vibration from existing trains can be estimated using the General Assessment procedures in Chapter 10 of the FTA guidelines.
- **Heavily used rail route:** If the existing traffic exceeds 12 trains per day and if the project would not substantially increase the number of vibration events (less than doubling the number of trains is usually considered not substantial), there would be no additional effect unless the project vibration, estimated using the procedures of Chapter 10 of the FTA guidelines, would be higher than the existing vibration. In locations where the new trains would be operating at higher speeds than the existing rail traffic, the trains would likely generate substantially higher levels of groundborne vibration. When the project would cause vibration more than 5 VdB greater than the existing source, the existing source can be ignored and the vibration criteria in **Tables 4 and 5** can be applied to the project.
- **Moving existing tracks:** Another scenario where existing vibration can be substantial is a new rail line within an existing rail ROW that requires shifting the location of existing tracks. Where the track relocation would cause higher vibration levels at sensitive receptors, the projected vibration levels from both rail systems must be compared to the appropriate impact criterion to determine if there would be a new effect. If an effect is judged to have existed prior to moving the tracks, new effects would be assessed only if the relocation would result in more than a 3 VdB increase in vibration level. Although the impact thresholds given in **Tables 4 and 5** are based on experience with vibration from rail transit systems, the thresholds can be applied to freight train vibrations as well. However, locomotive and rail car vibration should be considered separately. Because locomotive vibration only lasts for a few seconds, the infrequent-event limit is appropriate, but for a typical line haul freight train where the rail car vibration lasts for several minutes, the frequent-event limits should be applied to the rail car vibration. Some judgment must be exercised to make sure that the approach is reasonable. For example, some spur rail lines carry very little rail traffic (sometimes only one train per week) or have short trains, in which case the infrequent-event limits are appropriate.

6. Existing Conditions (Affected Environment)

This section describes the existing conditions and affected environment related to noise and vibration by geographic section for the Valley Link project. For the purposes of this analysis, for noise and vibration, the nearest noise-sensitive and vibration-sensitive uses from the track centerline were evaluated. **Figures 8, 9, and 10** show the study area and noise monitoring locations.

Existing noise sources in the study area include commuter and freight rail operations, roadway traffic, and general community activity. The only significant sources of vibration in the study area are commuter and freight rail operations.

Because the thresholds for noise impact in FTA noise criteria (defined above, Thresholds of Significance) are based on the existing noise levels, measuring the existing noise and characterizing noise levels at sensitive locations in the study area is an important step in the impact assessment. The noise measurements included a long term (24 hours) of the A-weighted sound level at noise-sensitive locations in the study area.

The noise measurements were performed with Larson Davis Laboratories (LDL) 820[1] noise monitors that conform to American National Standard Institute (ANSI) standards for Type 1 (precision) sound-level meters. Calibrations traceable to the U.S. National Institute of Standards and Technology were conducted before and after each measurement. The noise monitors were set to continuously monitor and record multiple noise-level metrics as well as to obtain audio recordings during the measurement periods.

Table 6 summarizes results of the existing noise-level measurements, and **Figures 8, 9, and 10** show the locations of the 15 long-term noise sites (LT). The long-term noise measurements were used to characterize the existing noise-sensitive locations. As shown, existing daytime noise levels ranged from 52 dBA, Leq to 72 dBA, Leq in the Tri-Valley Section and 52 dBA, Leq to 69 dBA, Leq in the Altamont Section. Existing nighttime noise levels ranged from 54 dBA, Leq to 68 dBA, Leq in the Tri-Valley Section and 56 dBA, Leq to 68 dBA, Leq in the Altamont Section.

The sensitive land use for vibration is essentially the same as for noise, except that park land is not considered vibration sensitive. Because a general vibration assessment (rather than a detailed vibration analysis) was performed, vibration measurements were not conducted for this analysis.

[1] Continuous 24-hour, long-term monitoring of noise levels was taken in accordance with ANSI standards using LDL Model 820 sound-level meters. The sound-level meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements were accurate. The equipment used meets all pertinent ANSI specifications for Type 1 sound-level meters.

Table 6. Existing Noise Level Measurements in the Study Area

Site	City/ County	Land Use Category	Measurement Location	Measurement Start		Noise Level (dBA)[a]		
						Leq		Ldn[a]
						Day	Night	
LT-01	Dublin	Residential	5200 Iron Horse Parkway	11/14/19 to 11/15/19	16:00	69	68	75
LT-02	Pleasanton	Residential	by 3783 Pimlico Drive	1/22/19 to 1/23/19	12:00	62	59	66
LT-03	Pleasanton	Golf Course	Las Positas Golf Course	1/22/19 to 1/23/19	13:00	72	68	75
LT-04	Livermore	Office	University of Phoenix, 2481 Constitution Drive	11/20/19 to 11/21/19	15:00	64	64	71
LT-05	Livermore	Park	Saddleback Circle and Sutter Street	11/14/19 to 11/15/19	16:00	65	62	69
LT-06	Livermore	Hospital	Kaiser Permanente Livermore Medical Offices	1/23/19 to 1/24/19	15:00	63	62	68
LT-07	Livermore	Residential	By 715 Shoemaker Drive	1/22/19 to 1/23/19	15:00	71	64	73
LT-08	Livermore	Residential	End of Scenic Avenue	11/14/19 to 11/15/19	15:00	52	54	60
LT-09	Livermore	Hotel (Pool)	Swimming pool at Best Western Plus Vineyard Inn	1/24/19 to 1/25/19	16:00	61	59	66
LT-10	Livermore	Commercial	By 10605 Altamont Pass Road	1/22/19 to 1/24/19	15:00	69	68	74
LT-11	Tracy	Residential	House behind 15885 Altamont Pass Road	7/19/23 to 7/20/23	14:30	53	56	62
LT-12	Tracy	Residential	410 North Midway Road	7/12/23 to 7/13/23	13:30	60	60	66
LT-13	Tracy	Residential	East of 239 Central Parkway	7/11/23 to 7/12/23	16:45	61	61	68
LT-14	Tracy	Residential	22994 Mountain House Parkway	7/19/23 to 7/20/23	14:00	54	57	63
LT-15	Tracy	Residential	23504 Los Ranchos Drive	7/11/23 to 7/12/23	16:15	52	56	62

[a]Ldn is used for Category 2 (residential) land use, and Leq-day is used for Category 3 (institutional) land use.
All Long Term (LT) measurements were at least 24 hours in duration.

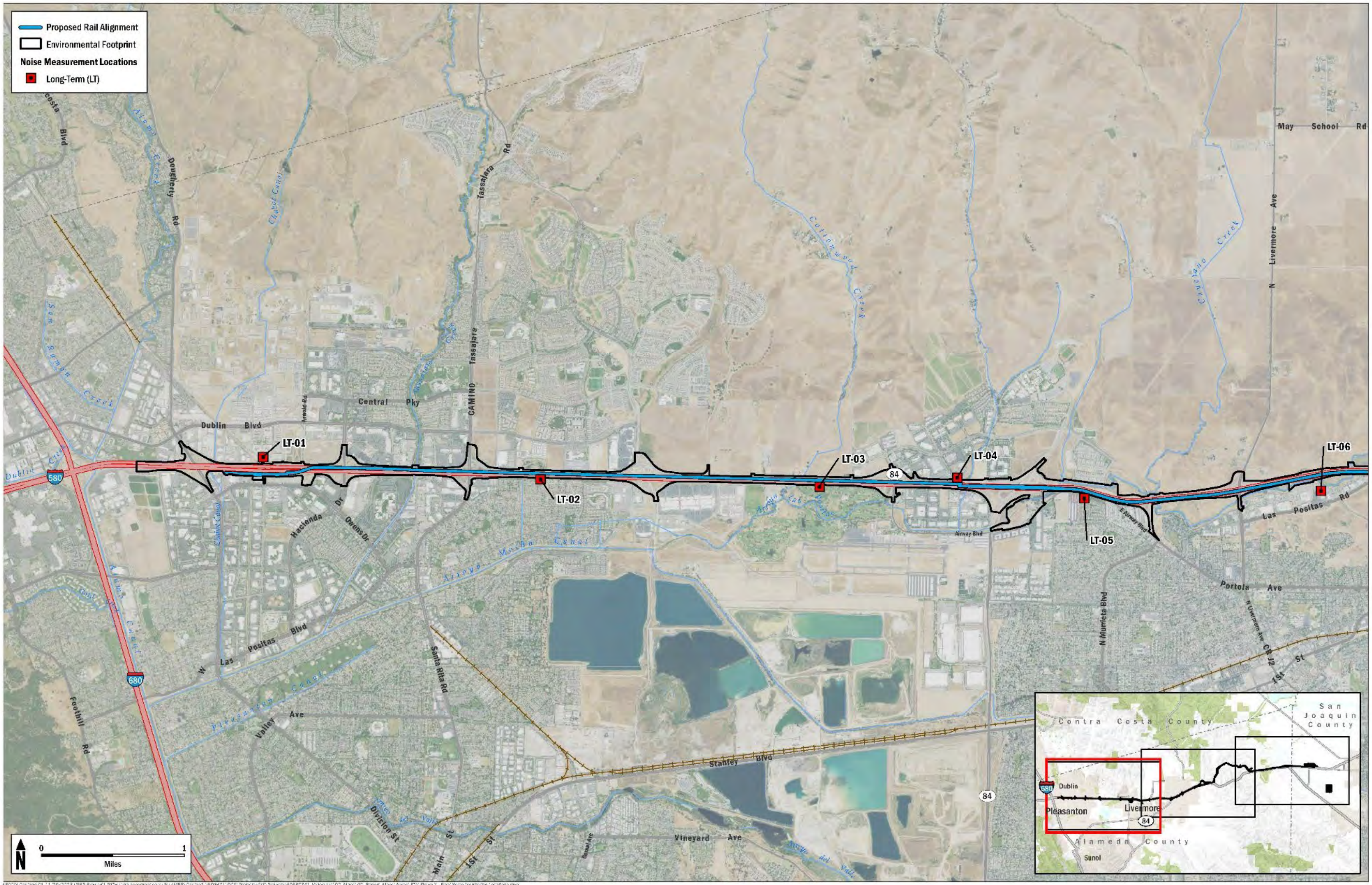


Figure 8. Project Area and Noise Monitoring Locations

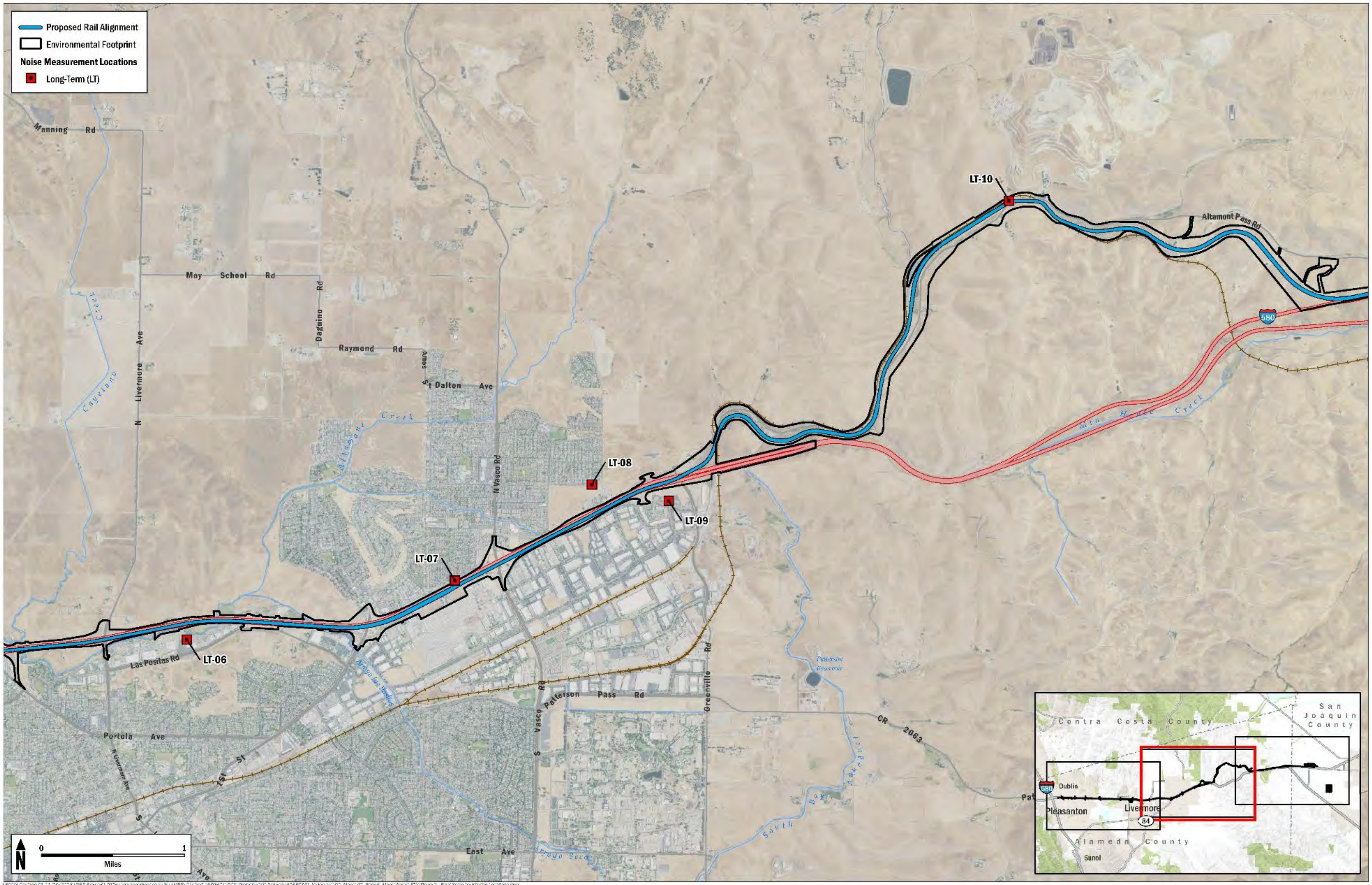


Figure 9. Project Area and Noise Monitoring Locations

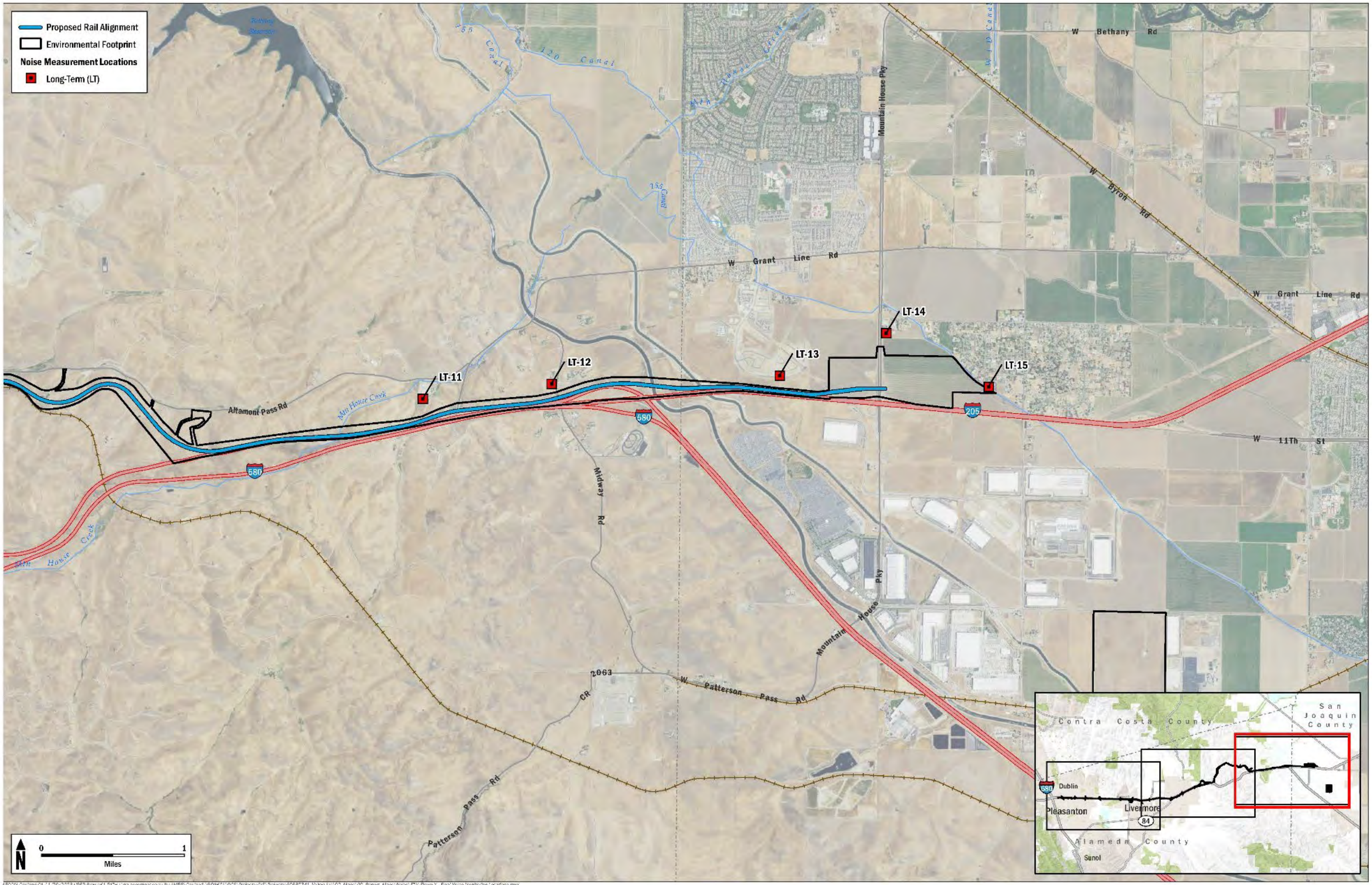


Figure 10. Project Area and Noise Monitoring Locations

7. Noise and Vibration Impact Assessment Methodology

This section describes the adverse impacts of the Valley Link's near-term and longer-term improvements on noise and vibration. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate significant impacts are provided where appropriate. The approach to evaluating noise and vibration impacts varies between near-term and longer-term improvements. Noise and vibration impacts associated with the construction of specific near-term improvements and increased operational service capacity are analyzed quantitatively.

7.1 Construction Noise and Vibration Impact Assessment Methodology

Construction noise impacts for longer-term improvements are qualitatively presented because detailed construction plans will not be available before publication of this document. The approach can be summarized as follows:

- Analyze direct noise and vibration impacts through quantitative and qualitative analysis.
- To assess construction noise emissions, consider equipment expected to be used by contractors during construction, usage scenarios for how equipment would be operated, estimated site layouts of equipment along the ROW, and the location of construction operations with respect to nearby noise-sensitive receivers.
- To assess construction vibration, account for vibration from construction equipment, estimated site layout of equipment along the ROW, and the location of construction operations with respect to nearby sensitive receivers.
- Refer to the FTA's guidance manual, *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

The construction noise impact assessment used the methodology described in the FTA guidance manual (FTA 2018). The Authority, Union Pacific Railroad, and their contractors will make decisions regarding procedures and equipment. For this analysis, construction scenarios for typical railroad construction projects are used to predict noise impacts. The construction noise methodology includes the following information:

- Noise emissions from typical equipment used by contractors
- Construction methods
- Scenarios for equipment usage
- Estimated site layouts of equipment along the ROW
- Proximity of construction activities to nearby noise-sensitive receivers
- FTA construction noise assessment criteria

The FTA guidance manual (FTA 2018) also provides the methodology for the assessment of construction vibration impacts. Estimated construction scenarios have been developed for typical railroad construction projects, allowing a quantitative construction vibration assessment to be conducted. Construction vibration is assessed quantitatively where a potential for blasting, pile-driving, vibratory compaction, demolition, or excavation close to vibration-sensitive structures exists. The methodology included the following information:

- Vibration source levels from equipment used by contractors
- Estimated site layouts of equipment along the ROW
- Relationship of construction activities to nearby vibration-sensitive receivers
- FTA vibration impact criteria for annoyance and building damage

The construction noise and vibration impact criteria for Valley Link are based on FTA guidelines and are described above under *Applicable Noise and Vibration Criteria* (Section 4). The operational noise and vibration impact criteria for Valley Link are also based on the FTA guidelines.

7.2 Train Operation Noise and Vibration Impact Assessment Methodology

Noise and vibration impacts from longer-term improvement operational service capacity increases are presented quantitatively. Train operation noise and vibration levels were projected using the Conceptual Service Plan in the Chapter 2, *Project Description*. Potential impacts were evaluated in accordance with the FTA guidance manual. Projected and existing ambient noise exposures were tabulated at the identified receptor locations or clusters of receptors, and the levels of noise impact (no impact, moderate impact, or severe impact) were identified by comparing the train noise exposure based on the applicable FTA noise impact criteria.

The DataKustik Cadna/A® Noise Prediction Model (Version 2023) was used to estimate the aggregate sound pressure level from the proposed project operation layout at the identified noise-sensitive receptors. Cadna/A is a Windows®-based software program that predicts sound levels near sound sources based on the International Organization for Standardization (ISO) 9613-2 standard for outdoor sound propagation calculation. Cadna/A modeling utilized a prediction module that replicates the FTA recommended calculation methodology for rail noise predication. The model uses these industry-accepted propagation algorithms and accepts octave-band (1/1) and one-third octave band (1/3) PWL (in dB re: one picoWatt) provided by equipment manufacturers and other sources.

The software calculations account for classical sound wave geometric divergence, reflection off surfaces, source directivity, meteorological effects, and attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding from structures and/or topography. Topographical information was imported into the model using the official U.S. Geological Survey National Elevation Dataset to accurately represent existing topography in the project area.

The sound propagation prediction model developed for this analysis assumed an outdoor temperature of 50 degrees Fahrenheit and a relative humidity of 70 percent, consistent with modeling recommendations from the Institute of Acoustics (IOA 2013).

The average ground absorption coefficient, which can range from 0 (for acoustically reflective surfaces, such as water or pavement) to 1 (for acoustically absorptive ground coverings such as loose, porous soil or snow), was set to an average of 0 for consistency with modeling recommendations from the FRA *High-Speed Ground Transportation Noise and Vibration Impact Assessment Manual* due to the proximity of hard reflecting surfaces such as roadways and sidewalks. This input parameter is notably conservative in comparison to actual site conditions, which would be expected to exhibit higher ground absorption coefficients of 0.5 to 0.9 due to the prevalence of natural grasslands, agricultural soils, and seasonal snow cover.

Sound attenuation due to atmospheric absorption improves with increasing acoustical frequency and varies with temperature and moisture content. While sound attenuation due to this environmental factor is generally modest at distances less than 1,000 feet, over greater distances, the results will be substantially reduced high-frequency sound contribution and the apparent preservation of low-frequency sound that attenuates (due to ground and atmospheric absorption) at much lower rates.

With respect to wind speed and direction, the ISO 9613-2 standard conservatively calculates attenuation for meteorological conditions considered "favorable" to propagation—downwind (i.e., the receiver-of-interest is downstream of the source). Acknowledged as a physical impossibility (i.e., because wind is experienced as having direction), this downwind assumption is considered omnidirectional by ISO 9613-2 and intended to represent most meteorological conditions, including moderate temperature inversions, experienced by the project and its vicinity.

The noise prediction model included the acoustical contribution of 43 daily trips at a maximum speed of 79 miles per hour (mph) using noise-source reference levels for high-speed electric locomotive trains from the FRA manual. Additionally, these reference levels were also used to account for the contribution from trains moving within the Mountain House Layover facility with an assumed maximum speed of 5 mph.

8. Noise and Vibration Impact Assessment

8.1 Project Construction Noise

Construction for the various project-level elements would include three basic activities: 1) site work, 2) rail work, and 3) structures work. Depending on the project element, site work is expected to occur over periods of 1 to 21 months, rail work is expected to occur over periods of up to 36 months, and structures work is expected to occur over periods of 12 to 42 months. Generally, construction of project elements could last anywhere from 12 to 42 months. The local noise ordinances for the cities and counties along the Valley Link corridor generally limit construction noise to particular time periods during the weekday, weekend, and holiday daytime hours. Nighttime construction work is generally prohibited, but some jurisdictions allow for variance.

Table 7 summarizes the estimated construction noise levels and residential noise impact screening distances for each of the planned construction activities. The noise estimates are based on scenarios for the construction activities using the FTA methodology described above (Section 6) and FTA criteria described above, Thresholds of Significance. However, to be conservative, the screening distance estimates did not assume any topography or ground effects. The results of the analysis indicate that noise impacts would be limited to residences within 135 to 270 feet from the loudest piece of equipment. The potential for noise impact would be greatest during structures work at locations where pile driving is required for bridge construction. These values are approximate and that actual construction noise levels should be evaluated on a case-by-case basis and/or monitored as part of a construction noise control plan.

Table 7. Residential Noise Impact Assessment for Construction Activities

Construction Activity and Equipment	Noise Level at 50 feet (dBA)	Equipment Usage Factor (%)	8-Hour Leq at 50 feet (dBA)		Approx. Noise Impact Distance (feet)
			Predicted Exposure	Daytime Criterion	
Site Work			**89**	**80**	**135**
Grader	85	53	82	--	--
Water truck	84	44	80	--	--
D6 Dozer	85	61	83	--	--
D8 Dozer	85	45	82	--	--
Compactor	82	45	79	--	--
Dump truck	84	23	78	--	--
Rail Work			**90**	**80**	**150**
Locomotive	88	25	82	--	--
D6 Dozer	85	38	81	--	--

Construction Activity and Equipment	Noise Level at 50 feet (dBA)	Equipment Usage Factor (%)	8-Hour Leq at 50 feet (dBA)		Approx. Noise Impact Distance (feet)
			Predicted Exposure	Daytime Criterion	
Grader	85	38	81	--	--
Water truck	84	38	80	--	--
Tamper	83	20	76	--	--
Aligner	85	20	78	--	--
Swinger	85	19	78	--	--
Welder	74	38	70	--	--
Flat-bed truck	84	31	79	--	--
Pickup truck	75	25	69	--	--
SUV	75	31	70	--	--
35-ton RT crane	83	38	79	--	--
Flat-bed tractor	84	13	75	--	--
Wheel loader	80	28	74	--	--
Structures			**95**	**80**	**270**
Impact pile driver	101	20	94		
Generator	82	90	82	--	--
75-ton mobile crane	83	38	79	--	--
Water truck	84	20	77	--	--
Flat-bed truck	84	25	78	--	--
Pickup truck	75	53	72	--	--
Concrete mixer	85	13	76	--	--
Concrete pump	82	18	75	--	--
Wheel loader	80	20	73	--	--
Welder	74	31	69	--	--
Source: FTA 2018, FHWA 2006.					

8.1.1 Construction Noise Conclusions

Construction activities would be considered to have an adverse impact if they would generate noise exposure in excess of FTA thresholds (typically 80 dBA daytime for residential land uses). As shown in **Table 7**, the operation of certain construction equipment and construction activities could generate noise exposure in excess of FTA thresholds at significant distances from the construction areas (up to 270 feet for structures work using impact pile drivers). Nighttime construction near residential uses would have larger adverse impacts than daytime construction would have. Some construction equipment and construction activities would expose sensitive receptors to substantial temporary increases in ambient noise levels.

Noise Reduction Recommendations

The following noise reducing measures are recommended to all near-term improvements for construction noise impacts.

Noise Reduction Measure NOI-1: Implement a Construction Noise Control Plan

A noise control plan that incorporates, at a minimum, the following best practices into the construction scope of work and specifications to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors will be prepared and implemented:

- Install temporary construction site sound barriers near noise sources, where practical.
- Use moveable sound barriers at the source of the construction activity.
- Avoid the use of impact pile drivers where possible near noise-sensitive areas or use quieter alternatives (e.g., drilled piles) where geological conditions permit.
- Locate stationary construction equipment as far as possible from noise-sensitive sites.
- Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents.
- Use low-noise-emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Line or cover storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Use high-grade engine exhaust silencers and engine-casing sound insulation.
- Minimize the use of generators to power equipment.
- Limit the use of public address systems.
- Grade surface irregularities on construction sites.
- Monitor and maintain equipment to meet noise limits.
- Establish an active community liaison program to keep residents informed about construction and to provide a procedure for addressing complaints.
- Where possible, conduct noisy construction activity during daytime hours.

Although the measures specified in Noise Reduction Measure NOI-1.1a would generally reduce the construction noise levels, the measures would not necessarily guarantee that sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit during the day or the 70 dBA limit at night. It is probable that construction near some residential areas will have to be conducted at night to avoid disruption of active freight and passenger rail operations and to complete construction on schedule. Furthermore, although a temporary sound wall may be effective in certain locations, in many cases, the nature of the construction work makes use of such sound walls infeasible.

Construction-related noise would be short term and would cease after construction is completed. Still, even with mitigation, the impact of temporary construction-related noise on nearby noise-sensitive receptors would remain substantial, particularly where heavy construction would occur immediately adjacent to residences and where construction would occur at night near residences.

8.2 Project Operational Noise

Operation of the project and its elements would extend new passenger rail service while generating both mobile and stationary source noise. The Valley Link noise impact evaluation was performed in accordance with FTA methodology. The assessment of railroad operation noise considers noise from the type of train, track, and stationary noise sources at proposed station and support facilities. FTA guidelines characterize potential noise impacts as having no impact, moderate impact, or severe impact. The severity of the difference associated with a proposed rail project depends upon the existing noise exposure. As baseline noise levels increase, the project increment that would trigger a moderate or severe finding becomes progressively smaller. Using the FTA assessment methodology, the existing noise level and the project calculated noise level are combined to compute the noise exposure at the receiving locations. **Table 8** summarizes the results.

Table 8. Summary of Valley Link Operational Noise Level and Impacts

Measurement Site	Land Use		Address	Date		Start Time	Duration	Noise Level (Ldn/Leq[a] dBA)									FTA Noise Level Criteria[b]							Impact?
								Daytime (7 a.m. 10 p.m.)	Nighttime (10 p.m. 7 a.m.)	Ldn	Modeled Noise Levels, dB			Combined Ex + Train			Daytime		Nighttime		Increase			
	Type	Category		From	To			Leq	Leq		Leq (Day)	Leq (Night)	Ldn	Leq (Day)	Leq (Night)	Ldn	Moderate	Severe	Moderate	Severe	Leq (Day)	Leq (Night)	Ldn	
LT-01 Tri-Valley	Residential	2	5200 Iron Horse Parkway, Dublin	11/14/2019	11/15/2019	16:00	24 Hours	69	68	75	46	41	48	69	68	75	1.0	3.0	1.0	3.5	0.0	0.0	0.0	No
LT-02 Tri-Valley	Residential	2	By 3783 Pimlico Drive, Pleasanton	1/22/2019	1/23/2019	12:00	24 Hours	62	59	66	43	38	46	62	59	66	1.0	3.0	1.0	3.5	0.0	0.0	0.0	No
LT-03 Tri-Valley	Golf Course	2	Las Positas Golf Course, Pleasanton	1/22/2019	1/23/2019	13:00	24 Hours	72	68	75	47	43	50	72	68	75	1.0	3.0	1.0	3.5	0.0	0.0	0.0	No
LT-04 Tri-Valley	Office	3	University of Phoenix, 2481 Constitution Drive, Livermore	11/20/2019	11/21/2019	15:00	24 Hours	64	64	71	49	45	52	65	64	71	2.0	3.5	2.0	3.5				No
LT-05 Tri-Valley	Park	3	Saddleback Circle and Sutter Street, Livermore	11/14/2019	11/15/2019	16:00	24 Hours	65	62	69	45	40	48	65	62	69	2.0	3.5	2.0	4.0				No
LT-06 Tri-Valley	Hospital	2	Kaiser Permanente Livermore Medical Offices, Livermore	1/23/2019	1/24/2019	15:00	24 Hours	63	62	68	44	39	46	63	62	69	2.0	4.0	2.0	4.0				No
LT-07 Tri-Valley	Residential	2	By 715 Shoemaker Drive, Livermore	1/22/2019	1/23/2019	15:00	24 Hours	71	64	73	46	41	48	71	65	73	1.0	3.0	2.0	3.5				No
LT-08 Tri-Valley	Residential	2	End of Scenic Avenue, Livermore	11/14/2019	11/15/2019	15:00	24 Hours	52	54	60	42	37	44	52	54	60	4.0	8.0	3.5	7.5				No
LT-09 Tri-Valley	Hotel (Pool)	2	Swimming pool at Best Western Plus Vineyard Inn, Livermore	1/24/2019	1/25/2019	16:00	24 Hours	61	59	66	43	38	45	61	60	66	2.0	4.0	2.0	5.0				No
LT-10 Altamont	Commercial/Office	3	By 10605 Altamont Pass Road, Livermore	1/22/2019	1/24/1900	15:00	24 Hours	69	68	74	41	36	44	69	68	74	1.0	3.0	1.0	3.5				No
LT-11 Altamont	Residential	2	House behind 15885 Altamont Pass	7/19/2023	7/20/2023	14:30	24 Hours	53	56	62	33	28	36	53	56	62	3.5	7.5	3.0	7.0				No

Measurement Site	Land Use		Address	Date		Start Time	Duration	Noise Level (Ldn/Leq[a] dBA)									FTA Noise Level Criteria[b]							Impact?
								Daytime (7 a.m. 10 p.m.)	Nighttime (10 p.m. 7 a.m.)	Ldn	Modeled Noise Levels, dB			Combined Ex + Train			Daytime		Nighttime		Increase			
	Type	Category		From	To			Leq	Leq		Leq (Day)	Leq (Night)	Ldn	Leq (Day)	Leq (Night)	Ldn	Moderate	Severe	Moderate	Severe	Leq (Day)	Leq (Night)	Ldn	
			Road, Tracy, California 95377																					
LT-12 Altamont	Residential	2	410 North Midway Road, Tracy, California 95391	7/12/2023	7/13/2023	13:30	24 Hours	60	60	66	33	28	36	60	60	66	2.0	5.0	2.0	5.0				No
LT-13 Altamont	Residential	2	East of 239 Central Parkway, Tracy, California 95391	7/11/2023	7/12/2023	16:45	24 Hours	61	61	68	47	42	50	61	61	68	2.0	4.5	2.0	4.5			0.0	No
LT-14 Altamont	Residential	2	22994 Mountain House Parkway, Tracy, California 95391	7/19/2023	7/20/2023	14:00	24 Hours	54	57	63	42	37	45	54	57	63	3.5	7.5	3.5	7.0			0.0	No
LT-15 Altamont	Residential	2	23504 Los Ranchos Dr, Tracy, CA 95304	7/11/2023	7/12/2023	16:15	24 Hours	52	56	62	39	34	42	52	56	62	3.0	6.0	4.0	7.0	0.0	0.0	0.0	No

Source: Data compiled by AECOM, 2019 to 2023.

[a] Ldn is used for Category 2 (residential) land use and Leq is used for Category 3 (institutional) land use.

[b] Based on **Figures 6 and 7**.

8.2.1 Operational Noise Conclusions

Tri-Valley Section

As presented in **Table 8**, there would be no rail noise impacts on receptors in association with the project-level Tri-Valley elements[2]. The proposed Tri-Valley Alignment would be in the center of, and masked by, existing Interstate 580 (I-580) traffic noise. Valley Link includes three new stations in the Tri-Valley Section: Dublin/Pleasanton Station, Isabel Station, and Southfront Road Station . Proposed stations would be constructed adjacent to I-580 (Dublin/Pleasanton Station) and adjacent to I-580 (Isabel Station and Southfront Road Station) in areas of commercial and light industrial land uses.

Altamont Section

Project-level elements of the Altamont Section would result in no rail noise impacts due to operation of the project at existing rural residential receptors in the vicinity of the proposed project alignment.

The project includes one new station, (Mountain House Community Station) and three support facilities (Altamont MOW, Mountain House LF, and Tracy OMF/OSS) in the Altamont Section. These project features would be in rural areas surrounded primarily by agricultural, industrial, and rural residential uses. Project-related modeled train noise calculations show that operation of project-level elements within the Altamont Section would not result in an increase in noise levels to sensitive receptors and therefore, would have no impacts.

8.3 Project Construction Vibration

Construction activities can be expected to generate vibration levels at 25 feet as high as 94 VdB from compactors during site work, 87 VdB from bulldozers during rail work, and 104 VdB from impact pile drivers during structures work. Except for pile drivers, it is unlikely that such equipment will be used close enough to sensitive structures to have any damage effects. For pile driving, it is anticipated that the potential for damage effects will be limited to structures at distances in the range of 30 to 75 feet from construction activities, depending on the building category.

In terms of vibration annoyance effects or interference with the use of sensitive equipment, the potential extent of vibration impact from pile driving is expected to be even greater than for damage effects. Based on FTA methodology, **Table 9** provides the approximate distances within which receivers could experience construction-related vibration annoyance effects. The results of the analysis indicate that vibration impacts would extend 230 to 630 feet from pile-driving operations, depending on vibration sensitivity.

Table 9. Approximate Screening Distances for Vibration Annoyance Effects from Impact Pile Driving

Land Use Category[a]	Vibration Criterion Level (VdB)	Approximate Vibration Impact Distance (feet)
Category 1 (Sensitive Buildings)	65	630
Category 2 (Residential Buildings)	72	290
Category 3 (Institutional Buildings)	75	230
[a] See **Table 4** for land use category descriptions.		

2 This report accounts for rail noise and vibration impacts only. Traffic noise impacts are analyzed in a separate report.

8.3.1 Construction Vibration Conclusions

Construction activities would be considered to have an adverse impact if they would generate vibration in excess of FTA thresholds. It is expected that groundborne vibration from construction activities would cause only intermittent, localized disturbance along the project alignment. Although processes such as earth moving with bulldozers or the use of vibratory compaction rollers can create annoying vibration, there should be only isolated cases where it is necessary to use this type of equipment in proximity to residential buildings. It is possible that construction activities involving pile drivers occurring at the edge of or slightly outside of the current ROW could result in vibration damage, causing adverse impact.

Noise Reduction Recommendation

The following mitigation measure would apply to all near-term improvements for construction vibration impacts.

Noise Reduction Measure NOI-2: Implement a Construction Vibration Control Plan

A vibration control plan that incorporates, at a minimum, the following best management practices into the construction scope of work and specifications to reduce the impact of temporary construction-related vibration on nearby noise-sensitive receptors will be prepared and implemented:

- Avoid the use of impact pile drivers where possible near vibration-sensitive areas or use alternative construction methods (e.g., drilled piles) where geological conditions permit.
- Avoid vibratory compacting/rolling within 45 feet of existing structures.
- Designate a preservation director and post contact information in a conspicuous location near the project site, so that it is clearly visible to nearby receptors most likely to be disturbed. The coordinator will manage complaints and concerns resulting from vibration-inducing activities. The severity of the vibration concern would be assessed by the director, and, if necessary, evaluated by a qualified vibration control engineer.
- Before construction activity begins within 45 feet of one or more residences or businesses, written notification will be provided to the potentially affected residents or business owners identifying the type, duration, and frequency of construction activities. Notification materials will also identify a mechanism for residents or business owners to register complaints with the appropriate jurisdiction if construction vibration levels are overly intrusive.
- Before construction activity begins within 45 feet of one or more residences or businesses, the pre-existing condition of all buildings within a 45-foot radius within the immediate vicinity of proposed construction activities will be recorded in the form of a pre-construction survey. The pre-construction survey will determine conditions that exist before construction begins for use in evaluating damage caused by construction activities. Fixtures and finishes within a 45-foot radius of construction activities susceptible to damage will be documented (photographically and in writing) prior to construction. All damage will be repaired back to its pre-existing condition following the completion of construction activities and post-construction surveys of affected residences or businesses.
- The primary contractor will prepare and implement a detailed vibration control plan based on the proposed construction methods. This plan shall identify specific measures to ensure compliance with the vibration control measures specified above. The vibration control plan will be submitted to and approved by the project proponent(s) before any vibration-generating construction activity begins.

8.4 Project Operational Vibration

Vibration caused by trains is the result of wheels rolling on the rails. This energy is then transmitted through the track support system into the ballast through the ground to the foundations of nearby buildings and throughout the remainder of the building structure. The level of vibration received at the building is a function of the type of trains, their speeds, track system, structure, support and condition, distance from the tracks, geological condition, and the receiving structure. Groundborne vibration does not typically annoy people who are outdoors. Impacts were assessed based on a comparison of the predicted project vibration level with the FTA impact criterion of 75 VdB for Category 2 and 78 VdB for Category 3. **Table 10** summarizes operational vibrational impacts at identified distances from the proposed Valley Link tracks.

Table 10. Summary of Valley Link Operational Vibration Impact Assessment

Section	Distance to Near Track (feet)	Vibration Levels (VdB)		Impacts
		Project Elements	FTA Criteria	
Railway (reference value)	50	73	80	None
Tri-Valley	175	57	80	None
Altamont	100	64	80	None

8.4.1 Operational Vibration Conclusions

Based upon the above vibration significance criterion, vibration-sensitive receptors along the proposed Valley Link elements would not be exposed to perceptible vibration and would not expose buildings to vibration levels of possible structural effects. These results indicate that the vibration criterion would be met (i.e., vibration impacts would not occur) at vibration-sensitive use more than 50 feet from the centerline of the nearest rails. No vibration-sensitive uses are known or expected to be within 10 feet of the proposed project tracks. Therefore, no residences or any buildings are expected to be impacted by transit vibration.

Stations

There are no vibration impacts related to the stations because the station options would not change the vibration levels associated with trains (e.g., changes in vibration levels are a result of alignments and service level, not stations).

Support Facilities

Vibration impacts related to the support facilities would be lower than those associated with trains (e.g., changes in vibration levels are a result of alignments and operational speed). Because vibration receptors are more than 150 feet from proposed support facilities, and operational speeds within these facilities would be far lower than when operating along the alignment, project operations and maintenance activities at support facilities would not result in adverse vibration impacts.

9. References

Federal Transit Administration (FTA). 2018 (September). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123.

Appendix A Field Noise Measurement Data

AECOM

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: 60592917 - Valley Link CEQA

Date: Existi **Thursday, November 14, 2019** **Friday, November 15, 2019**

Site: LT-01 Tri-Valley

Hour	Leq	Lmax	L50	L90
16:00	70.3	89.1	69.3	67.4
17:00	68.3	76.4	67.8	64.2
18:00	69.3	78.8	69.1	67.6
19:00	69.7	84.6	69.2	67.3
20:00	69.5	75.7	69.2	67.1
21:00	67.6	78.0	67.2	64.4
22:00	65.9	77.1	65.4	62.7
23:00	65.8	74.3	65.2	61.7
0:00	65.5	95.2	62.4	57.7
1:00	64.1	73.9	63.2	59.1
2:00	65.4	74.1	64.6	59.7
3:00	69.0	75.5	68.4	64.7
4:00	71.3	76.9	71.2	69.2
5:00	70.9	82.2	70.6	68.7
6:00	68.7	75.7	67.7	65.6
7:00	69.6	81.5	69.4	67.9
8:00	68.7	78.2	68.6	66.9
9:00	68.9	80.5	68.6	66.1
10:00	69.1	75.9	68.9	67.1
11:00	68.4	73.4	68.1	66.2
12:00	69.3	83.2	68.1	66.2
13:00	68.5	75.5	68.3	66.2
14:00	68.5	84.1	67.7	65.5
15:00	70.0	77.6	69.8	67.1

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	69.1	79.5	68.6	66.5
Nighttime (10 p.m. - 7 a.m.)	68.1	78.3	66.5	63.2

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	70.3	89.1	69.8	67.9
Nighttime (10 p.m. - 7 a.m.)	71.3	95.2	71.2	69.2

Percentage of Energy

Daytime	68%
Nighttime	32%

Calculated L_{dn}, dBA

74.7

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, January 22, 2019** **Wednesday, January 23, 2019**

Site: LT-02 Tri-Valley

Hour	Leq	Lmax	L50	L90
13:00	73.3	83.7	73.0	70.7
14:00	72.7	88.8	72.3	70.3
15:00	72.5	83.5	72.0	70.2
16:00	72.3	80.2	72.0	70.4
17:00	71.6	79.5	71.3	68.8
18:00	71.0	79.2	70.7	68.9
19:00	70.7	81.3	70.4	68.0
20:00	70.4	79.1	70.0	67.3
21:00	69.4	76.7	68.8	65.8
22:00	68.4	76.5	67.5	63.4
23:00	67.3	75.7	66.1	61.6
0:00	65.8	75.6	64.0	58.4
1:00	65.5	75.3	63.2	57.0
2:00	65.5	75.6	63.0	56.5
3:00	66.3	75.9	64.3	59.5
4:00	68.3	83.6	66.6	62.7
5:00	69.8	84.6	68.7	65.2
6:00	70.8	77.0	70.2	66.9
7:00	71.4	78.1	70.9	68.2
8:00	71.2	77.0	70.8	68.1
9:00	71.3	85.0	70.8	67.9
10:00	71.7	79.3	71.3	68.2
11:00	72.2	80.8	71.9	69.1
12:00	75.7	99.5	73.1	70.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	72.1	82.1	71.3	68.8
Nighttime (10 p.m. - 7 a.m.)	67.9	77.8	66.0	61.2

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	75.7	99.5	73.1	70.7
Nighttime (10 p.m. - 7 a.m.)	70.8	84.6	70.2	66.9

Percentage of Energy

Daytime	81%
Nighttime	19%

Calculated L_{dn}, dBA

75.2

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, January 22, 2019** **Wednesday, January 23, 2019**

Site: LT-03 Tri-Valley

Hour	Leq	Lmax	L50	L90
13:00	73.3	83.7	73.0	70.7
14:00	72.7	88.8	72.3	70.3
15:00	72.5	83.5	72.0	70.2
16:00	72.3	80.2	72.0	70.4
17:00	71.6	79.5	71.3	68.8
18:00	71.0	79.2	70.7	68.9
19:00	70.7	81.3	70.4	68.0
20:00	70.4	79.1	70.0	67.3
21:00	69.4	76.7	68.8	65.8
22:00	68.4	76.5	67.5	63.4
23:00	67.3	75.7	66.1	61.6
0:00	65.8	75.6	64.0	58.4
1:00	65.5	75.3	63.2	57.0
2:00	65.5	75.6	63.0	56.5
3:00	66.3	75.9	64.3	59.5
4:00	68.3	83.6	66.6	62.7
5:00	69.8	84.6	68.7	65.2
6:00	70.8	77.0	70.2	66.9
7:00	71.4	78.1	70.9	68.2
8:00	71.2	77.0	70.8	68.1
9:00	71.3	85.0	70.8	67.9
10:00	71.7	79.3	71.3	68.2
11:00	72.2	80.8	71.9	69.1
12:00	75.7	99.5	73.1	70.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	72.1	82.1	71.3	68.8
Nighttime (10 p.m. - 7 a.m.)	67.9	77.8	66.0	61.2

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	75.7	99.5	73.1	70.7
Nighttime (10 p.m. - 7 a.m.)	70.8	84.6	70.2	66.9

Percentage of Energy

Daytime	81%
Nighttime	19%

Calculated L_{dn}, dBA

75.2

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Wednesday, November 20, 2019** **Thursday, November 21, 2019**

Site: LT-04 Tri-Valley

Hour	Leq	Lmax	L50	L90
15:00	62.7	76.3	62.4	60.2
16:00	62.8	70.9	62.5	60.5
17:00	63.4	72.6	63.0	61.2
18:00	62.4	75.6	61.7	59.2
19:00	61.8	73.0	61.4	58.8
20:00	64.1	78.2	63.4	60.8
21:00	63.1	70.2	62.7	59.4
22:00	61.7	71.0	61.2	57.1
23:00	62.5	70.1	61.8	58.2
0:00	61.1	68.8	59.9	55.5
1:00	61.0	70.7	60.0	55.4
2:00	62.3	68.6	61.7	57.1
3:00	64.3	70.5	64.0	61.0
4:00	66.2	75.8	65.9	63.5
5:00	66.8	76.0	66.6	64.9
6:00	66.0	77.9	65.8	64.2
7:00	62.8	72.4	62.5	60.0
8:00	61.5	70.6	61.2	58.1
9:00	65.8	73.8	65.5	61.4
10:00	65.9	73.0	65.7	63.8
11:00	65.6	71.7	65.4	62.9
12:00	65.4	77.6	65.1	63.0
13:00	65.1	72.9	64.8	62.8
14:00	68.3	90.4	64.8	62.7

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	64.5	74.6	63.5	61.0
Nighttime (10 p.m. - 7 a.m.)	64.1	72.2	63.0	59.7

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	68.3	90.4	65.7	63.8
Nighttime (10 p.m. - 7 a.m.)	66.8	77.9	66.6	64.9

Percentage of Energy

Daytime	64%
Nighttime	36%

Calculated L_{dn}, dBA

70.6

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Thursday, November 14, 2019** **Friday, November 15, 2019**

Site: LT-05 Tri-Valley

Hour	Leq	Lmax	L50	L90
16:00	65.7	77.6	65.2	63.3
17:00	64.8	75.1	64.2	62.4
18:00	65.4	86.7	64.3	62.3
19:00	64.0	73.7	63.4	61.4
20:00	63.2	71.2	62.9	60.9
21:00	62.2	83.8	61.3	58.8
22:00	63.4	87.9	61.5	58.9
23:00	60.1	68.5	59.7	56.6
0:00	59.4	71.9	58.8	55.4
1:00	58.9	68.1	58.3	54.3
2:00	59.2	65.1	58.7	54.8
3:00	61.2	73.9	60.8	58.0
4:00	62.5	73.0	62.2	60.2
5:00	63.7	76.7	63.2	61.6
6:00	65.6	75.3	65.1	63.4
7:00	64.2	81.3	63.3	60.9
8:00	62.9	79.4	62.1	60.1
9:00	64.2	76.3	63.7	61.5
10:00	64.2	84.4	63.2	61.5
11:00	64.2	78.2	63.5	61.7
12:00	64.2	75.4	63.7	61.8
13:00	65.0	78.9	64.4	62.4
14:00	66.4	86.1	65.6	63.8
15:00	66.9	81.6	66.3	64.7

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	64.7	79.3	63.8	61.8
Nighttime (10 p.m. - 7 a.m.)	62.1	73.4	60.9	58.1

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	66.9	86.7	66.3	64.7
Nighttime (10 p.m. - 7 a.m.)	65.6	87.9	65.1	63.4

Percentage of Energy

Daytime	75%
Nighttime	25%

Calculated L_{dn}, dBA

69.0

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Wednesday, January 23, 2019** **Thursday, January 24, 2019**

Site: LT-06 Tri-Valley

Hour	Leq	Lmax	L50	L90
15:00	63.3	69.2	63.2	62.0
16:00	63.2	67.0	63.1	61.6
17:00	60.9	73.0	60.3	58.3
18:00	60.2	68.5	59.9	58.2
19:00	61.6	69.1	61.4	59.1
20:00	61.6	65.5	61.5	60.1
21:00	61.4	67.3	61.2	59.4
22:00	61.0	67.0	60.7	59.1
23:00	59.7	64.8	59.4	57.3
0:00	58.4	66.7	58.0	55.8
1:00	59.2	67.1	58.8	56.0
2:00	59.4	64.6	59.2	56.6
3:00	61.9	68.8	61.1	58.8
4:00	63.5	83.3	62.9	61.2
5:00	64.5	88.4	63.3	61.9
6:00	64.0	71.0	63.9	62.2
7:00	65.2	73.5	65.1	63.4
8:00	64.4	68.4	64.4	61.3
9:00	61.9	79.1	61.5	59.5
10:00	64.1	69.7	63.8	61.9
11:00	64.9	75.6	64.5	62.7
12:00	64.9	72.0	64.8	63.1
13:00	64.7	71.4	64.6	63.1
14:00	63.6	73.3	63.4	61.9

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	63.3	70.8	62.8	61.0
Nighttime (10 p.m. - 7 a.m.)	61.8	71.3	60.8	58.8

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	65.2	79.1	65.1	63.4
Nighttime (10 p.m. - 7 a.m.)	64.5	88.4	63.9	62.2

Percentage of Energy

Daytime	70%
Nighttime	30%

Calculated L_{dn}, dBA

68.5

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, January 22, 2019** **Wednesday, January 23, 2019**

Site: LT-07 Tri-Valley

Hour	Leq	Lmax	L50	L90
15:00	68.9	88.7	66.6	62.3
16:00	68.8	85.7	67.0	63.2
17:00	68.7	87.2	66.6	63.0
18:00	68.1	84.9	65.5	61.7
19:00	65.4	79.2	63.2	59.4
20:00	64.1	79.6	62.1	59.0
21:00	63.5	79.7	61.6	58.4
22:00	62.3	74.5	61.0	58.2
23:00	62.4	82.4	60.0	56.4
0:00	60.4	76.2	58.3	54.4
1:00	60.2	73.7	58.5	54.3
2:00	61.7	71.4	60.4	55.5
3:00	64.6	73.8	64.1	60.8
4:00	66.7	76.0	66.3	64.4
5:00	66.8	77.6	66.1	64.5
6:00	67.7	85.1	66.5	64.9
7:00	68.0	79.2	66.8	65.0
8:00	67.8	78.4	66.4	64.3
9:00	67.2	81.8	66.1	60.4
10:00	65.5	79.5	64.5	59.2
11:00	66.5	84.2	65.3	62.6
12:00	67.0	89.5	65.5	63.2
13:00	67.2	82.0	65.6	63.1
14:00	80.2	113.6	65.2	62.5

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	70.7	84.9	65.2	61.8
Nighttime (10 p.m. - 7 a.m.)	64.5	76.7	62.4	59.3

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	80.2	113.6	67.0	65.0
Nighttime (10 p.m. - 7 a.m.)	67.7	85.1	66.5	64.9

Percentage of Energy

Daytime	88%
Nighttime	12%

Calculated L_{dn}, dBA

72.5

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Thursday, November 14, 2019** **Friday, November 15, 2019**

Site: LT-08 Tri-Valley

Hour	Leq	Lmax	L50	L90
15:00	53.1	61.5	52.5	49.9
16:00	51.3	61.7	50.8	49.1
17:00	50.6	59.8	50.4	49.0
18:00	51.2	62.0	50.7	49.3
19:00	50.9	63.9	50.7	49.2
20:00	50.7	68.3	50.1	48.5
21:00	49.9	54.8	49.8	48.1
22:00	49.7	55.6	49.5	47.7
23:00	48.1	52.3	47.9	45.9
0:00	47.7	53.3	47.5	45.3
1:00	47.7	54.6	47.3	45.1
2:00	49.8	54.6	49.5	47.2
3:00	53.4	58.5	53.1	50.9
4:00	55.6	62.7	55.4	54.1
5:00	56.4	63.3	55.8	53.6
6:00	58.2	68.8	57.9	56.5
7:00	58.2	64.7	57.9	52.8
8:00	46.7	58.6	45.6	44.0
9:00	50.3	63.1	49.7	47.2
10:00	50.4	61.2	49.6	47.4
11:00	51.2	63.1	50.6	46.8
12:00	49.1	59.1	48.7	46.9
13:00	47.9	61.6	47.8	43.1
14:00	46.7	63.1	45.3	42.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	51.6	61.8	50.0	47.6
Nighttime (10 p.m. - 7 a.m.)	53.6	58.2	51.5	49.6

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	58.2	68.3	57.9	52.8
Nighttime (10 p.m. - 7 a.m.)	58.2	68.8	57.9	56.5

Percentage of Energy

Daytime	51%
Nighttime	49%

Calculated L_{dn}, dBA

59.8

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Thursday, January 24, 2019** **Friday, January 25, 2019**

Site: LT-09 Tri-Valley

Hour	Leq	Lmax	L50	L90
16:00	57.5	69.7	56.6	53.4
17:00	57.3	72.3	55.9	53.1
18:00	57.6	68.6	56.9	54.9
19:00	58.7	67.3	58.3	55.3
20:00	60.9	72.6	60.5	58.5
21:00	61.3	70.0	60.8	58.8
22:00	60.1	72.3	59.7	57.4
23:00	58.3	69.7	57.7	55.1
0:00	58.0	71.8	57.5	54.3
1:00	56.7	63.8	56.3	53.0
2:00	56.6	67.8	56.0	53.0
3:00	59.2	63.5	58.9	56.4
4:00	60.4	69.3	60.1	57.4
5:00	60.8	70.2	60.5	58.4
6:00	62.0	69.8	61.9	60.1
7:00	62.8	69.0	62.6	61.1
8:00	61.4	70.0	61.1	59.3
9:00	61.4	69.8	61.0	59.0
10:00	61.6	73.0	61.2	59.0
11:00	62.3	70.7	62.0	60.2
12:00	64.2	74.7	63.9	61.8
13:00	63.7	72.3	63.4	60.5
14:00	62.4	80.0	61.8	58.2
15:00	60.7	83.6	58.9	56.3

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	61.4	72.2	60.3	58.0
Nighttime (10 p.m. - 7 a.m.)	59.5	68.7	58.7	56.1

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	64.2	83.6	63.9	61.8
Nighttime (10 p.m. - 7 a.m.)	62.0	72.3	61.9	60.1

Percentage of Energy

Daytime	72%
Nighttime	28%

Calculated L_{dn}, dBA

66.2

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, January 22, 2019** **Tuesday, January 24, 1900**

Site: LT-10 Altamont

Hour	Leq	Lmax	L50	L90
15:00	70.9	85.0	60.6	51.5
16:00	66.6	86.8	60.7	50.5
17:00	68.5	84.5	67.4	54.1
18:00	69.5	83.7	69.3	59.1
19:00	69.5	85.6	68.9	65.6
20:00	68.9	76.4	68.6	53.4
21:00	64.7	76.0	56.7	44.0
22:00	65.7	85.5	57.4	44.9
23:00	61.4	78.3	46.8	40.3
0:00	60.0	76.7	45.3	39.6
1:00	58.2	76.3	45.3	40.1
2:00	56.3	75.9	41.2	36.2
3:00	67.7	91.3	50.4	41.3
4:00	70.5	78.0	70.2	56.7
5:00	71.3	85.9	71.2	60.5
6:00	71.1	89.7	70.6	59.2
7:00	71.4	84.6	71.1	61.2
8:00	70.8	88.2	70.2	55.9
9:00	69.5	79.5	67.4	50.2
10:00	66.1	79.4	58.1	45.5
11:00	68.3	87.3	56.5	43.8
12:00	65.0	79.9	54.8	44.1
13:00	66.3	78.8	59.4	45.0
14:00	66.3	78.8	59.4	45.0

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	68.6	82.3	63.3	51.3
Nighttime (10 p.m. - 7 a.m.)	67.5	82.0	55.4	46.5

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	71.4	88.2	71.1	65.6
Nighttime (10 p.m. - 7 a.m.)	71.3	91.3	71.2	60.5

Percentage of Energy

Daytime	68%
Nighttime	32%

Calculated L_{dn}, dBA

74.1

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Wednesday, July 19, 2023** **Thursday, July 20, 2023**

Site: LT-11 Altamont

Hour	Leq	Lmax	L50	L90
14:30	53.4	70.3	44.3	52.4
15:30	51.9	60.3	46.8	51.3
16:30	53.1	66.9	47.1	52.6
17:30	54.0	67.8	47.2	53.0
18:30	54.7	67.5	49.1	54.2
19:30	55.7	66.8	52.1	55.3
20:30	56.2	68.2	50.8	55.8
21:30	56.0	73.5	50.8	55.4
22:30	54.7	64.9	48.3	54.1
23:30	53.6	63.7	46.5	53.0
0:30	53.6	66.7	47.3	52.9
1:30	54.7	68.9	48.3	54.1
2:30	56.0	64.5	50.9	55.6
3:30	57.7	68.7	54.7	57.3
4:30	56.6	64.9	53.2	56.4
5:30	57.3	77.6	53.4	56.6
6:30	56.2	65.1	53.1	56.0
7:30	54.9	70.5	51.3	54.4
8:30	55.2	71.7	51.6	54.5
9:30	52.9	63.3	48.4	52.4
10:30	52.0	64.0	46.6	51.3
11:30	51.1	70.2	46.1	50.1
12:30	48.5	65.4	41.9	45.7
13:30	46.6	58.3	40.8	45.4

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	53.2	66.5	47.4	52.0
Nighttime (10 p.m. - 7 a.m.)	56.3	67.9	50.7	55.1

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	56.2	71.7	52.1	55.8
Nighttime (10 p.m. - 7 a.m.)	57.7	77.6	54.7	57.3

Percentage of Energy

Daytime	45%
Nighttime	55%

Calculated L_{dn}, dBA

62.4

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: 60592917 - Valley Link CEQA

Date: Existi **Wednesday, July 12, 2023** **Thursday, July 13, 2023**

Site: LT-12 Altamont

Hour	Leq	Lmax	L50	L90
13:30	61.1	71.8	55.8	60.5
14:30	60.4	79.1	53.6	59.3
15:30	59.9	70.6	54.9	59.2
16:30	60.1	69.1	55.3	59.5
17:30	60.5	79.3	54.2	59.7
18:30	60.0	70.7	55.6	59.6
19:30	60.7	72.9	55.3	60.2
20:30	61.0	72.7	56.7	60.5
21:30	60.8	76.3	54.6	60.1
22:30	59.7	71.9	54.7	59.0
23:30	57.0	66.8	50.5	55.9
0:30	57.9	76.7	50.0	56.3
1:30	58.6	70.3	51.2	57.6
2:30	61.1	72.1	55.3	60.5
3:30	61.9	76.9	56.7	61.4
4:30	57.9	76.7	53.3	57.1
5:30	57.5	67.0	53.2	57.0
6:30	57.2	70.2	53.4	56.6
7:30	57.2	74.9	51.8	56.3
8:30	58.4	73.2	54.0	57.8
9:30	60.1	70.6	53.4	59.4
10:30	59.5	72.1	51.8	58.4
11:30	59.6	67.3	52.6	58.8
12:30	60.3	72.9	53.8	59.5

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	59.7	72.7	54.2	59.2
Nighttime (10 p.m. - 7 a.m.)	59.8	72.5	53.3	58.1

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	61.1	79.3	56.7	60.5
Nighttime (10 p.m. - 7 a.m.)	61.9	76.9	56.7	61.4

Percentage of Energy

Daytime	62%
Nighttime	38%

Calculated L_{dn}, dBA

66.2

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, July 11, 2023** **Wednesday, July 12, 2023**

Site: LT-13 Altamont

Hour	Leq	Lmax	L50	L90
16:45	49.3	63.9	44.2	48.1
17:45	54.9	68.3	50.7	53.9
18:45	60.3	70.8	55.6	59.9
19:45	61.3	69.2	56.4	61.0
20:45	61.6	69.3	57.7	61.3
21:45	62.0	70.1	57.2	61.7
22:45	61.0	68.9	56.6	60.4
23:45	60.2	66.8	55.0	59.6
0:45	59.7	72.8	52.4	59.1
1:45	61.2	74.1	56.0	60.5
2:45	62.8	70.4	57.5	62.4
3:45	63.4	69.3	60.7	63.3
4:45	58.2	68.4	56.1	57.8
5:45	58.4	65.0	54.5	58.0
6:45	58.7	66.5	55.7	58.3
7:45	63.7	80.6	55.2	58.5
8:45	64.3	85.0	58.7	60.8
9:45	60.2	72.9	57.6	59.7
10:45	59.0	70.5	54.6	58.6
11:45	60.3	67.7	57.2	59.8
12:45	61.8	73.2	58.1	61.5
13:45	62.2	70.4	57.7	62.0
14:45	62.0	82.8	57.6	61.4
15:45	61.0	67.4	56.7	60.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	60.9	72.3	55.6	59.1
Nighttime (10 p.m. - 7 a.m.)	61.4	69.2	56.2	60.1

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	64.3	85.0	58.7	62.0
Nighttime (10 p.m. - 7 a.m.)	63.4	74.1	60.7	63.3

Percentage of Energy

Daytime	60%
Nighttime	40%

Calculated L_{dn}, dBA

67.7

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Wednesday, July 19, 2023** **Thursday, July 20, 2023**

Site: LT-14 Altamont

Hour	Leq	Lmax	L50	L90
14:00	51.8	65.8	42.9	49.5
15:00	53.3	70.2	49.0	51.5
16:00	52.6	72.1	44.0	50.4
17:00	54.6	64.7	45.7	53.3
18:00	56.2	73.7	45.3	54.5
19:00	56.3	73.7	46.0	54.6
20:00	56.4	67.1	49.4	55.1
21:00	57.0	65.7	52.0	56.0
22:00	57.0	82.0	49.2	54.7
23:00	55.7	71.0	50.4	53.9
0:00	54.6	65.6	50.4	53.4
1:00	54.6	65.1	49.0	53.0
2:00	57.0	72.1	51.6	55.5
3:00	59.1	71.0	56.4	57.8
4:00	58.6	66.9	54.4	57.4
5:00	58.5	71.0	53.2	57.2
6:00	58.0	72.0	51.7	57.2
7:00	55.3	67.2	50.2	54.4
8:00	52.5	66.2	46.0	50.7
9:00	49.9	65.6	44.5	48.3
10:00	52.3	81.4	40.5	46.7
11:00	49.4	63.8	41.7	47.6
12:00	54.9	73.3	48.8	53.7
13:00	50.3	66.0	42.1	48.2

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	54.1	69.1	45.9	51.6
Nighttime (10 p.m. - 7 a.m.)	57.3	70.7	51.8	55.6

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	57.0	81.4	52.0	56.0
Nighttime (10 p.m. - 7 a.m.)	59.1	82.0	56.4	57.8

Percentage of Energy

Daytime	45%
Nighttime	55%

Calculated L_{dn}, dBA

63.4

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

AECOM

Project: 60592917 - Valley Link CEQA

Date: Existi **Tuesday, July 11, 2023** **Wednesday, July 12, 2023**

Site: LT-15 Altamont

Hour	Leq	Lmax	L50	L90
16:15	44.6	51.9	43.5	44.6
17:15	45.8	64.6	43.5	44.8
18:15	51.1	59.5	50.0	50.7
19:15	55.1	63.8	50.8	54.8
20:15	56.7	72.1	53.2	56.3
21:15	56.5	72.1	53.7	56.2
22:15	57.4	69.7	53.3	57.0
23:15	56.5	66.0	52.6	56.1
0:15	55.5	63.2	52.4	55.2
1:15	55.3	63.2	50.9	54.8
2:15	54.2	62.1	50.3	53.9
3:15	57.2	65.2	54.2	57.0
4:15	54.1	66.5	51.5	53.8
5:15	54.0	64.2	51.9	53.7
6:15	53.9	64.3	51.6	53.7
7:15	51.1	58.7	49.6	50.8
8:15	49.5	65.6	46.9	48.4
9:15	48.3	56.8	46.5	48.0
10:15	49.4	65.6	44.8	46.5
11:15	48.4	64.0	45.1	47.2
12:15	49.5	59.7	48.7	49.0
13:15	54.0	64.0	51.1	53.6
14:15	55.7	70.9	51.6	55.2
15:15	55.0	67.7	52.2	54.6

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	52.2	63.2	48.4	50.3
Nighttime (10 p.m. - 7 a.m.)	56.1	65.7	52.2	55.1

Uppermost-Level

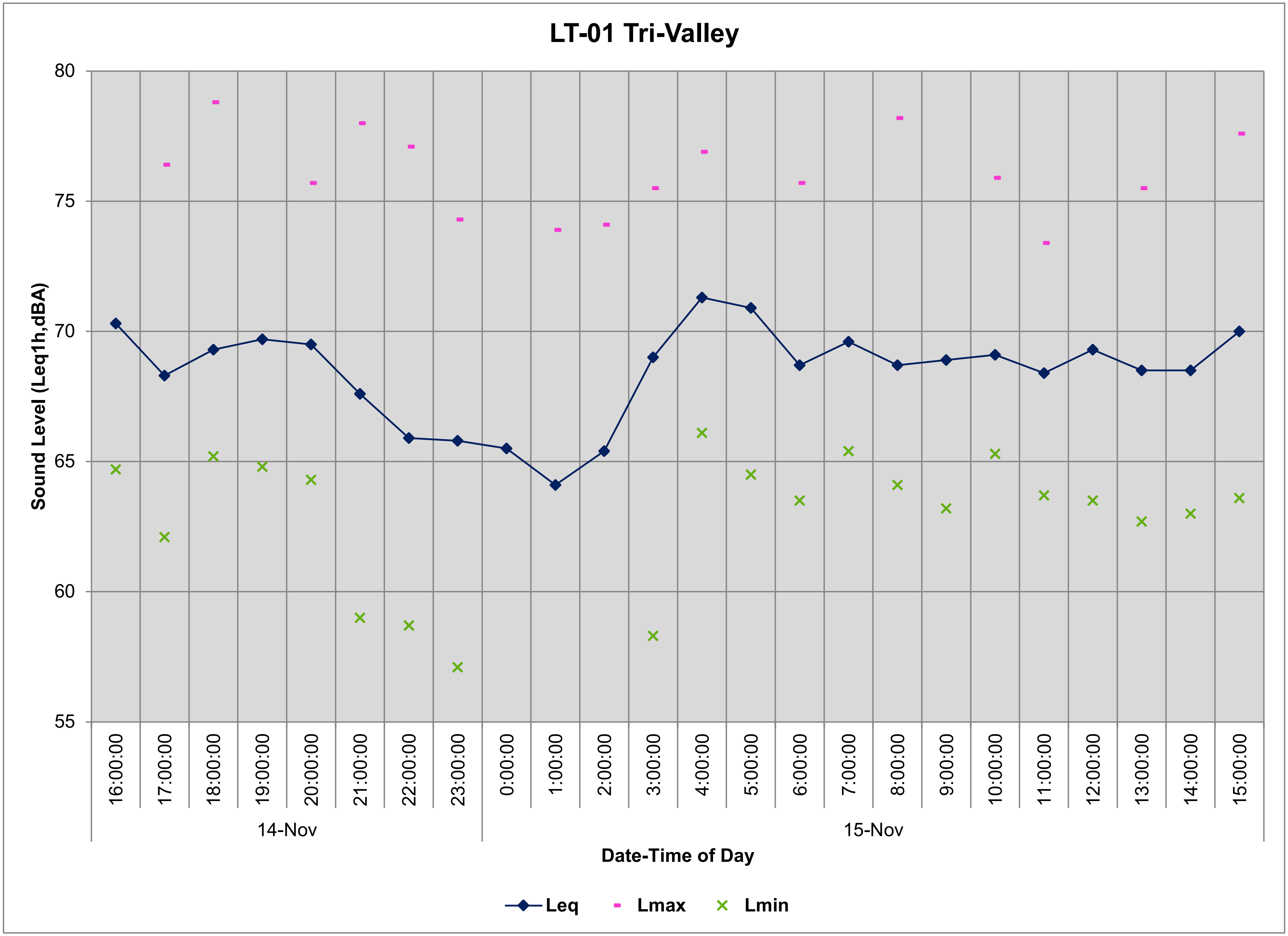
	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	56.7	72.1	53.2	56.3
Nighttime (10 p.m. - 7 a.m.)	57.4	72.1	54.2	57.0

Percentage of Energy

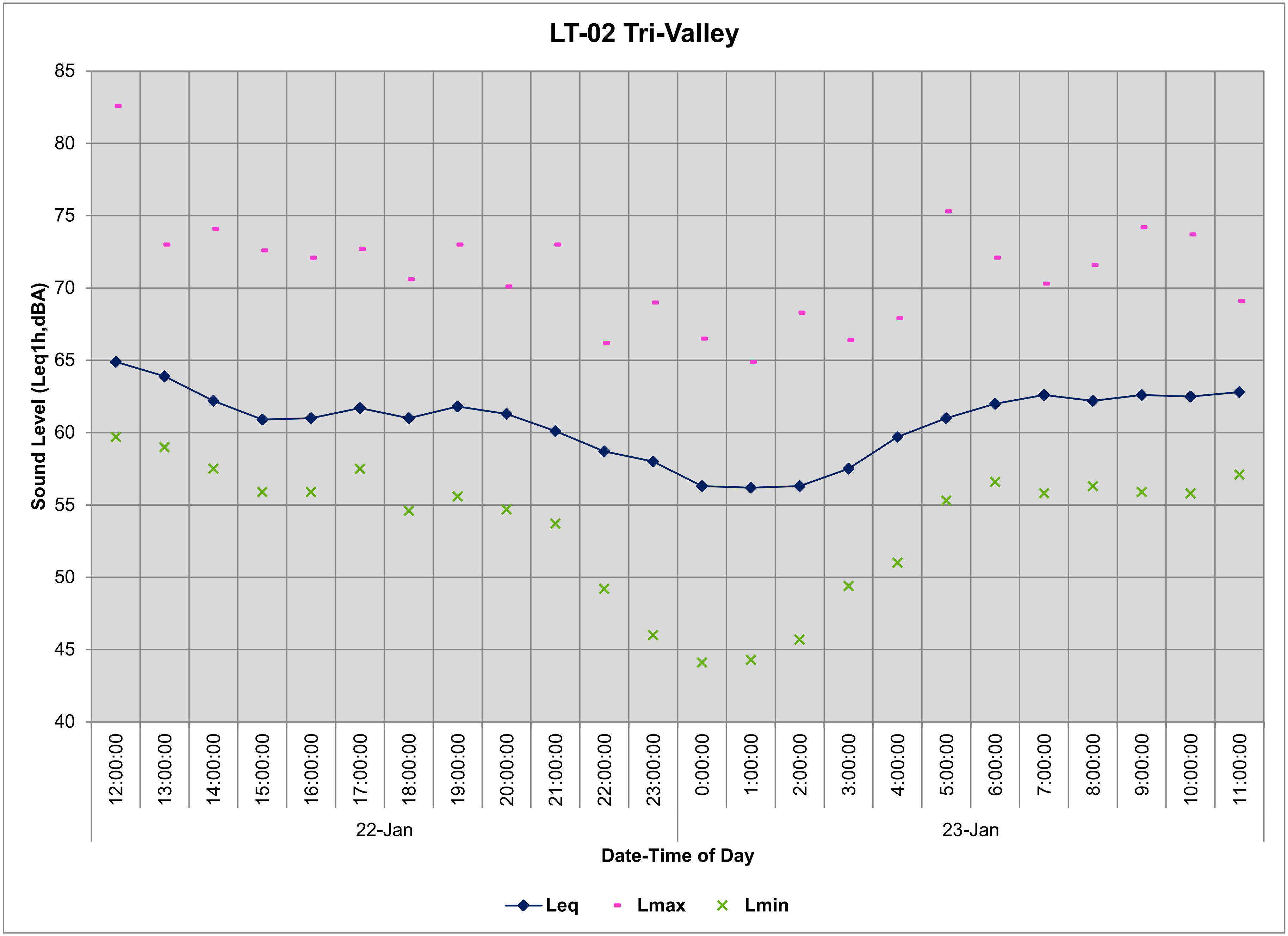
Daytime	40%
Nighttime	60%

Calculated L_{dn}, dBA

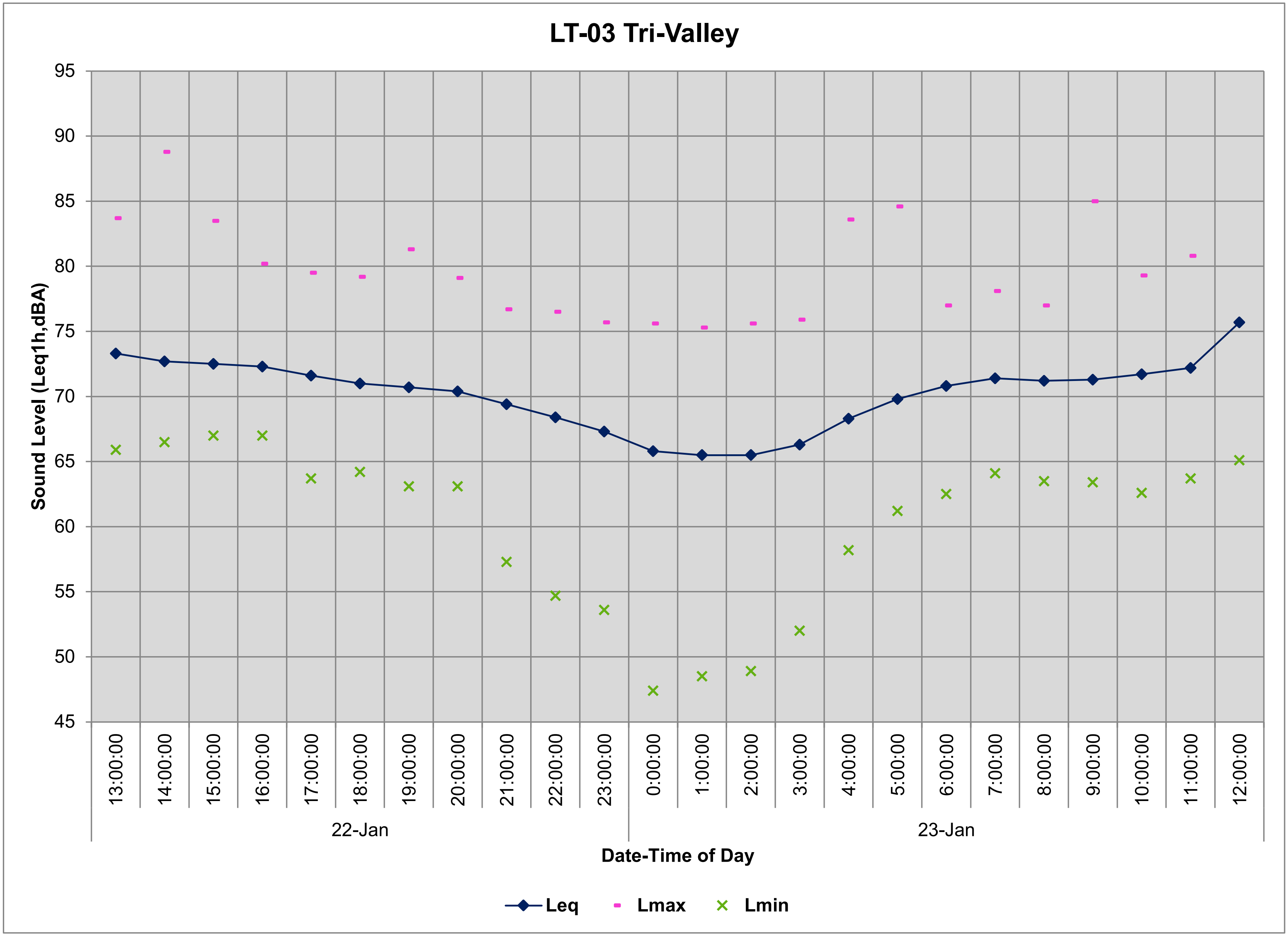
62.1



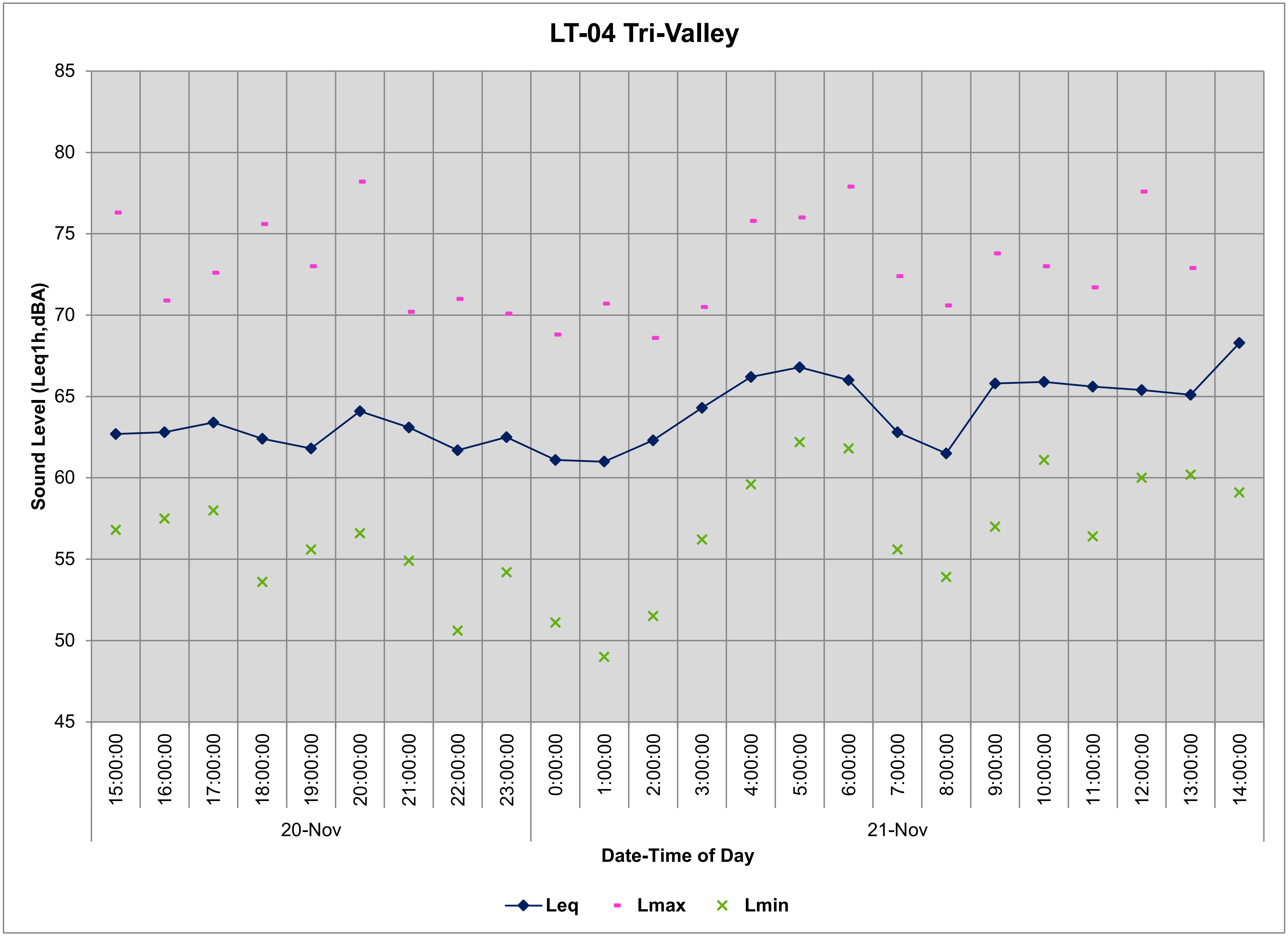
LT-01 Tri-Valley
Sound Level (Leq1h,dBA)
80
75
70
65
60
55
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
14-Nov
15-Nov
Date-Time of Day
Leq
Lmax
Lmin



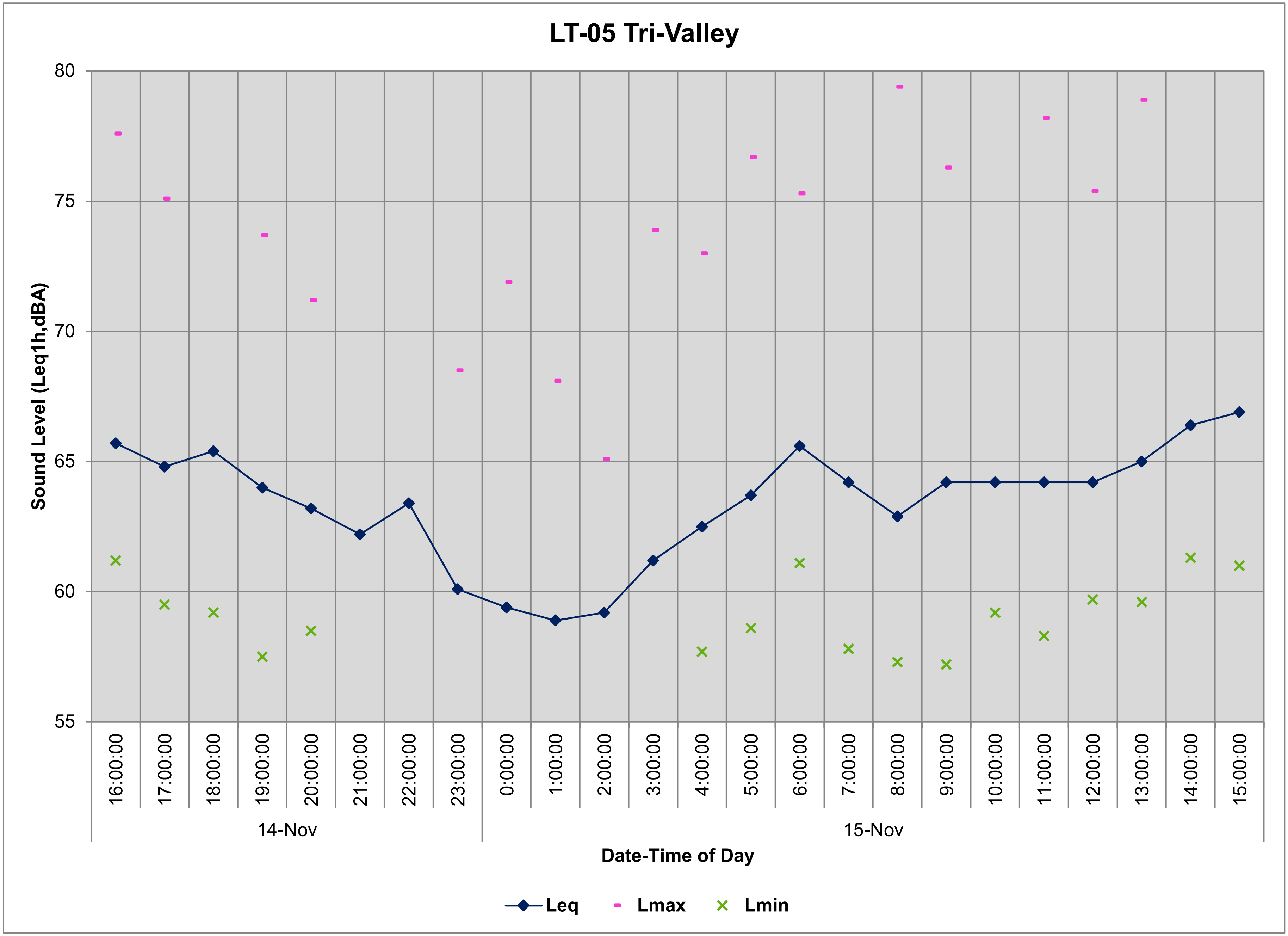
LT-02 Tri-Valley
Sound Level (Leq1h,dBA)
85
80
75
70
65
60
55
50
45
40
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
22-Jan
23-Jan
Date-Time of Day
Leq
Lmax
Lmin

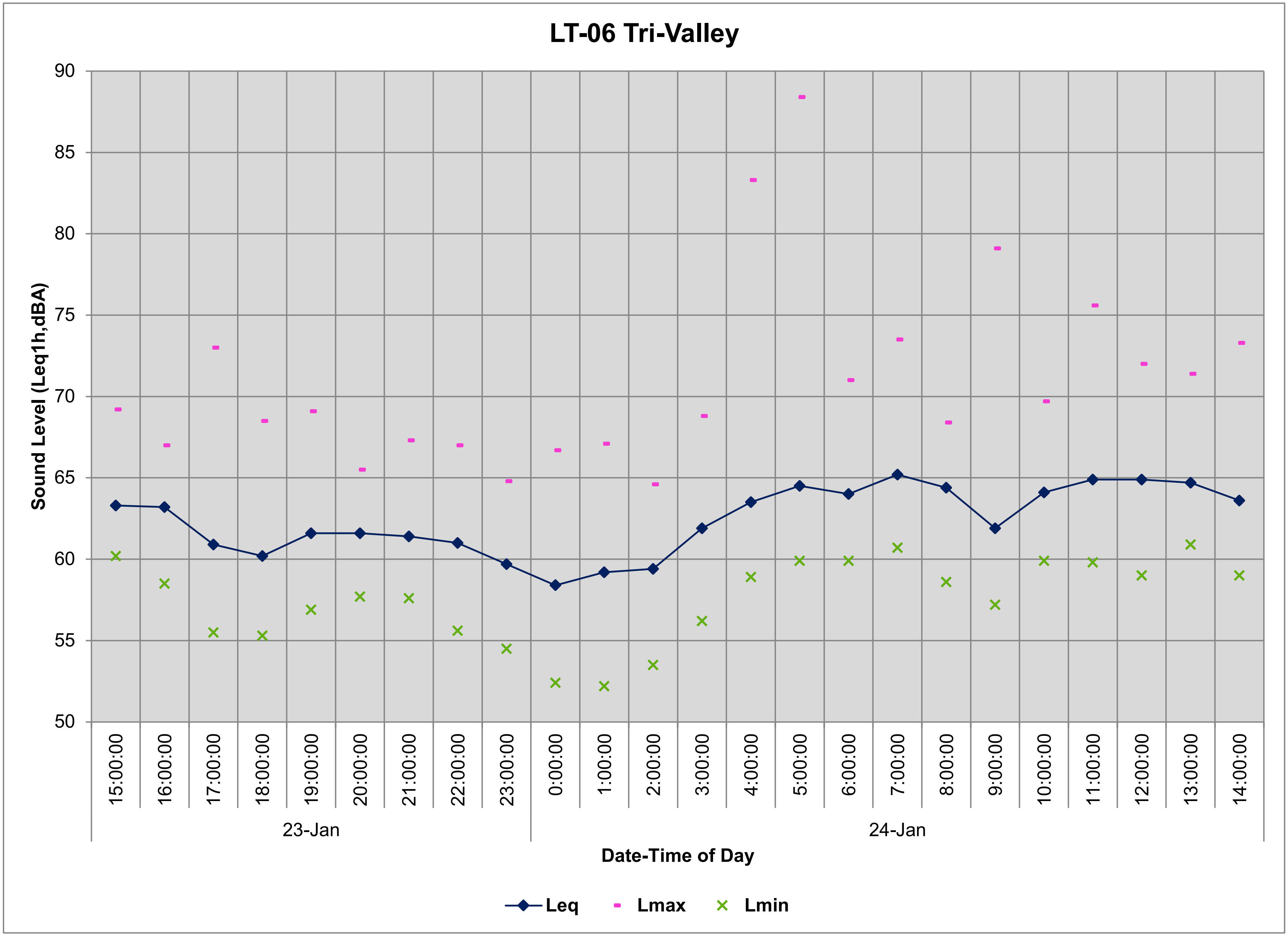


LT-03 Tri-Valley
Sound Level (Leq1h,dBA)
95
90
85
80
75
70
65
60
55
50
45
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
22-Jan
23-Jan
Date-Time of Day
Leq
Lmax
Lmin

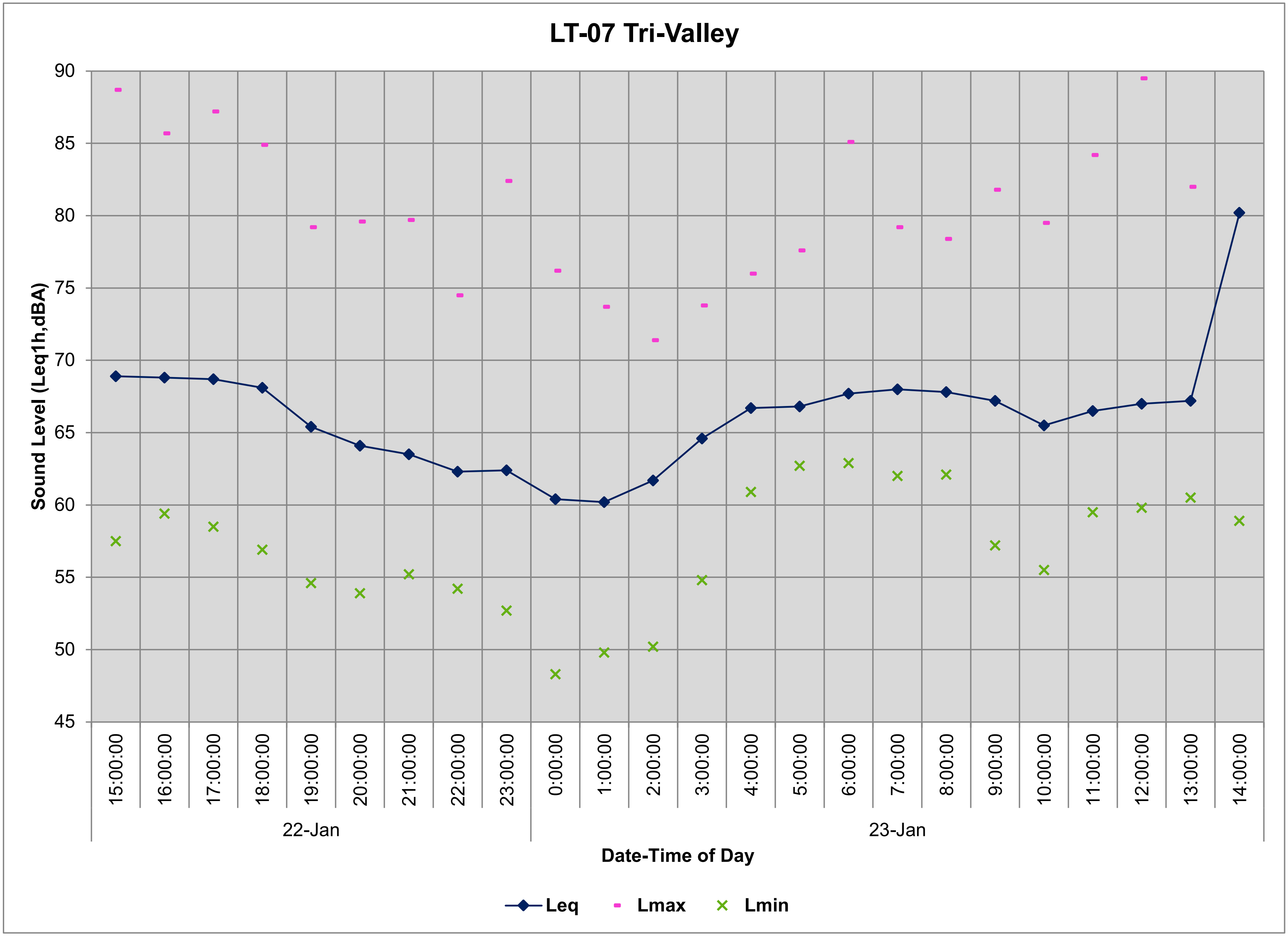


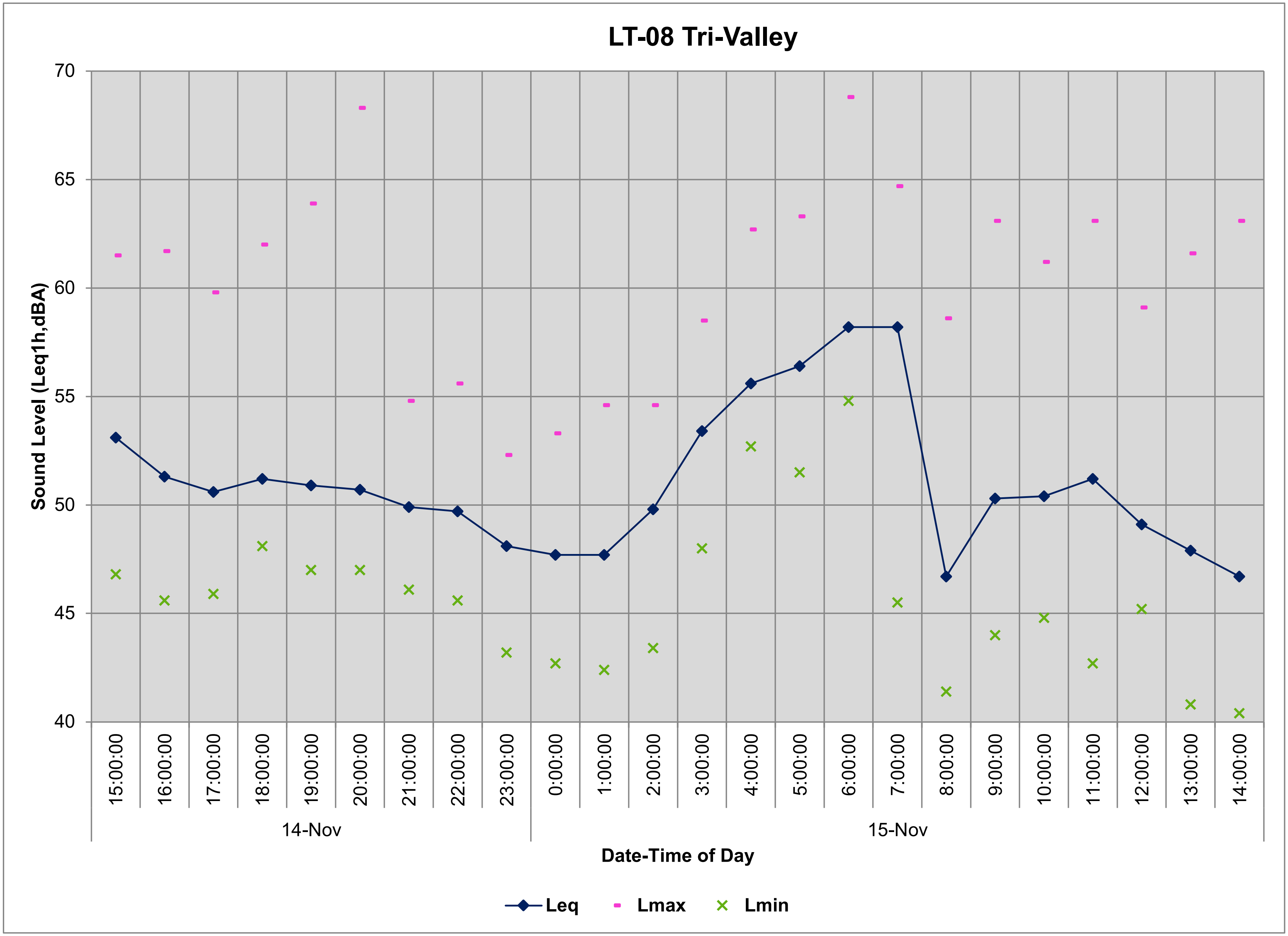
LT-04 Tri-Valley
Sound Level (Leq1h,dBA)
85
80
75
70
65
60
55
50
45
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
20-Nov
21-Nov
Date-Time of Day
Leq
Lmax
Lmin


LT-05 Tri-Valley
Sound Level (Leq1h,dBA)
80
75
70
65
60
55
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
14-Nov
15-Nov
Date-Time of Day
Leq
Lmax
Lmin

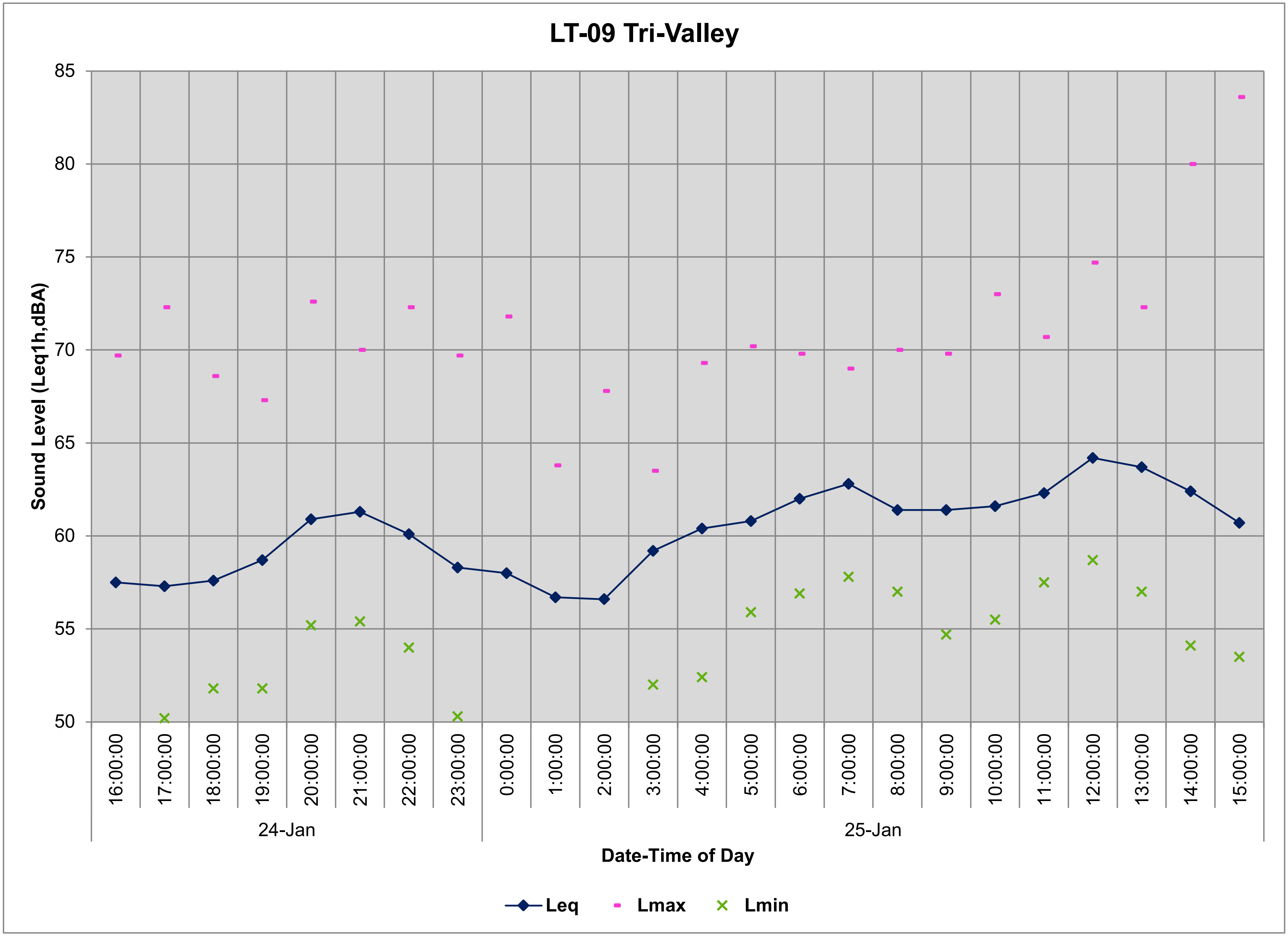


LT-06 Tri-Valley
Sound Level (Leq1h,dBA)
90
85
80
75
70
65
60
55
50
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
23-Jan
24-Jan
Date-Time of Day
Leq
Lmax
Lmin

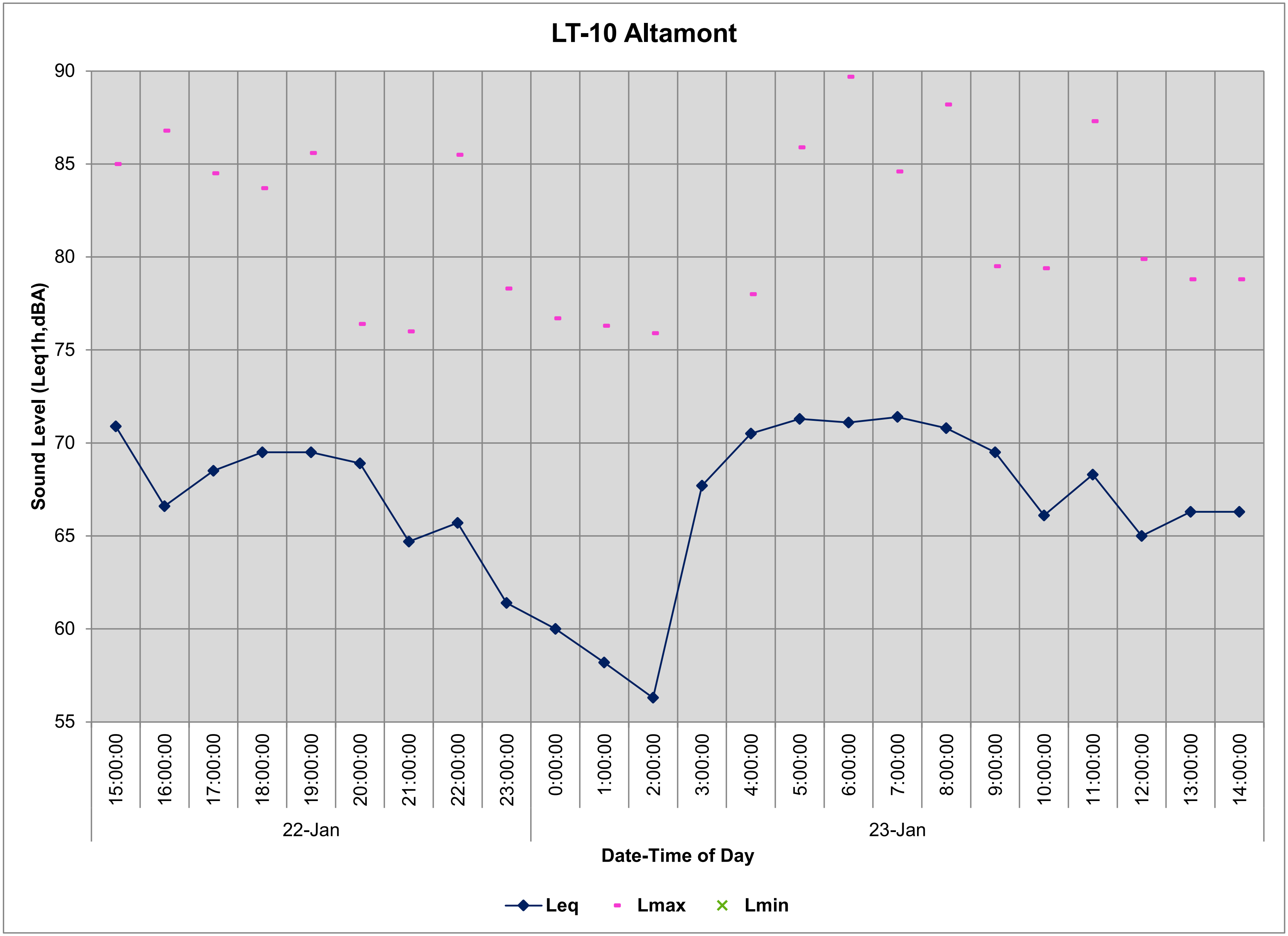

LT-07 Tri-Valley
Sound Level (Leq1h,dBA)
90
85
80
75
70
65
60
55
50
45
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
22-Jan
23-Jan
Date-Time of Day
Leq
Lmax
Lmin



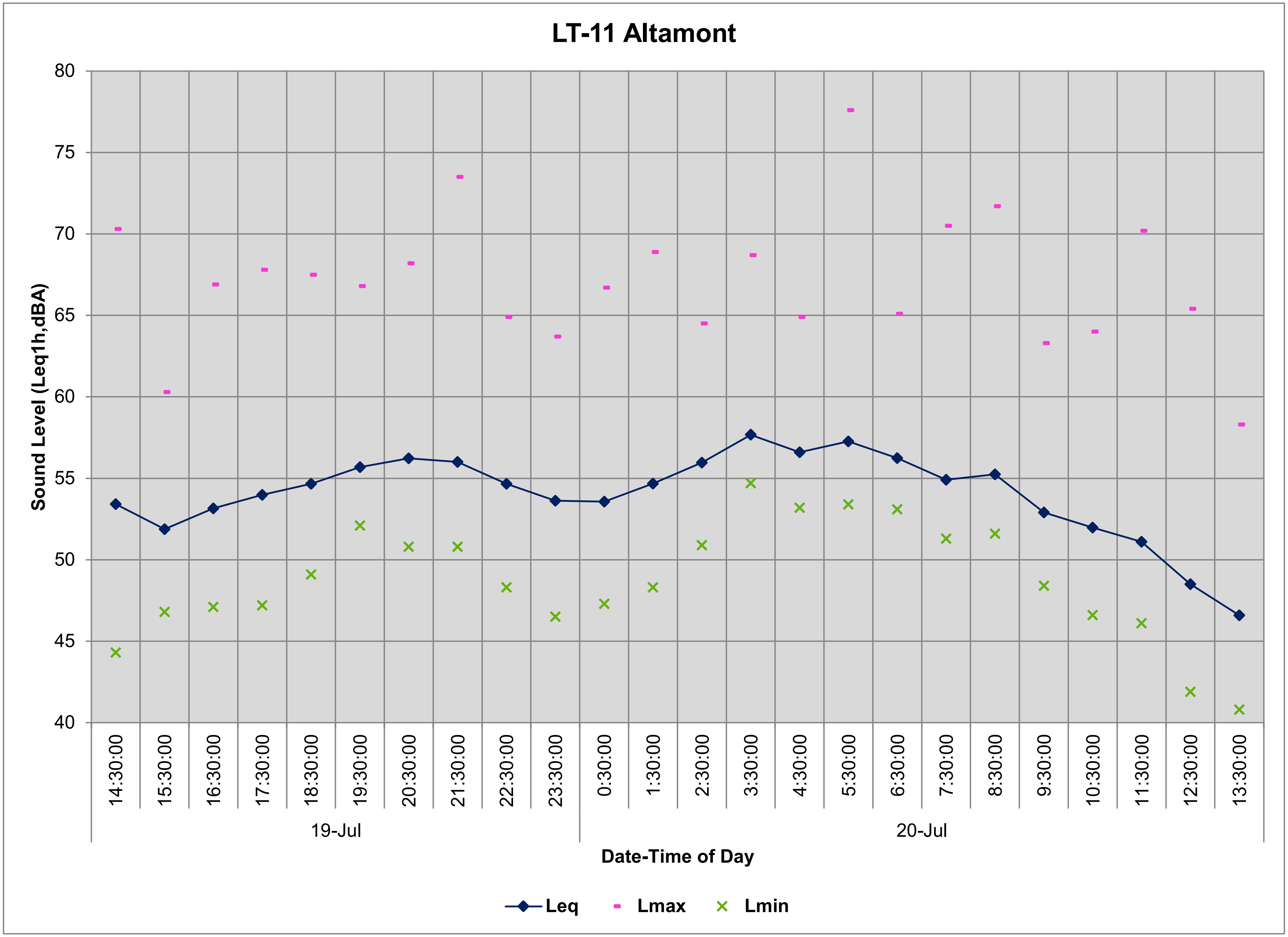
LT-08 Tri-Valley
Sound Level (Leq1h,dBA)
70
65
60
55
50
45
40
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
14-Nov
15-Nov
Date-Time of Day
Leq
Lmax
Lmin



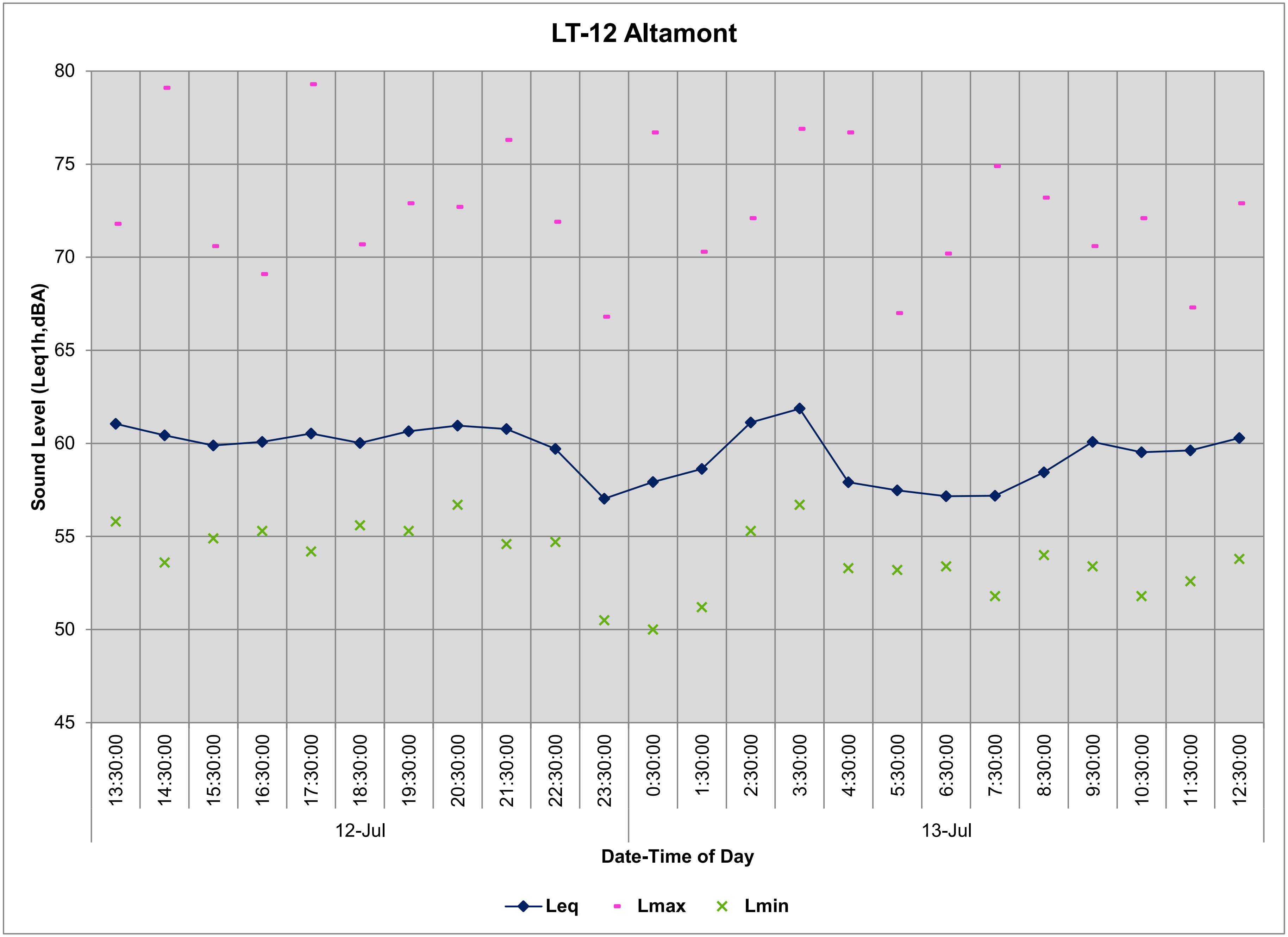
LT-09 Tri-Valley
85
80
75
70
65
60
55
50
Sound Level (Leq1h,dBA)
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
24-Jan
25-Jan
Date-Time of Day
Leq
Lmax
Lmin



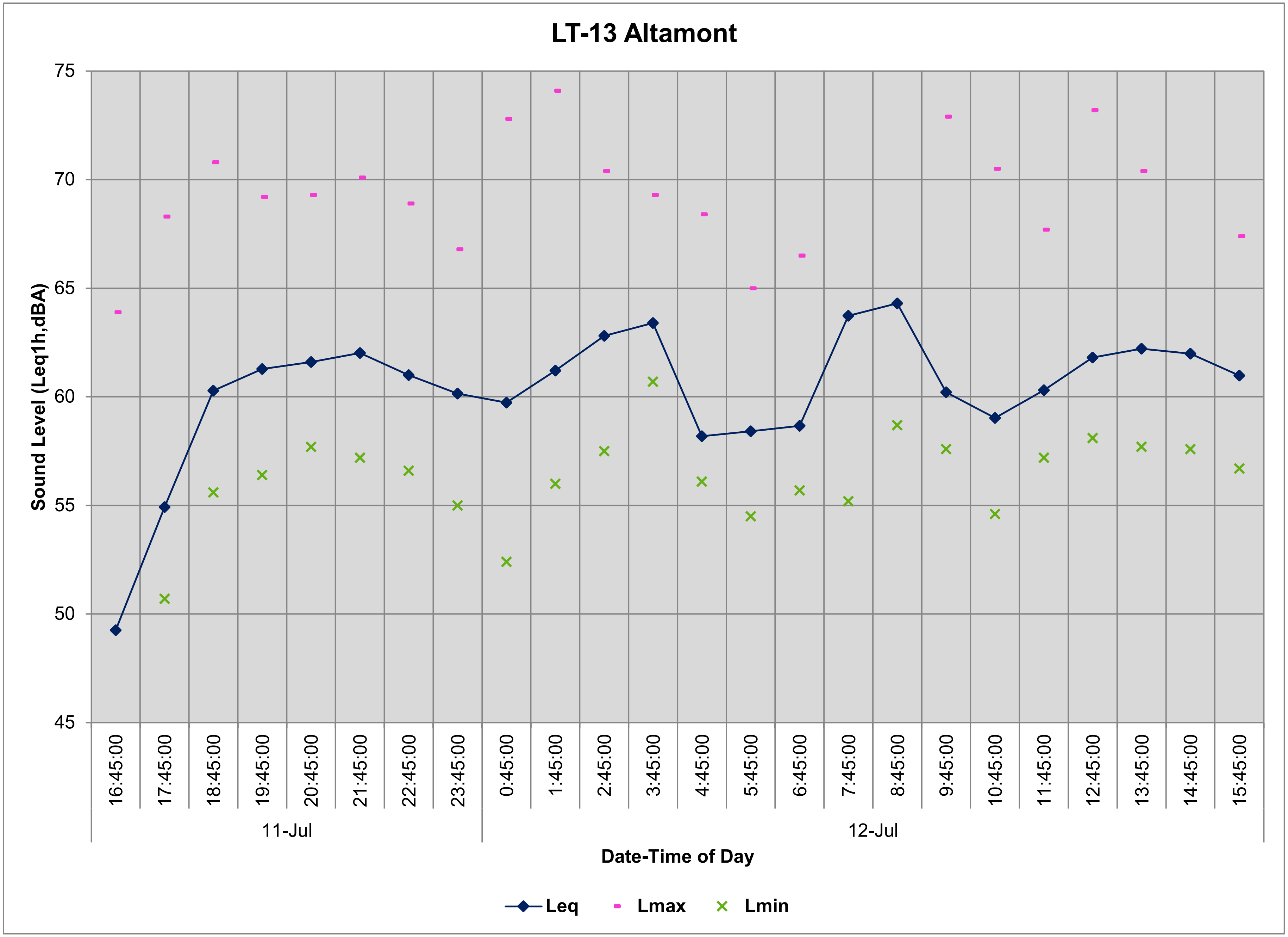
LT-10 Altamont
90
85
80
75
70
65
60
55
Sound Level (Leq1h,dBA)
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
22-Jan
23-Jan
Date-Time of Day
Leq
Lmax
Lmin

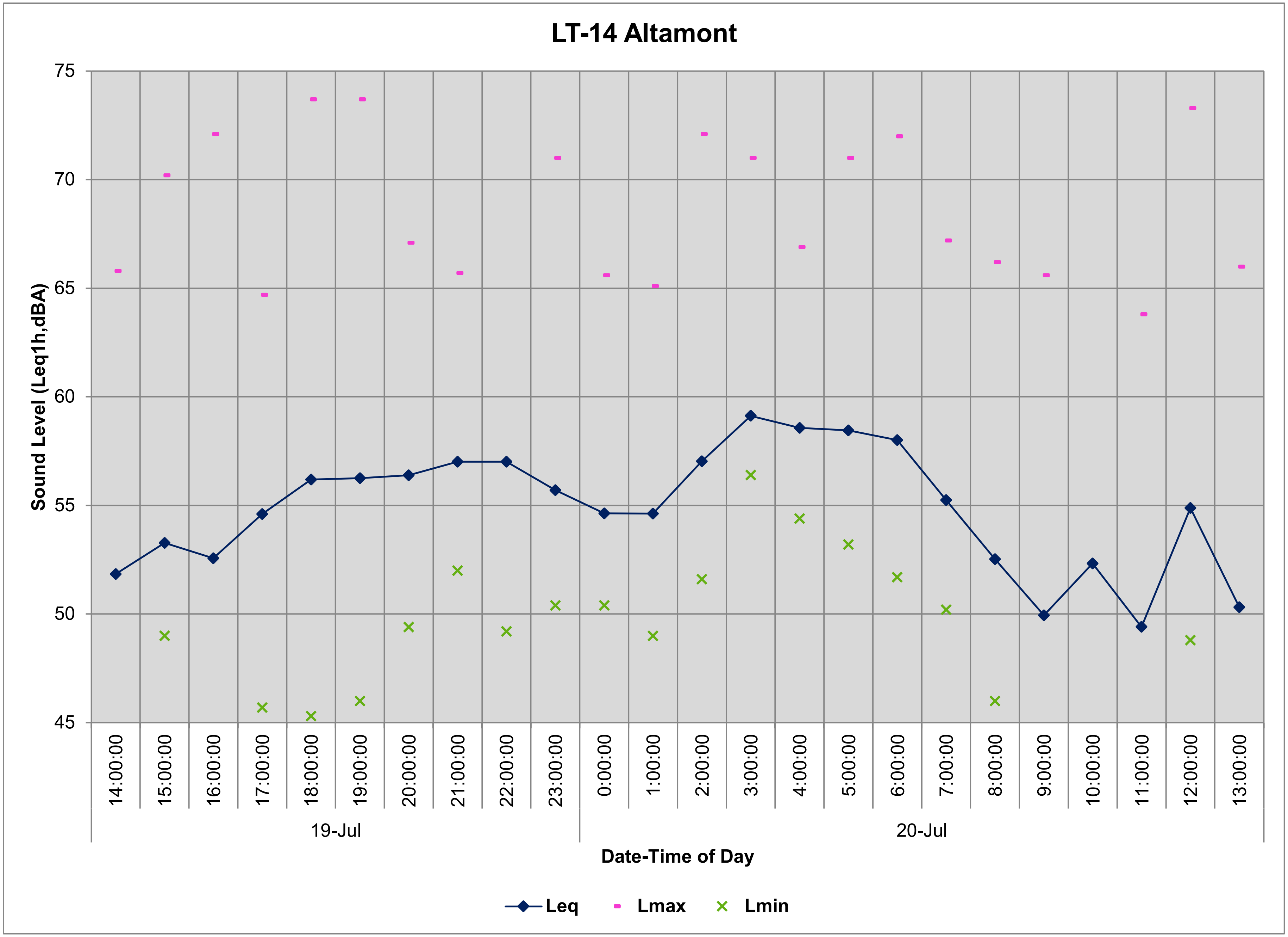


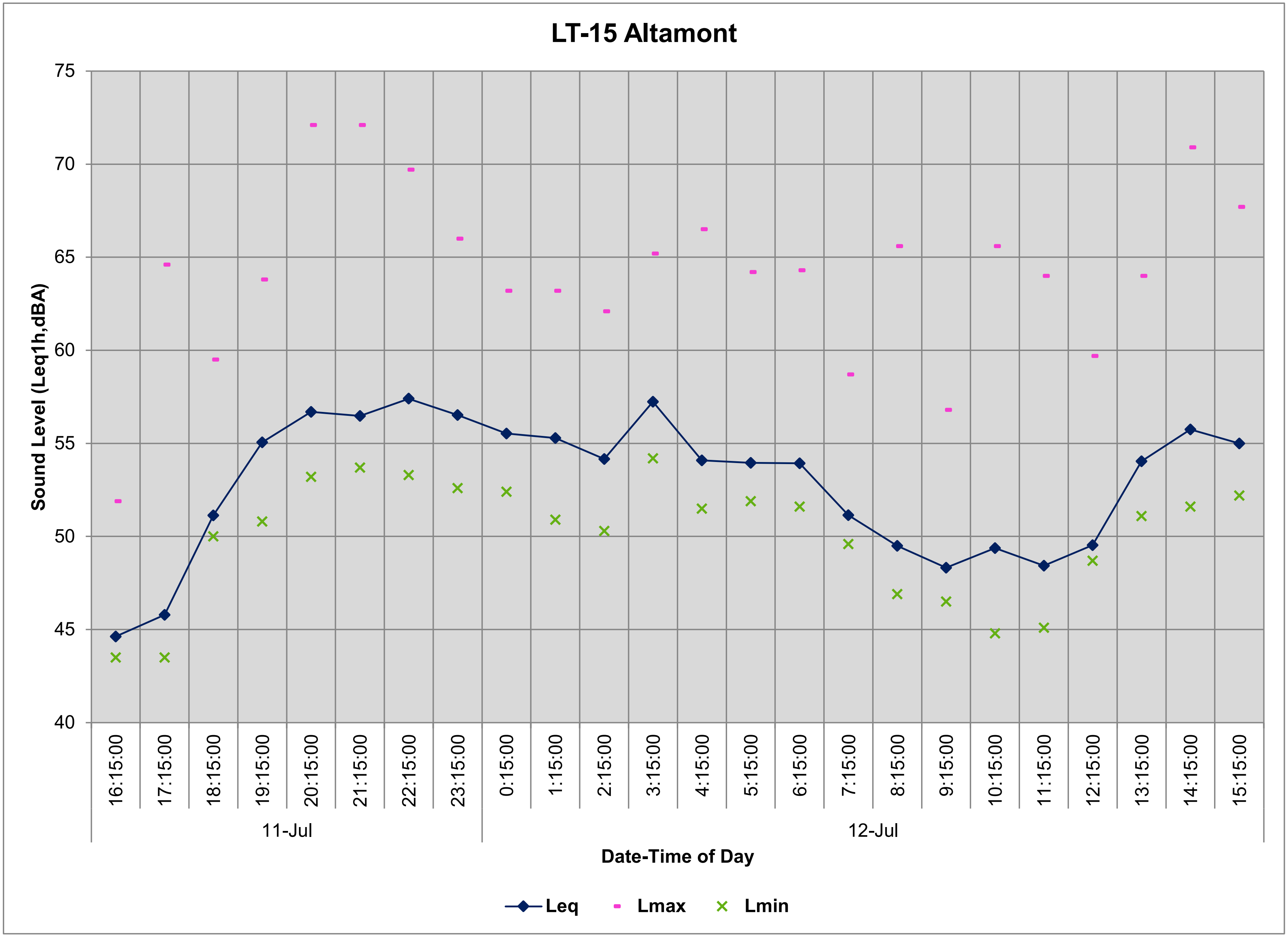
LT-11 Altamont
Sound Level (Leq1h,dBA)
80
75
70
65
60
55
50
45
40
14:30:00
15:30:00
16:30:00
17:30:00
18:30:00
19:30:00
20:30:00
21:30:00
22:30:00
23:30:00
0:30:00
1:30:00
2:30:00
3:30:00
4:30:00
5:30:00
6:30:00
7:30:00
8:30:00
9:30:00
10:30:00
11:30:00
12:30:00
13:30:00
19-Jul
20-Jul
Date-Time of Day
Leq
Lmax
Lmin



LT-12 Altamont
Sound Level (Leq1h,dBA)
80
75
70
65
60
55
50
45
13:30:00
14:30:00
15:30:00
16:30:00
17:30:00
18:30:00
19:30:00
20:30:00
21:30:00
22:30:00
23:30:00
0:30:00
1:30:00
2:30:00
3:30:00
4:30:00
5:30:00
6:30:00
7:30:00
8:30:00
9:30:00
10:30:00
11:30:00
12:30:00
12-Jul
13-Jul
Date-Time of Day
Leq
Lmax
Lmin


LT-13 Altamont
Sound Level (Leq1h,dBA)
75
70
65
60
55
50
45
16:45:00
17:45:00
18:45:00
19:45:00
20:45:00
21:45:00
22:45:00
23:45:00
0:45:00
1:45:00
2:45:00
3:45:00
4:45:00
5:45:00
6:45:00
7:45:00
8:45:00
9:45:00
10:45:00
11:45:00
12:45:00
13:45:00
14:45:00
15:45:00
11-Jul
12-Jul
Date-Time of Day
Leq
Lmax
Lmin


LT-14 Altamont
Sound Level (Leq1h,dBA)
75
70
65
60
55
50
45
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
0:00:00
1:00:00
2:00:00
3:00:00
4:00:00
5:00:00
6:00:00
7:00:00
8:00:00
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
19-Jul
20-Jul
Date-Time of Day
Leq
Lmax
Lmin


LT-15 Altamont
Sound Level (Leq1h,dBA)
75
70
65
60
55
50
45
40
16:15:00
17:15:00
18:15:00
19:15:00
20:15:00
21:15:00
22:15:00
23:15:00
0:15:00
1:15:00
2:15:00
3:15:00
4:15:00
5:15:00
6:15:00
7:15:00
8:15:00
9:15:00
10:15:00
11:15:00
12:15:00
13:15:00
14:15:00
15:15:00
11-Jul
12-Jul
Date-Time of Day
Leq
Lmax
Lmin

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 11/14/19

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0.10

Temp: 59-70°F

Hum: 56%-59%

Wind: 1-3 mph

Sky: Cloudy

Roadway Name: Iron Horse Parkway

Location On Site: Corner of Iron Horse Parkway & Demarcus Park

Site: LT-26

11/14/19 Start Time: 15:58

Stop Time: 11/14/19 16:00

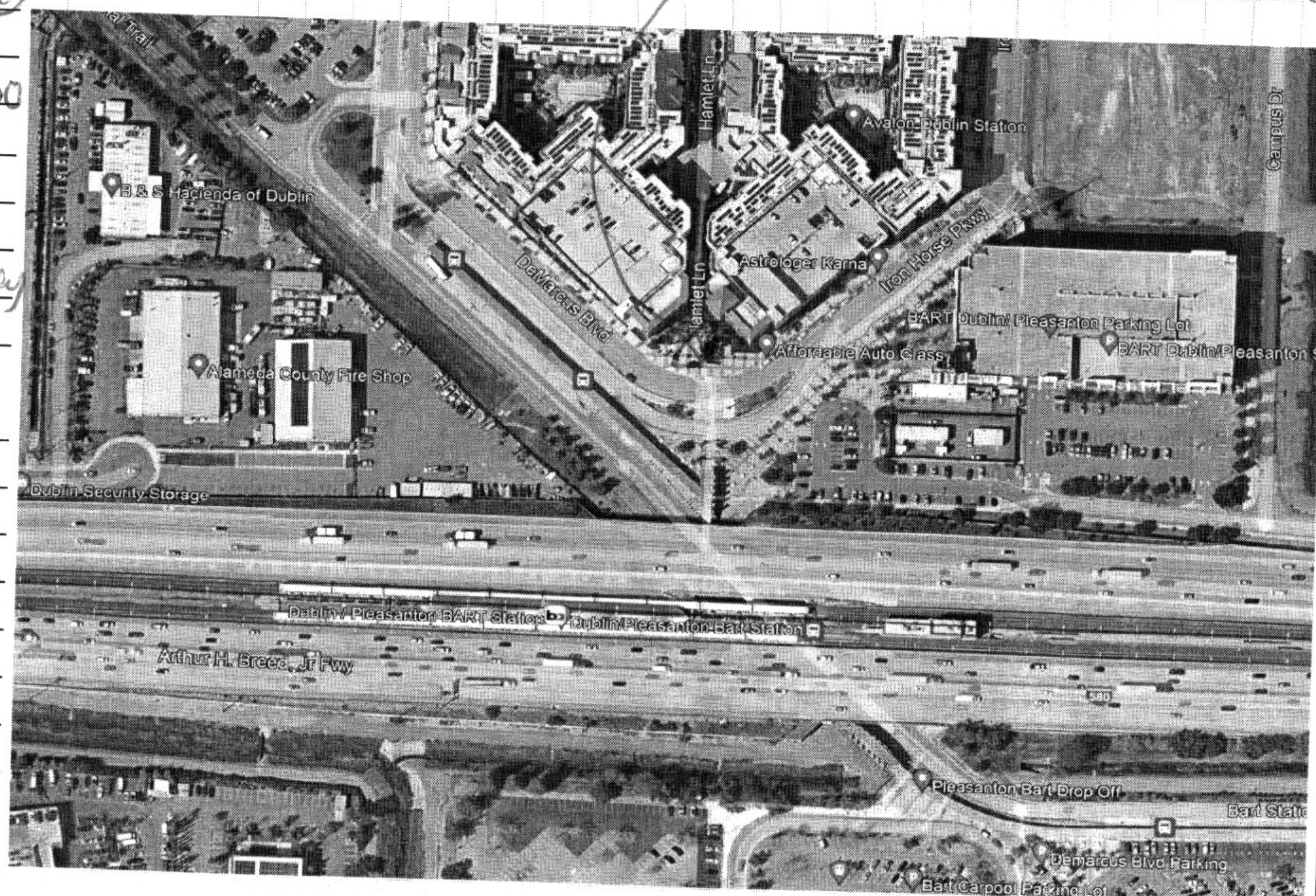
Mic Elev ~ Source: Flat

Ground Type: Paved

Site Topography: Flat

Elevated Freeway

Notes/Sketches:



Noise Source(s) w/ Distance:

1) Freeway

Trains

Notes:

Pedestrians/people walking

Continuous Noise Measurement Datasheet

AECOM

Project : Valleylink

Date: 1/22/19 to 1/23/19

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0/0

Temp: 30-54°F

Hum: 29-68%

Wind: 1-7mph

Sky: Sunny

Roadway Name: Pimlico Drive

Location On Site: Corner of Pimlico Drive

Site: LT-1 (2)

Start Time: 11:47

Stop Time: 12:00

Mic Elev ~ Source: Flat

Ground Type: Hard

Site Topography: Berm

Sound Wall along freeway

Noise Source(s) w/ Distance:

1) Freeway

Pimlico Drive

Natural Sources (wind, birds)

Notes:

Soundwall shielding freeway Noise

Notes/Sketches:

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 1/22-1/23 2019

Analyst:

SLM #:

Cal #: 1

Offset A: 0/0

Temp: 30-54

Hum: 29-68%

Wind: 1-7mph

Sky: Sunny

Roadway Name: I-580

Location On Site: Northern Boundary of Las Positas Golf Course

Site: LT-2 (3)

Start Time: 12:39

Stop Time: 03:00

Mic Elev ~ Source: Flat

Ground Type: Hard

Site Topography: Flat Even

Notes/Sketches:

Noise Source(s) w/ Distance:

1) Freeway

Golf Course

Notes:

No Sound wall

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 11/20-11/21 2019

Analyst: Issa

SLM #: 820

Cal #: 1

Offset $_A$: 010

Temp: 41-68 °F

Hum: 40-73%

Wind: 1-6 mph

Sky: Sunny

Roadway Name: Constitution Drive

Location On Site: Outside - Alameda County Social Servs.

Site: LT-25 (4)

Start Time: 14:13

Stop Time: 16:00

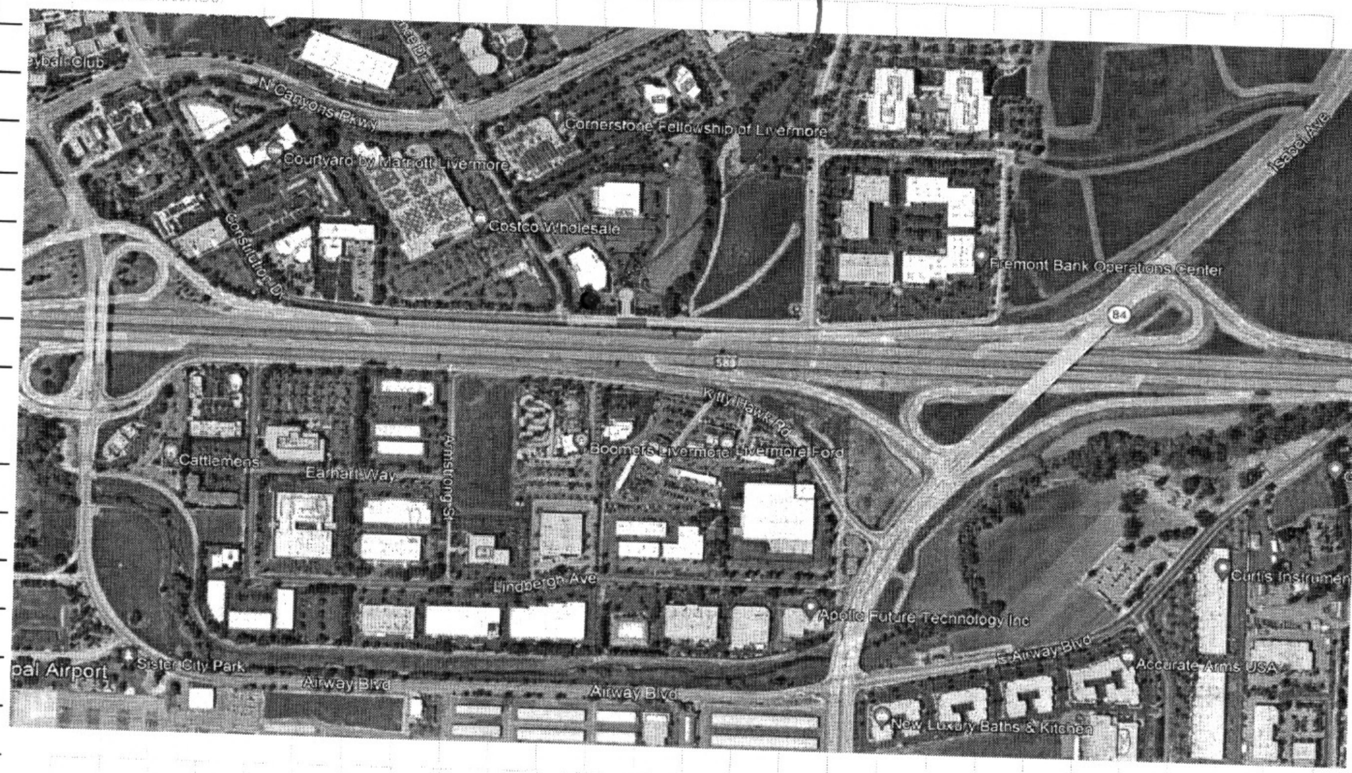
Mic Elev ~ Source: Flat

Ground Type: Hard

Site Topography: Even

Flat

Notes/Sketches



Noise Source(s) w/ Distance:

1) Freeway

Constitution Drive

Notes:

No Soundwall

Continuous Noise Measurement Datasheet

AECOM

Project: Valley Link

Date: 11/14-11/15 2019

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0.10

Temp: 52-70°F

Hum: 56-89%

Wind: 1-9 mph

Sky: Partially Cloudy

Roadway Name: Saddleback Circle

Location On Site: California Ranch Park

Site: LT-24 (5)

Start Time: 15:22

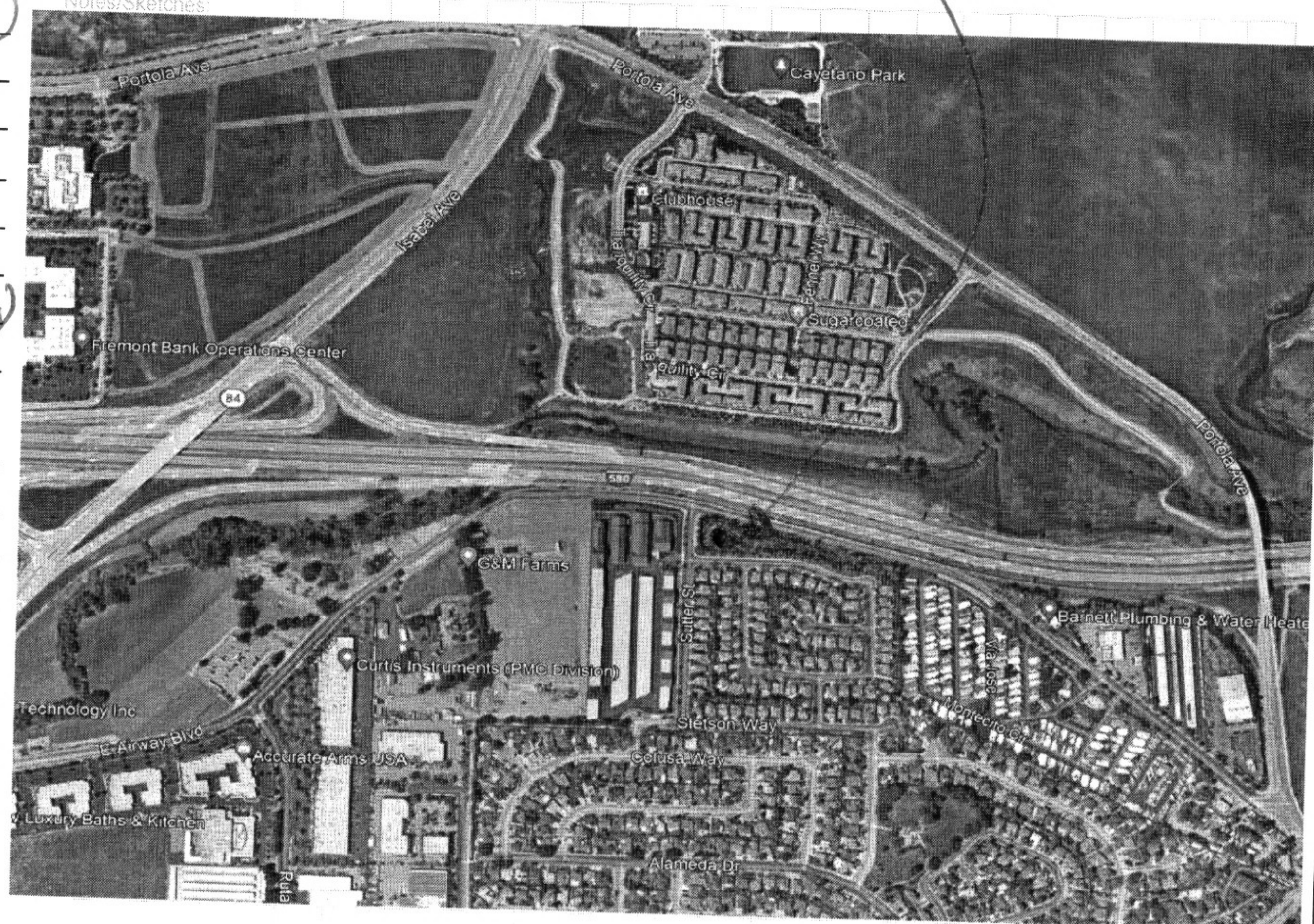
Stop Time: 17:00

Mic Elev ~ Source: Uneven

Ground Type: Soft

Site Topography: Generally Even (Park way)

Notes/Sketches:



Noise Source(s) w/ Distance:

1) Freeway

Sutter St.

Saddle Back Circle

Notes:

No soundwall

Jersey wall

Freeway Edge.

Continuous Noise Measurement Datasheet

AECOM

Project: Valley Link

Date: 1/23-1/24 2019

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0/0

Temp: 57-63°F

Hum: 45-85%

Wind: 1-9 mph

Sky: Sunny

Roadway Name: Las Positas Road

Location On Site: By Kaiser P. Building

Site: LT-03 (6)

Start Time: 14:19

Stop Time: 14:00

Mic Elev ~ Source: Flat

Ground Type: Solid

Site Topography: Even

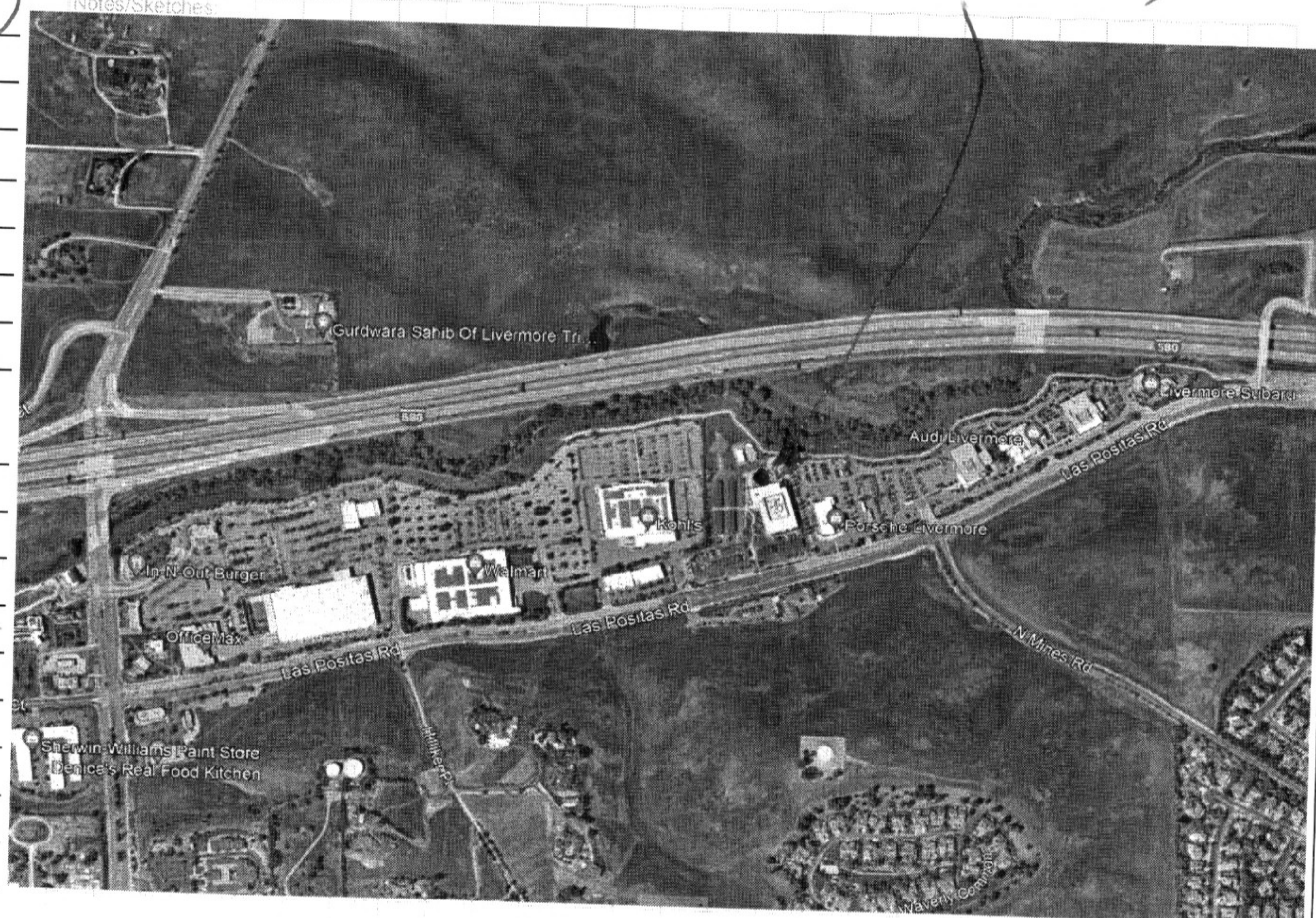
Noise Source(s) w/ Distance:

1) Freeway and KP Parking lot

Notes:

No Sound wall

Notes/Sketches



AECOM

Continuous Noise Measurement Datasheet

Project : Valley Link

Date: 1/22-1/23

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0/0

Temp: 30-54 °F

Hum: 29-68%

Wind: ~~29-68%~~ 1-7mph

Sky: Sunny

Roadway Name: Sunflower Court

Location On Site: Sunflower & Hattan Dr.

Site: LT-~~4~~ 7

Start Time: 13:29

Stop Time: 16:00

Mic Elev ~ Source: Flat

Ground Type: Hard

Site Topography: Flat

Noise Source(s) w/ Distance:

1) Freeway
Sunflower Court

Notes:

Soundwall along freeway

Notes/Sketches:

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link
Date: 1/14-1/15
Analyst: Issa
SLM #: 820

Cal #: 1
Offset A: 0/0
Temp: 52-70 F
Hum: 56-89%
Wind: 1-9mph
Sky: Partially Cloudy

Roadway Name: Scenic Road
Location On Site: ~~Grnner~~ Road at Scenic Road

Site: LT-23 (2)

Start Time: 14:50

Stop Time: 17:00

Mic Elev ~ Source: Flat

Ground Type: Soft

Site Topography: Even

~~Roadway~~ Partially Elevated

Noise Source(s) w/ Distance:

1) Scenic Ave.
Laughlin Road
I-580

Notes/Sketches:

Notes:

No
Soundwall

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link
Date: 1/24-1/25
Analyst: Issa
SLM #: 820

Cal #: 1
Offset A: 0/0
Temp: 37-63°F
Hum: 45-87%
Wind: 1-10 mph
Sky: Sunny

Roadway Name: Southfront Road
Location On Site: Pool - Best Western Plus Hotel

Site: LT-05 (9)

Start Time: 15:17

Stop Time: 16:00

Mic Elev ~ Source: Un Elev

Ground Type: Soft

Site Topography: Flat and Elevated Freeway

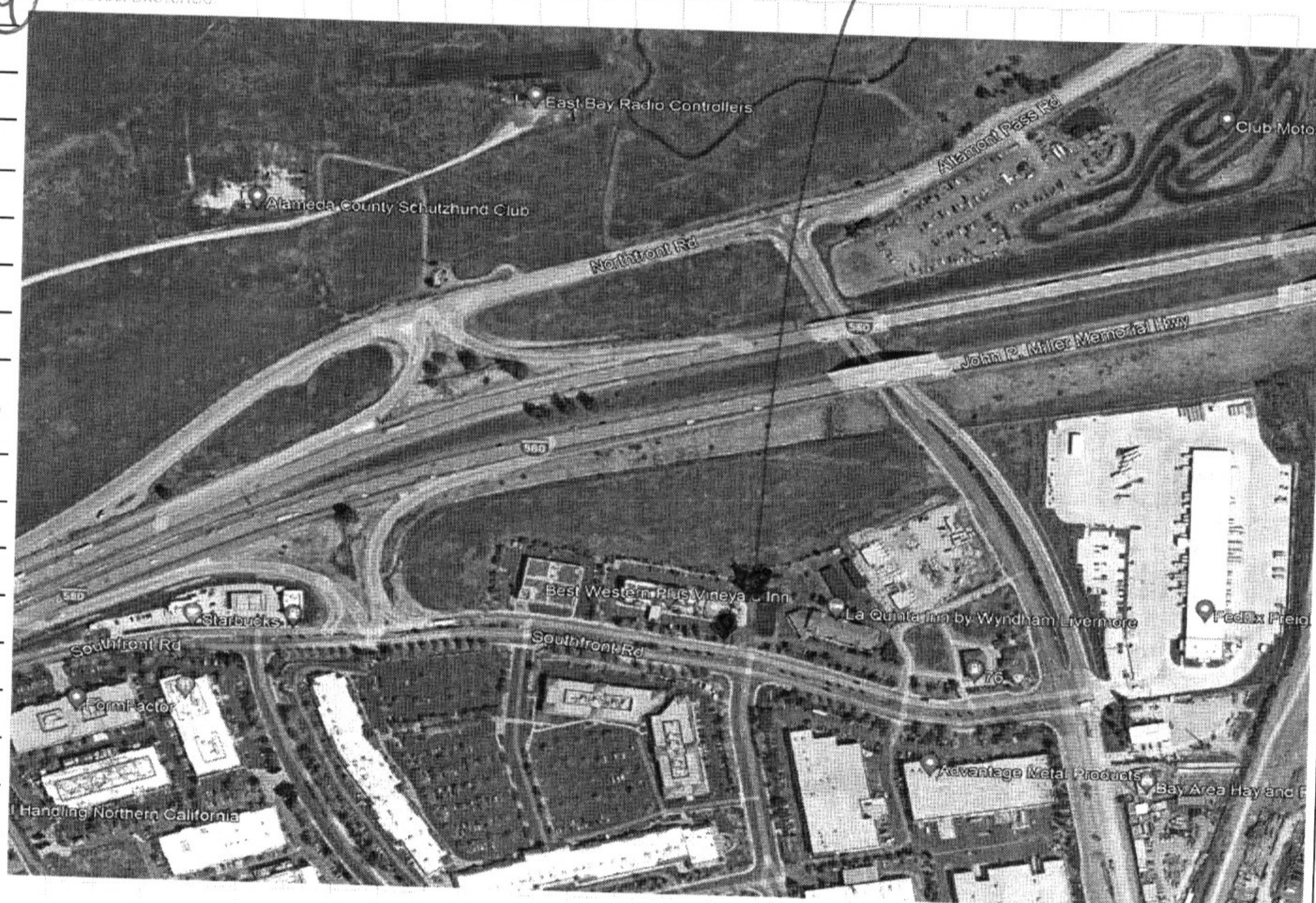
Noise Source(s) w/ Distance:

1) Southfront Rd, mountain Vista Parkway, Freeway

Notes:

Soundwall around the pool.

Notes/Sketches



Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 1/22/~~19~~ -1/23 2019

Analyst: Issa

SLM #: 820

Cal #: 1

Offset $_A$: 070

Temp: 34-59 °F

Hum:

Wind: 1-9 mph

Sky: Sunny

Roadway Name: Altamont Pass Road

Location On Site: Between Railway & Altamont Pass Rd.

Site: LT-06 (10)

Start Time: 15:00

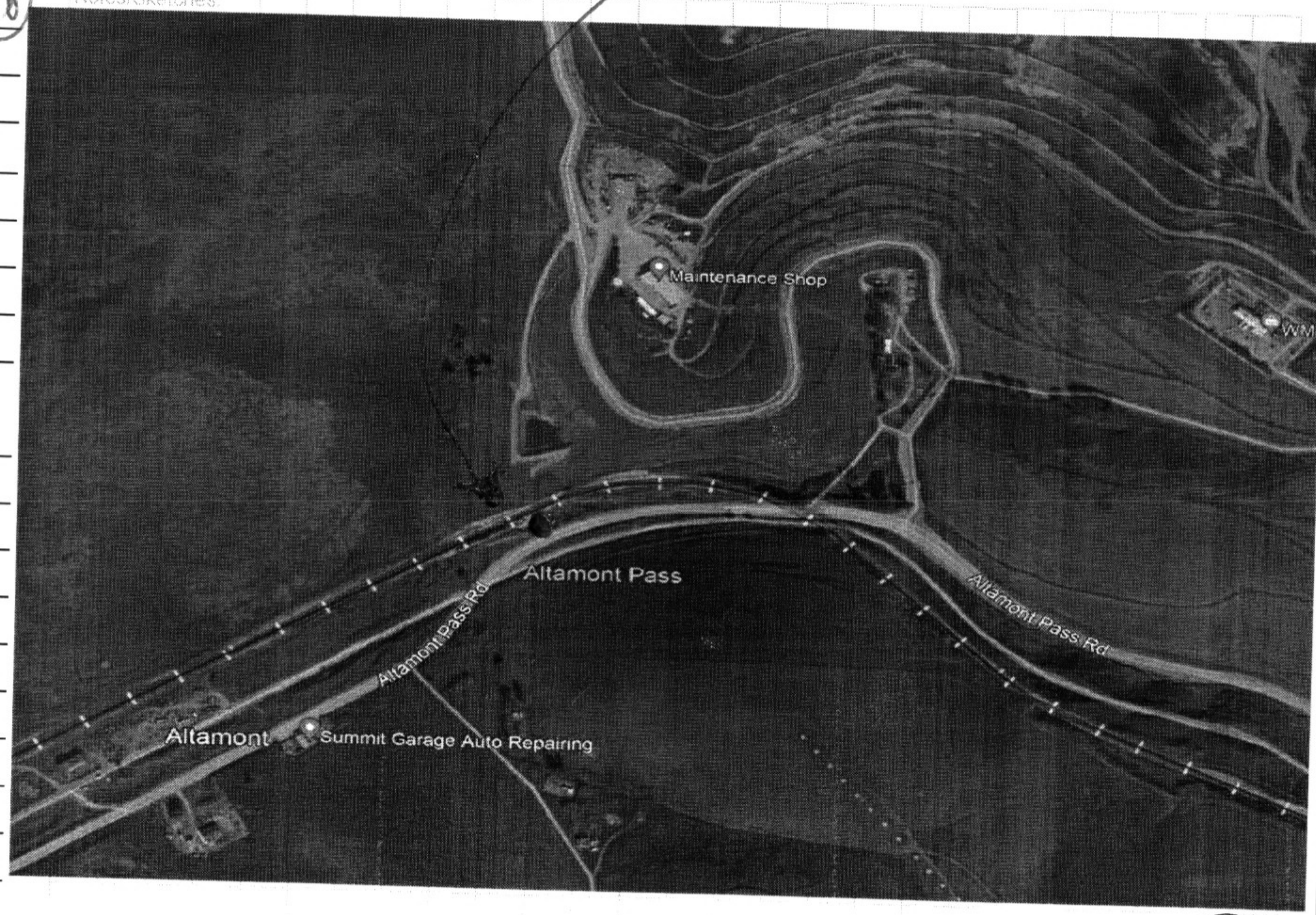
Stop Time: 13:00

Mic Elev ~ Source: Flat

Ground Type: Soft

Site Topography: Uneven

Notes/Sketches:



Noise Source(s) w/ Distance:

1) Railway

Altamont Pass Road

Notes:

No Sound wall

Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 7/19-7/20 2023

Analyst: Issa

SLM #: 820

Cal #: 1

Offset A: 0/0

Temp: 57-79 F

Hum: 35-87%

Wind: 3-11 mph

Sky: Partially cloudy

Roadway Name: Altamont Pass Rd.

Location On Site: 15885 Altamont Pass Rd.

Site: LT-6 (11)

Start Time: 14:17

Stop Time: 15:45

Mic Elev ~ Source: Uneven

Ground Type: Soft

Site Topography: Hilly

Moderate Terrain shielding

Noise Source(s) w/ Distance:

1) Altamont Pass Freeway (I-580)

Notes:

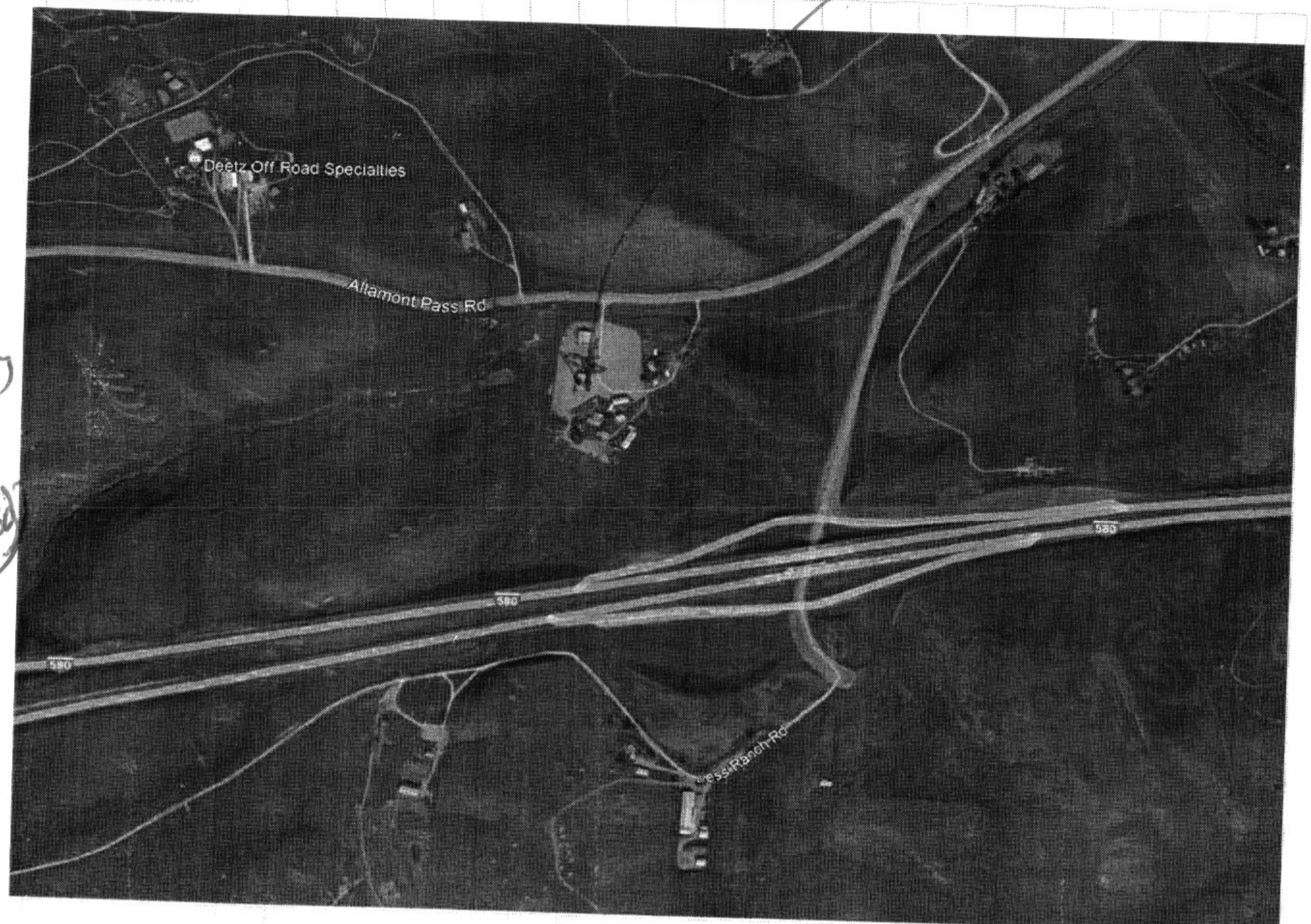
Elevated Source

Onsite House

Activities

Brain-87.

Notes/Sketches



Continuous Noise Measurement Datasheet

AECOM

Project: Valley Link

Date: 7/12-7/13 2023

Analyst: Essa

SLM #: 820

Cal #: 1

Offset A: 0/0

Temp: 61-97F

Hum: 22-82%

Wind: 1-11 mph

Sky: Sunny

Roadway Name: Midway Parkway Road

Location On Site: 410 Midway Rd. Tracy

Site: LT-3 (12)

Start Time: 13:15

Stop Time: 21:15

Mic Elev ~ Source: Hilly Area

Ground Type: Soft

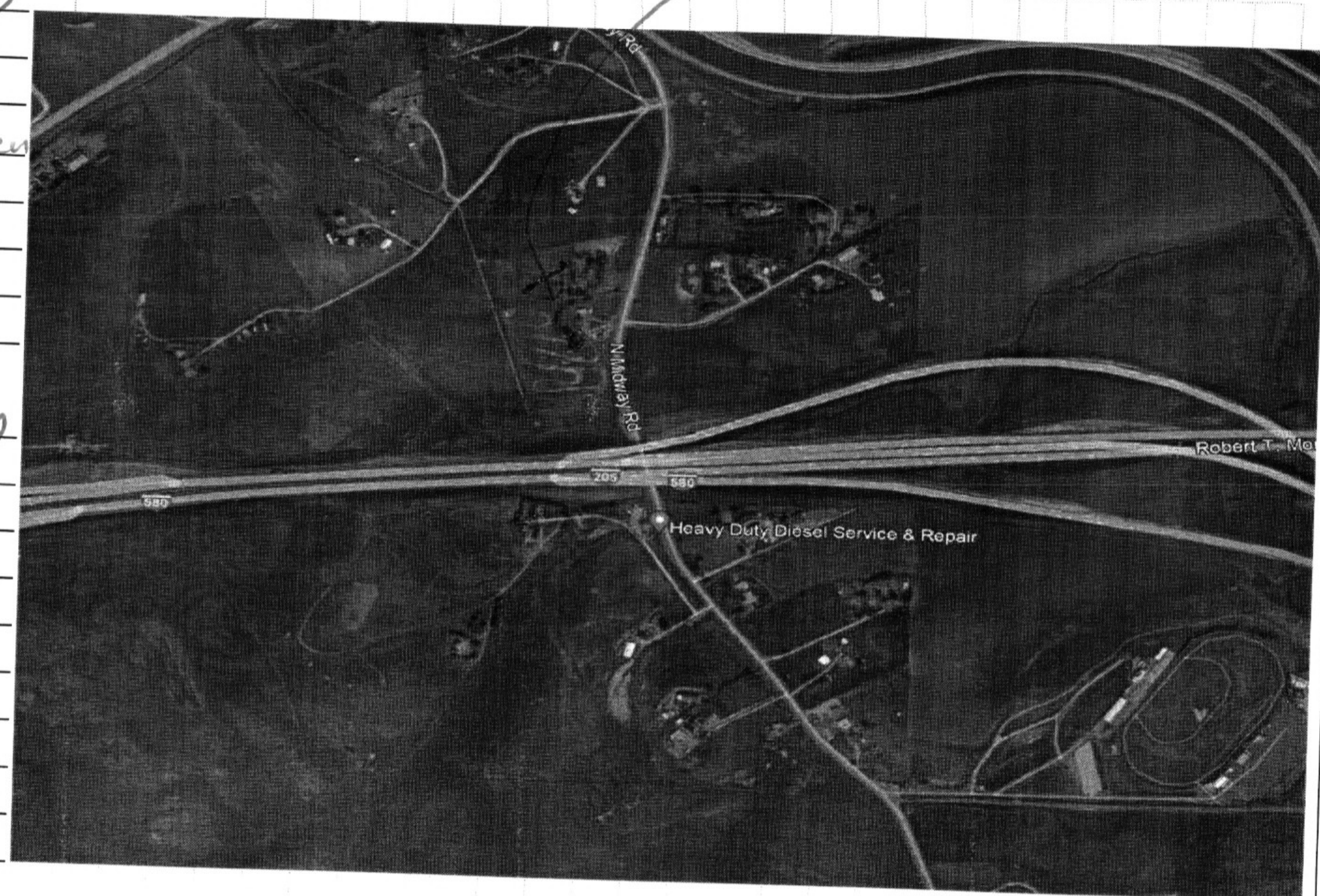
Site Topography: Uneven Agricultural Lands

Noise Source(s) w/ Distance:

1) North Midway Road
Distant Freeway

Notes:
Elevated House

Notes/Sketches



Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 7/11-7/12 Analyst: Issa SLM #: 820

Cal #: 1 Offset A: 0/0

Temp: 63-97°F Hum: 20-64% Wind: 1-8 mph Sky: Sunny

Roadway Name: East Central Parkway Location On Site: By 239 S Central Parkway

Site: LT-2 (12)

Start Time: 16:35

Stop Time: 18:45

Mic Elev ~ Source: Flat

Ground Type: Soft

Site Topography: Even

~~Agricultural~~ Land

Noise Source(s) w/ Distance:

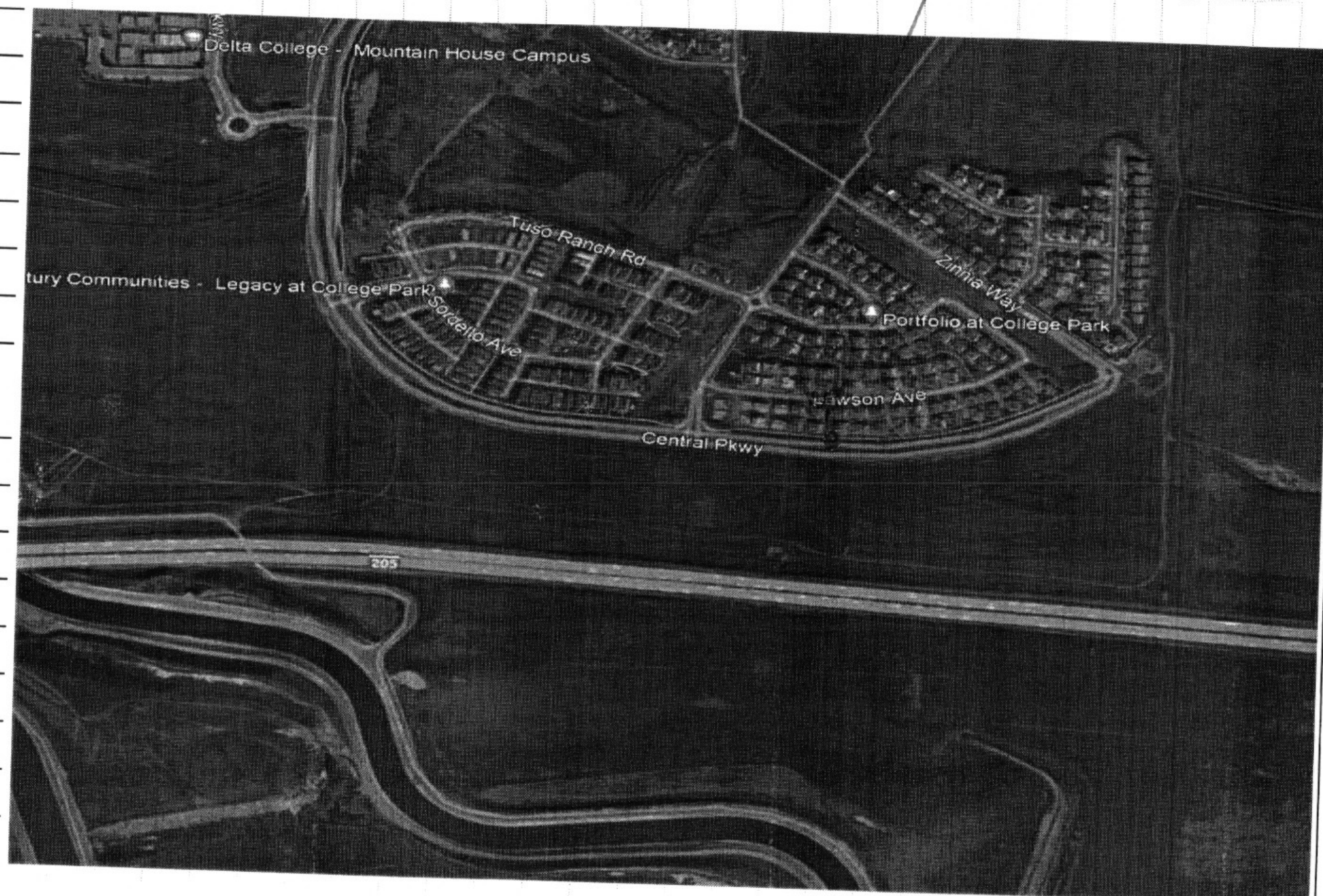
1) E Central Parkway

I-205

Notes:

No Soundwall

Notes/Sketches



Continuous Noise Measurement Datasheet

AECOM

Project : Valley Link

Date: 7/20-7/21 2023

Analyst: Issa

SLM #: 820

Cal #: 1

Offset $_A$: 0/0

Temp: 63-100 F

Hum: 20-70%

Wind: 2-7 mph

Sky: Sunny

Roadway Name: Mountain House Parkway

Location On Site: 22994 Mountain House Parkway

Site: LT-5 (14)

Start Time: 13:45

Stop Time: 16:00

Mic Elev ~ Source: Flat

Ground Type: ~~[illegible]~~ Rd

Site Topography: Open Agricultural Land

Noise Source(s) w/ Distance:

1) Mountain House Parkway

I-205

Notes: No Sound Wall

Notes/Sketches

Continuous Noise Measurement Datasheet

AECOM

Project: Valley Link

Date: 7/11-7/12

Analyst: Issa

SLM #: 820

Cal #: 1

Offset $_A$: 0/0

Temp: 68-99

Hum: 20-60%

Wind: 1-8 mph

Sky: Sunny

Roadway Name: Las Ranchos Dr. Tracy

Location On Site: 23504 Las Ranchos Drive

Site: LT-1 (15)

Start Time: 1612

Stop Time: 19:15

Mic Elev ~ Source: Even.

Ground Type: Soft

Site Topography: Even

Agricultural Land

Noise Source(s) w/ Distance:

1) Freeway

Las Ranchos Drive

Notes:

No Sound-Wall

Notes/Sketches: