

***City of Oakland Noise Element Update
Environmental Noise Background Report***

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This Environmental Background Noise Report is a supplement to the Noise Element of the General Plan. It provides background information concerning the methods and data used in preparation of the Noise Element. It is intended that this document be used by the City of Oakland as a resource when evaluating noise related implications of specific development proposals or long-range planning efforts. The discussion of the existing noise environment is based upon the results of a noise monitoring survey conducted in August 2004 and supplemented by previous noise studies as identified by the City of Oakland. This report focuses on transportation noise sources such as vehicular traffic, railroad, BART, and aircraft activities.

A. Existing Noise Environment

1. Existing Noise Sources in the City of Oakland

The major noise sources in Oakland are vehicular traffic on state highways and major roadways, railroad operations, Bay Area Rapid Transit (BART) operations, airport operations, and industrial activities. This document focuses on transportation noise sources. Roadway traffic generates noise throughout the city. Railroad trains and BART intermittently generate noise levels that are significant along the railroad tracks. General aviation aircraft and jet aircraft contribute to intermittent noise levels in the city. Noise is also generated on individual parcels whether industrial, commercial or residential. These noise sources do not affect the overall noise environment throughout the community. Existing noise levels for major transportation related sources in Oakland are located in Appendix A.

2. Long-term Noise Measurements

Daily noise levels were monitored at 23 locations in the City of Oakland from August 17th to 24th, 2004. The noise measurement locations are shown on Figure A-1 in Appendix A. The long term measured data are summarized in Table A-1 in Appendix A and the daily trend in noise levels at the 12 long-term sites are summarized in Figures A-2 through A-13 of Appendix A. Measurements conducted by various firms for 14 prior studies, supplied by the City of Oakland and dated after 1999, were used to supplement these data. The noise level data extracted from these reports can be found in Table A-3 of Appendix A. The following discussion summarizes the long-term noise measurements.

i. Location LT-1 – Highway 24

Location LT-1 was selected to represent the noise exposure along Highway 24. The measurement location was made west of the Skyline Tunnel, about 144 feet from the centerline of the roadway and approximately 84 feet from the edge of the roadway. The data, shown in Figure A-2 of Appendix A, shows that the hourly daytime noise levels ranged from 74 to 80 dBA Leq and the hourly nighttime noise levels ranged from 67 to 78 dBA. The measured overall day/night noise level was 80 dBA L_{dn}.

ii. Location LT-2 – Skyline Parkway

This location was selected to measure noise levels along the northern portion of Skyline Parkway. The measurement was located in front of 7293 Skyline Parkway, approximately 20 feet from the centerline of the roadway. Hourly daytime noise levels ranged from 55 to 68 dBA Leq and drop to 32 dBA during nighttime hours. The measured day-night average noise level at this location was 61 to 63 dBA L_{dn}. The data are shown in Figure A-3 of Appendix A.

iii. Location LT-3 – Highway 13

This noise measurement location was approximately 90 feet from the centerline of Highway 13 at the intersection of Monterey Boulevard and Maiden Lane. It was selected to measure vehicular traffic noise along Highway 13. The measured day-night average noise level was 72 dBA L_{dn} . The hourly average noise levels typically ranged from 67 to 72 dBA L_{eq} during daytime hours and from 57 to 69 dBA during nighttime hours. The data are shown in Figure A-4 of Appendix A.

iv. Location LT-4 – Skyline Parkway

Noise levels were measured approximately 87 feet from the centerline of Skyline Parkway, in front of the residence located at 12700 Mott Place. The measured day-night noise level was 57 to 58 dBA L_{dn} . Hourly average noise levels ranged from 52 to 61 dBA during daytime hours and drop to 42 dBA during nighttime hours. The measured data are shown on Figure A-5 of Appendix A.

v. Location LT-5 – Fruitvale Avenue

Location LT-5 was selected to measure noise exposure along Fruitvale Avenue and was located approximately 87 feet from the centerline of the roadway, at Davis Street. The measured day-night average noise level was 67 dBA L_{dn} . Hourly average noise levels typically ranged from 63 to 67 dBA during daytime hours and 54 to 63 dBA during nighttime hours. The noise measurement data are shown in Figure A-6 of Appendix A.

vi. Location LT-6 – 14th Avenue

Measurement Location LT-6 was located along 14th Avenue at East 22nd Street, approximately 75 feet from the centerline of the roadway. The noise environment at Location LT-6 was included some aircraft over flights. The measured day-night average noise level was 68 dBA L_{dn} . Hourly average noise levels typically ranged from 64 to 68 dBA during daytime hours and from 55 to 64 dBA during nighttime hours. The noise measurement data are shown in Figure A-7 of Appendix A.

vii. Location LT-7 – Interstate 580

Location LT-7 was approximately 186 feet from the centerline of Interstate 580, along Wesley Street. Vehicular traffic along Lake Park Drive (which was located between the measurement location and Interstate 580) was audible at this location, but did not substantially increase the noise exposure. Noise levels were only measured for 6 hours at this location, between the hours of 1:00 pm and 7:00 pm. Hourly average daytime noise levels typically ranged from 72 to 73 dBA during this daytime measurement period. The noise measurement data are shown in Figure A-8 of Appendix A.

viii. Location LT-8 – Bay Area Rapid Transit (BART)

This measurement location was selected to characterize noise levels along the Bay Area Rapid Transit (BART). Noise levels were monitored at this location to determine the noise levels and frequency of BART passbys. The measurement location was about 30 feet from the centerline of San Leandro Street, north of Seminary Avenue. Typically, BART trains pass by the site every 3 to 4 minutes during daytime hours. Noise levels were measured between noon on August 23rd,

2004 and 5:00 am on August 24th, 2004. Daytime noise levels during this time period ranged from 72 to 74 dBA and noise levels dropped to 59 dBA around 2:00 am. The noise measurement data are shown in Figure A-9 of Appendix A.

ix. Location LT-9 – Bancroft Avenue

Location LT-9 was approximately 36 feet from the centerline of Bancroft Avenue, approximately 132 feet south of the centerline of 55th Avenue. This location was selected to characterize the noise exposure along Bancroft Avenue. The measured day-night average noise level was 72 dBA L_{dn}. Hourly average noise levels ranged from about 64 to 74 dBA Leq during the daytime and from about 55 to 74 dBA Leq at night. The noise measurement data are shown in Figure A-10 of Appendix A.

x. Location LT-10 – International Boulevard

This noise measurement was conducted approximately 75 feet from the centerline of International Boulevard, at the intersection with 81st Street. The measurement location was selected to characterize the noise environment along International Boulevard. The measured day-night average noise level was 73 dBA L_{dn}. Hourly average noise levels ranged from about 67 to 75 dBA Leq during the daytime and from about 61 to 67 dBA Leq at night. The noise measurement data are shown in Figure A-11 of Appendix A.

xi. Location LT-11 – 98th Street

Location LT-11 was about 81 feet from the centerline of 98th Street at E Street and was selected to characterize existing noise levels along 98th Street. The measured day-night average noise level was 72 dBA L_{dn}. Hourly average noise levels ranged from about 69 to 72 dBA Leq during the daytime and drop to about 60 dBA Leq at night. The noise measurement data are shown in Figure A-12 of Appendix A.

xii. Location LT-12 – Hegenberger Road

Noise levels were measured approximately 81 feet from the centerline of Hegenberger Road, at Leet Drive. The measured day-night noise level was 74 dBA L_{dn}. Hourly average noise levels ranged from 68 to 72 dBA during daytime hours and from 62 to 69 dBA during nighttime hours. The measured data are shown on Figure A-13 of Appendix A.

3. Short-Term Noise Measurements

Short-term spot measurements were made at eleven locations throughout Oakland in August of 2004 to characterize typical daytime noise levels and to collect traffic and noise data to be used subsequently in the computation of traffic noise contours for the Noise Element. The noise measurement locations are shown in Figure A-1 in Appendix A. The short term measured data is summarized in Table A-2 of Appendix A. Vehicular traffic on the street network was the dominant noise source during measurements. There were contributions from aircraft over flights (ST-4, ST-5, ST-6, ST-8, ST-11). General aviation aircraft at ST-5 and ST-8 generated maximum levels of 70 dBA.

4. Roadways

The California Department of Transportation's (Caltrans) Noise Prediction Model LeqV2 was used to develop L_{dn} contours for the state highways and major roadways within the City of

Oakland. Annual average daily traffic volumes (AADT), peak hour traffic volumes, and the vehicle mix for existing (2005) conditions were obtained from Caltrans, the Alameda County Congestion Management Agency, and the City of Oakland. These data were input into the traffic noise model for calibration with noise measurements conducted during the noise monitoring survey. Existing noise levels along city streets and highways were then calculated with the calibrated traffic noise model. Noise levels were estimated at 75 feet from the centerline of major roadways throughout the city and 150 feet from the center of highways. A tabulated summary of calculated distances to L_{dn} contours for existing and future conditions are shown in Tables B-1 and B-2 in Appendix B. Existing roadway noise contours were not mapped because small changes in noise levels over time would not be distinguishable on a map of the scale represented in this document. For planning purposes, noise contour maps of the future noise levels can be found in Appendix B.

5. Railroads and BART

There are two Union Pacific railroad right-of-ways in Oakland along north-south alignments. The two lines are parallel and close together, contributing to cumulatively higher noise levels on the properties between them. A typical train traveling at 25 mph may produce noise levels which exceed 95 dBA at 100 feet. Train horns may approach 110 dBA. Brakes, coupling impacts, and crossing guard warnings are additional common sources of noise along a railroad corridor. BART creates an additional noise source along the eastern of the two lines. BART trains through Oakland are frequent, with about 20 trains an hour passing along each BART line during daytime hours. A typical BART train produces 85 dBA noise level at a distance of 100 feet from the tracks. Noise levels are lower in the immediate vicinity of the stations, due to the slower speeds of approaching and departing trains.

Railroad operations and BART generate intermittent noise at receivers along the railroad and BART rights-of-way. Noise contour distances were based on noise data collected for the San Leandro General Plan Update in 2000 and are mapped in Figure A-14 in Appendix A. These distances were calculated based on the measured noise data including train warning whistles. Noise contour distances can be found in Table A-4 in Appendix A.

6. Airports

Aircraft noise in California is described in terms of the community noise equivalent level (CNEL). CNEL is approximately equivalent to the day/night average noise level (L_{dn}) but includes a 5 dB weighting factor for the evening hours (7:00 PM to 10:00 PM). CNEL contours for existing (2003) operations at Oakland International Airport were derived from the Quarterly 2003 Noise Monitoring Report and can be found in Figure A-15 in Appendix A.

7. Key Findings

- a. Roadways and freeways are the primary source of noise in the City of Oakland County, with I-580, I-880, I-980, and State Highway 24 having the highest noise levels.
- b. Railroad and BART operations, and aircraft over flights result in localized and intermittent noise.

B. Future Noise Environment

1. Roadways

Future (2025) L_{dn} noise levels were estimated based on traffic volume data provided the Alameda County Congestion Management Agency. A tabulated summary of calculated distances to L_{dn} contours for existing and future conditions are shown in Tables B-1 and B-2 in Appendix B. The predicted future (2025) L_{dn} noise levels along major roadways and highways throughout Oakland at a distance of 75 feet from the centerline of the roadway are mapped in Figure B-1 in Appendix B. The predicted future (2025) L_{dn} highway and interstate noise level contours are shown in Figure B-2 of Appendix B. Predicted L_{dn} values are “worst-case” estimates because they do not take acoustical shielding from buildings or terrain into account.

2. Railroads and BART

Information on the future operations of the railroads and BART was unavailable and future noise contours were not prepared. Existing noise contour distances and maps can be found in Appendix A. These data are the best available to describe the existing and future noise environments along the rail corridors.

3. Airports

Predicted future (2010) CNEL contours for operations at Oakland International Airport were derived from the Port of Oakland Proposed Airport Development Plan (1996) EIS/EIR and can be found in Figure B-3 in Appendix B. The noise contour map shows the extent of airport noise throughout Oakland for planning purposes in the vicinity of the airport.

C. References

- i.* Port of Oakland Proposed Airport Development Plan EIS/EIR, U.S. Army Corps of Engineers, September 10, 1996.
- ii.* Quarterly Noise Monitoring Report Metropolitan Oakland International Airport October – December 2003, Brown-Buntin Associates, Inc., March 12, 2004.
- iii.* 2003 Traffic and Vehicle Data Systems Unit, State of California Department of Transportation, Traffic Operations Division, 2004.
- iv.* 2003 Annual Average Daily Truck Traffic on the California State Highway System, State of California Business, Transportation and Housing Agency Department of Transportation, November 2004.
- v.* Alameda County Projected Vehicle Volumes, Oakland Area 2005 and 2025, Alameda County Congestion Management Agency, 2001-2004.
- vi.* Existing AADT traffic volumes and vehicle mix information for local Oakland streets was supplied by Niko Letunic, City of Oakland Planning and Zoning Division, 2004.
- vii.* Noise study conducted for the San Leandro General Plan Update Existing Conditions Report, Illingworth and Rodkin, Inc., 2000.
- viii.* 311 Oak Street Project DEIR, Environmental Science Associates, September 8, 1999.
- ix.* Broadway/ MacArthur/ San Pablo Redevelopment Plan DEIR, Environmental Science Associates, April 2000.
- x.* 17th Street Parking Garage DEIR, Lamphier & Associates. December 2000.
- xi.* Housewives Marketplace Mixed-Use Project DEIR Public Affairs Management, December 2000.
- xii.* Avalonbay at Lake Merritt Project DEIR, Environmental Science Associates, August 22, 2001.
- xiii.* 200-228 Broadway Mixed-Use Project DEIR, Jones & Stokes, February 2002.
- xiv.* Oakland Army Base Area Redevelopment Plan DEIR, G. Borchard & Associates, April 2002.

- xvi.* 300 Harrison Street Project DEIR, Acoustical Analysis Conducted by Charles M. Salter Associates, Inc., September 2002.
- xvii.* Central City East Redevelopment Plan DEIR, Lamphier-Gregory, February 2003.
- xviii.* West Oakland Redevelopment Plan DEIR, Lamphier-Gregory, April 2003.
- xix.* Jack London Square Redevelopment EIR, Environmental Science Associates, September 8, 2003.
- xx.* Noise study conducted for Leona Quarry DEIR, Illingworth and Rodkin, Inc., 2002.

Appendix A: Existing Noise Environment

Figure A-1: Noise Monitoring Locations throughout Oakland

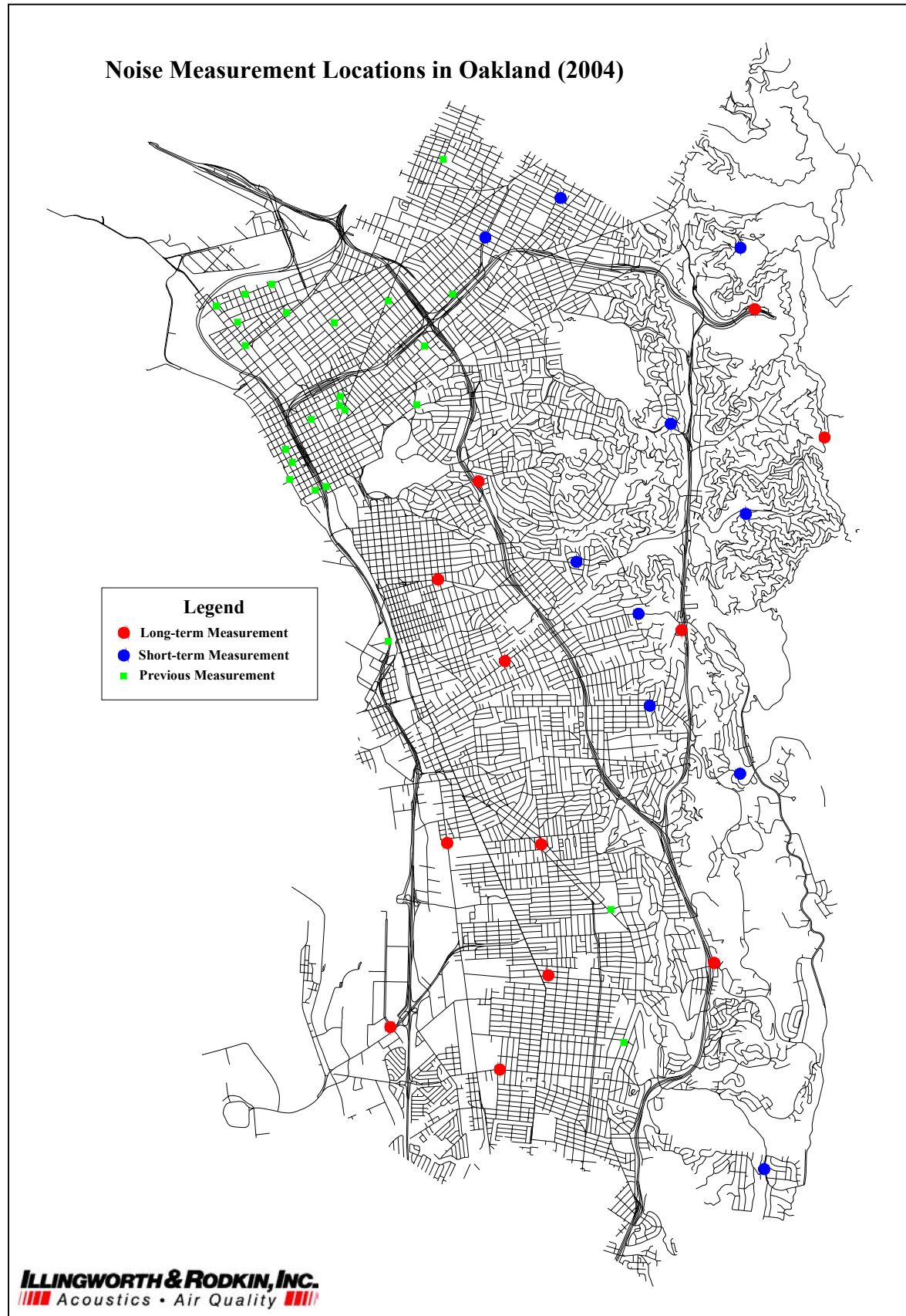


Table A-1: Summary of Long-Term Noise Monitoring Results

Site	Location	Date	Daytime Noise Levels	Nighttime Noise Levels	Ldn
Long-Term Measurements			dBA	dBA	dBA
LT-1	~ 144 ft from the centerline of Highway 24, east of Broadway	8/17/04 to 8/19/04	74 to 80	67 to 78	80
LT-2	~20 ft from the centerline of Skyline Pkwy at 7293 Skyline Parkway	8/17/04 to 8/19/04	55 to 68	32 to 58	61-63
LT-3	~90 ft from the centerline of Highway 13 at Monterey Boulevard and Maiden Lane	8/17/04 to 8/19/04	67 to 72	57 to 69	72
LT-4	~87 ft from the centerline of Skyline Parkway at Mott Place	8/17/04 to 8/19/04	52 to 61	42 to 55	57-58
LT-5	~87 ft from the centerline of Fruitvale Avenue at Davis Street	8/17/04 to 8/19/04	63 to 67	54 to 63	67
LT-6	~75 ft from the centerline of 14 th Avenue at East 22 nd Street	8/17/04 to 8/19/04	64 to 68	55 to 64	68
LT-7	~186 ft from the centerline of I-580 at Wesley Street	8/17/04	72 to 73	--	--
LT-8	~30 ft from the centerline of San Leandro Street at the BART tracks	8/23/04 to 8/24/04	72 to 74	Down to 59	--
LT-9	~132 ft from the centerline of 55 th Avenue at Bancroft Avenue	8/23/04 to 8/24/04	64 to 74	55 to 74	72
LT-10	~75 ft from the centerline of International Boulevard At 81 st St.	8/23/04 to 8/24/04	67 to 75	61 to 67	73
LT-11	~81 ft from the centerline of 98 th Street at E Street	8/23/04 to 8/24/04	69 to 72	60 to 68	72
LT-12	~81 ft from the centerline of Hegenberger at Leet	8/23/04 to 8/24/04	68 to 72	62 to 69	74

Table A-2: Summary of Short-Term Noise Monitoring Results

Site	Location	Date/ Time	L _{max}	L _{min}	L ₁	L ₁₀	L ₅₀	L ₉₀	L _{eq}
Short-Term Measurements			dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST-1	~84 ft from the centerline of MLK Boulevard	8/18/2004 10:30 AM	96	55	83	73	68	60	74
ST-2	~36 ft from the centerline of Alcatraz Street at 620-626 Alcatraz Street.	8/18/2004 11:10 AM	84	48	75	71	65	53	68
ST-3	At the intersection of Grand View and Gravatt.	8/18/2004 11:40 AM	66	39	65	55	44	41	53
ST-4	~54 ft from the centerline of Maraga at Harbord Drive	8/18/2004 12:15 PM	74	45	72	70	63	55	65
ST-5	~63 ft from the centerline of Pleasant Valley Avenue at Home Street.	8/18/2004 12:40 PM	78	54	76	72	66	60	68
ST-6	~63 ft from the centerline of Shepard Canyon Road at Paso Robles	8/18/2004 2:00 PM	77	41	70	63	52	44	59
ST-7	~63 ft from the centerline of Park at Everett	8/23/2004 2:00 PM	78	46	76	71	64	53	67
ST-8	~42 ft from the centerline of Lincoln at Burlington	8/23/2004 2:20 PM	83	42	77	67	56	46	65
ST-9	~69 ft from the centerline of 35th Avenue at Harbor View	8/23/2004 2:50 PM	88	50	80	71	63	55	69
ST-10	~66 ft from the centerline of Redwood Road at Via Rialto	8/24/2004 12:00 PM	76	48	74	70	61	52	65
ST-11	~71 ft from the centerline of Golf Links Rd at Dunkirk Ave	8/24/2004 12:40 PM	73	39	68	63	52	44	58

Table A-3: Noise Levels Extracted From Previous Noise Reports

Location	Duration	Noise Level	Distance	Major Noise Source	Source of Information
		dBA	Feet		
Oak & 4th Street	24 Hour	71 Ldn	Fence line	Traffic on Oak Street	Environmental Science Associates, 1999
Telegraph Ave & 32nd St	24 Hour	71 CNEL	50	Traffic on Telegraph Ave	Environmental Science Associates, 2000
NE Corner of MacArthur BART Station	24 Hour	72 CNEL	*	Traffic on I-580, BART	Environmental Science Associates, 2000
Martin Luther King Jr. Way between Appar Street & 39th Street	*	65 Leq	60	I-580, BART, Traffic on Martin Luther King Jr. Way	Environmental Science Associates, 2000
62nd St between San Pablo Avenue & Marshall Street	*	60 Leq	25	Traffic on 62nd St, San Pablo Avenue, & Marshall Street	Environmental Science Associates, 2000
San Pablo & 16th	30 Min	63 CNEL	30	Traffic on San Pablo Avenue	Lamphier & Associates, 2000
16th & Clay	30 Min	62 CNEL	30	Traffic on 16th Street	Lamphier & Associates, 2000
16th Street between Jefferson and Clay	30 Min	61 CNEL	30	Traffic on 16th Street	Lamphier & Associates, 2000
17th Street between Martin Luther King and Jefferson	30 Min	66 CNEL	30	Traffic on 17th Street	Lamphier & Associates, 2000
9th St	24 Hour	65 CNEL	*	Traffic on 9th St	Charles Salter & Associates, 2000
8th St	24 Hour	66 CNEL	*	Traffic on 8th St	Charles Salter & Associates, 2000
Jefferson St.	24 Hour	71 CNEL	*	Traffic on Jefferson St.	Charles Salter & Associates, 2000
Clay St.	24 Hour	71 CNEL	*	Traffic on Clay St.	Charles Salter & Associates, 2000
Vernon Street north of Bay Place	24 Hour	58 Ldn	60	Traffic on Vernon Street	Environmental Science Associates, 2000
Bay Place	15 Min	64 Peak	30	Traffic on Bay Place	Environmental Science Associates, 2000
Harrison Street	15 Min	66 Peak	55	Traffic on Harrison Street	Environmental Science Associates, 2000
3rd/Broadway, NW Corner	15 Min	70 Peak AM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
3rd/Broadway, NW Corner	15 Min	67 Peak PM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
3rd/Broadway, SW Corner	15 Min	66 Peak AM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001

Location	Duration	Noise Level	Distance	Major Noise Source	Source of Information
		dBA	Feet		
3rd/Broadway, SW Corner	15 Min	68 Peak PM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
3rd/Franklin NW Corner	15 Min	69 Peak AM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
3rd/Franklin NW Corner	15 Min	66 Peak PM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
2nd/Broadway, SW Corner	15 Min	69 Peak AM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
2nd/Broadway, SW Corner	15 Min	69 Peak PM	Sidewalk	I-880, Railroad, Local Traffic	Jones & Stokes, 2001
Pine Street & Gross Street	24 Hour	68 CNEL	*	I-880, Local Traffic, BART, Aircraft	G. Borchard & Associates, 2001
1109 Wood Street between 11th & 12th	24 Hour	64 CNEL	*	Local Traffic, Aircraft (some noise from I-880)	G. Borchard & Associates, 2001
South Side of 3rd Street near Tower Lofts, 14 feet above ground	24 Hour	68 Ldn	*	I-880, Local Traffic	Charles Salter & Associates, 2001
I-880 Freeway (South of Oak Street)	24 Hour	75 CNEL	500	Traffic on I-880	Lamphier-Gregory, 2002
Foothill Boulevard (At 68th Ave.)	24 Hour	69 CNEL	50	Traffic on Foothill Boulevard	Lamphier-Gregory, 2002
MacArthur Boulevard (South of 90th Ave.)	24 Hour	70 CNEL	50	Traffic on MacArthur Boulevard	Lamphier-Gregory, 2000
San Pablo Avenue (at 32nd Street)	15 Min	69 CNEL	50	Traffic on San Pablo Avenue	Lamphier-Gregory, 2003
West Grand Avenue (at Chestnut Street)	15 Min	71 CNEL	50	Traffic on West Grand Avenue	Lamphier-Gregory, 2003
Mandela Parkway (at 17th Street)	15 Min	64 CNEL	50	Traffic on Mandela Parkway	Lamphier-Gregory, 2003
16th Street (West of Wood Street)	24 Hour	66 CNEL	*	Traffic on 16th Street	Lamphier-Gregory, 2003
Peralta Street (at 8th Street)	15 Min	69 CNEL	50	Traffic on Peralta Street	Lamphier-Gregory, 2003
7th Street (at Mandela Parkway)	15 Min	72 CNEL	50	Traffic on 7th Street	Lamphier-Gregory, 2003
Alice Street, Entrance to 'The Landing' apartments	24 Hour	66-67 Ldn	40	Amtrak activity and local traffic	Environmental Science Associates, 2003
Embarcadero near the intersection with Alice Street	24 Hour	72-73 Ldn	150 (Amtrak Station)	Amtrak activity and local traffic	Environmental Science Associates, 2003

*Not specified in the reference document.

Figure A-2: Daily Trend in Noise Levels at LT-1

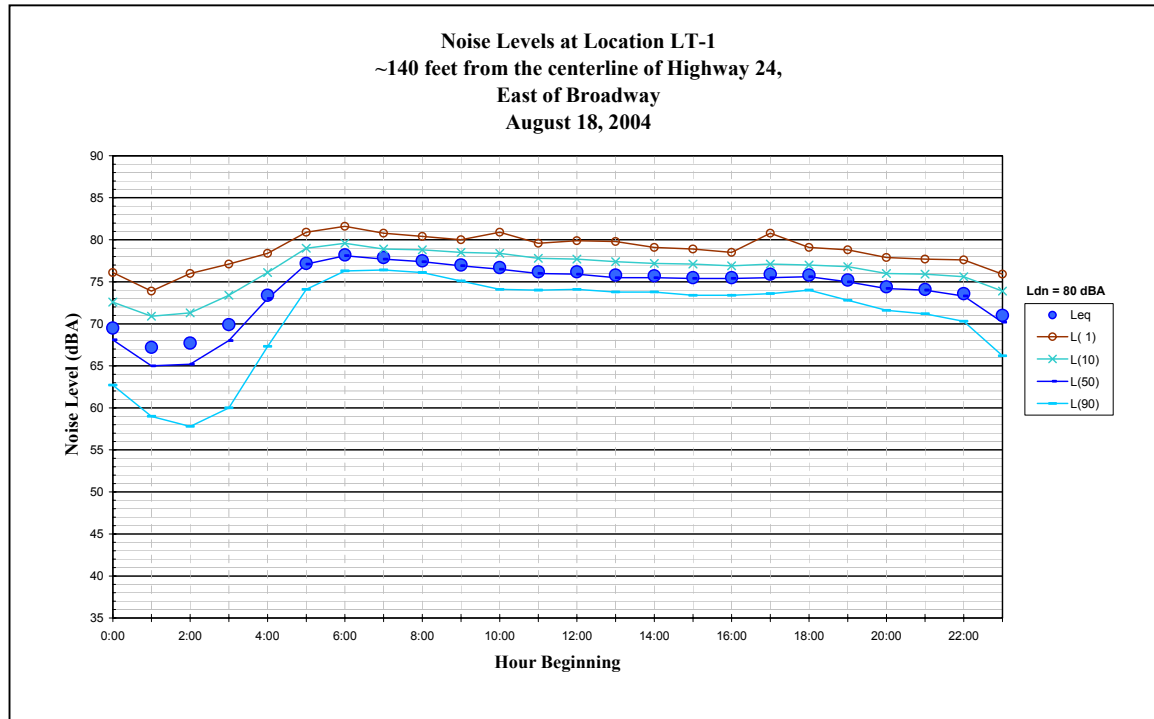


Figure A-3: Daily Trend in Noise Levels at LT-2

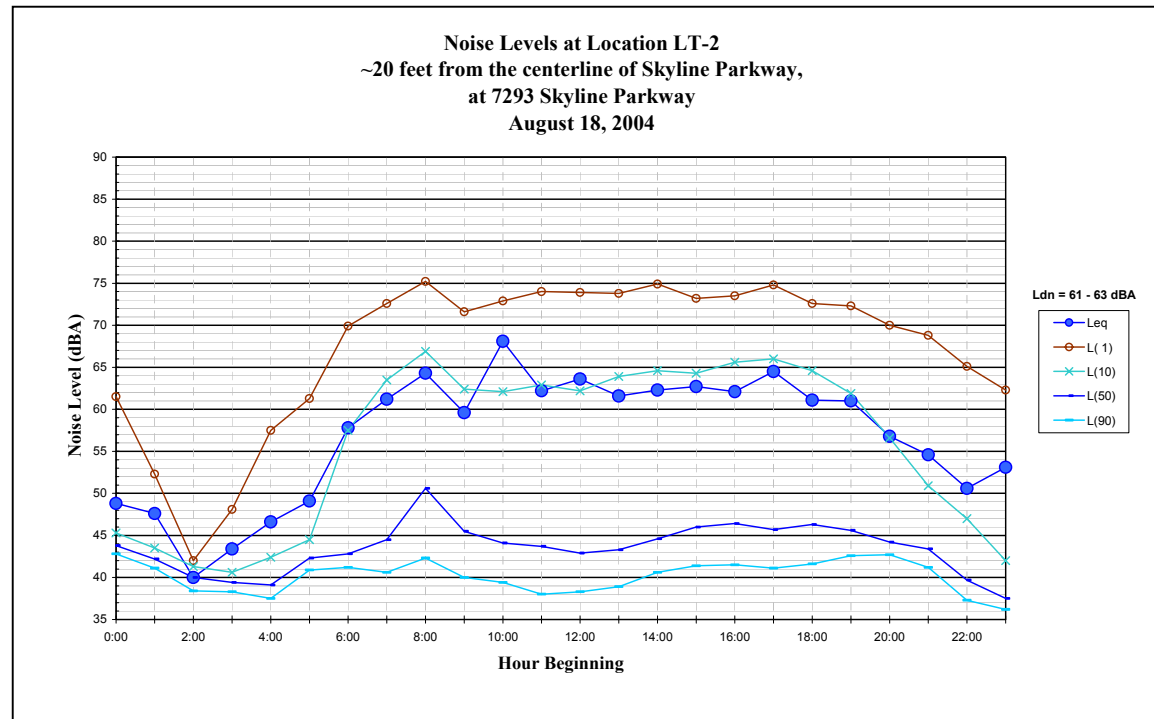


Figure A-4: Daily Trend in Noise Levels at LT-3

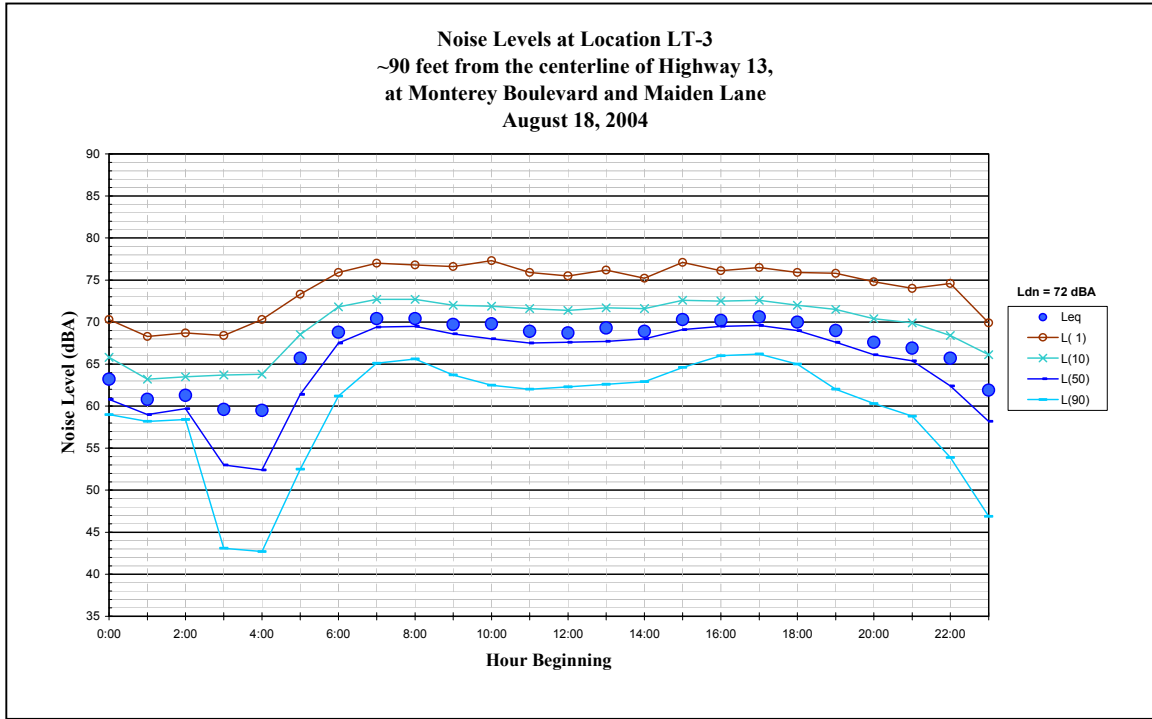


Figure A-5: Daily Trend in Noise Levels at LT-4

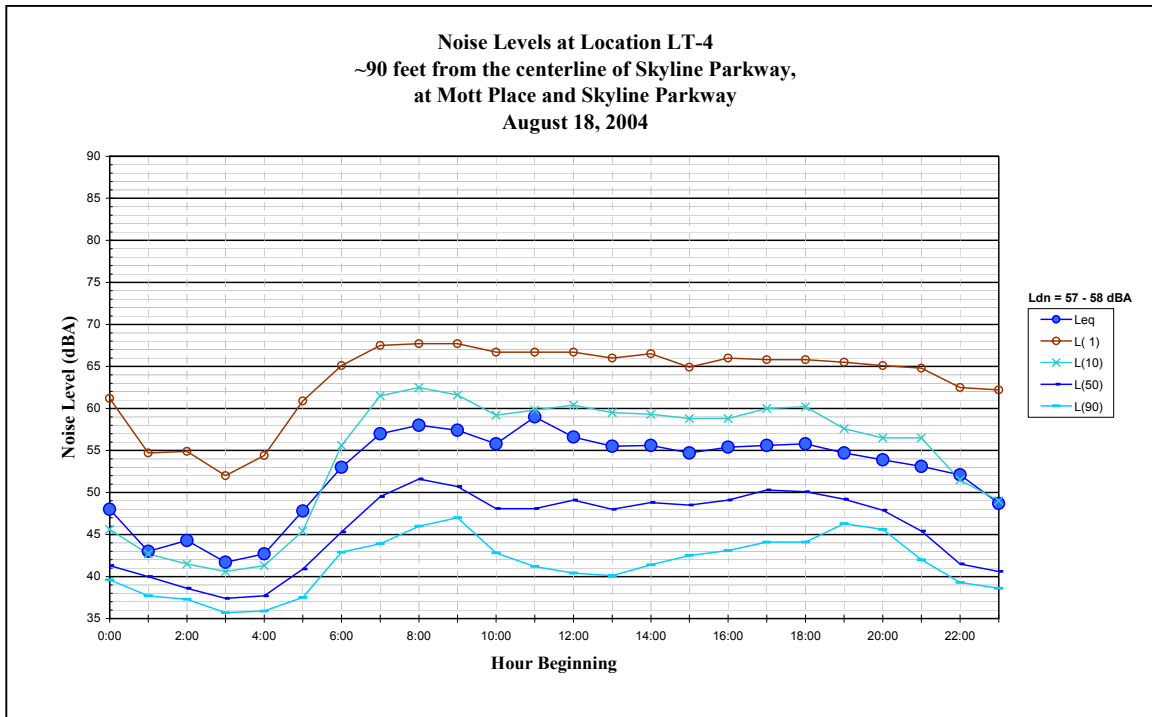


Figure A-6: Daily Trend in Noise Levels at LT-5

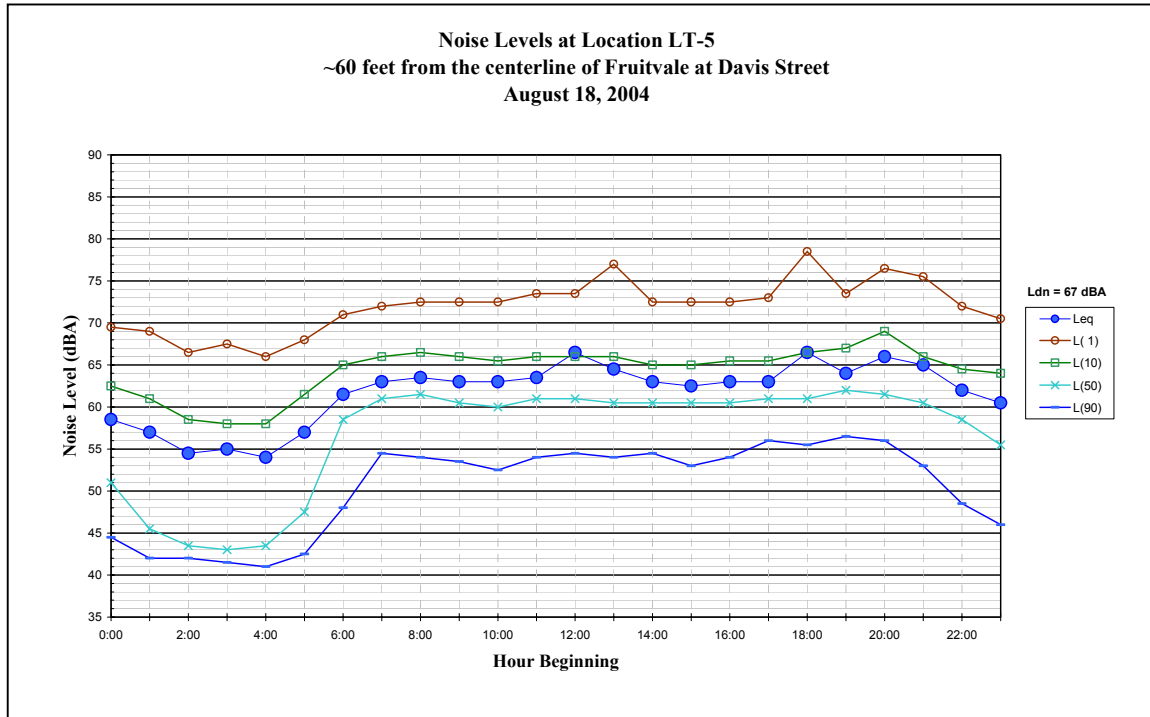


Figure A-7: Daily Trend in Noise Levels at LT-6

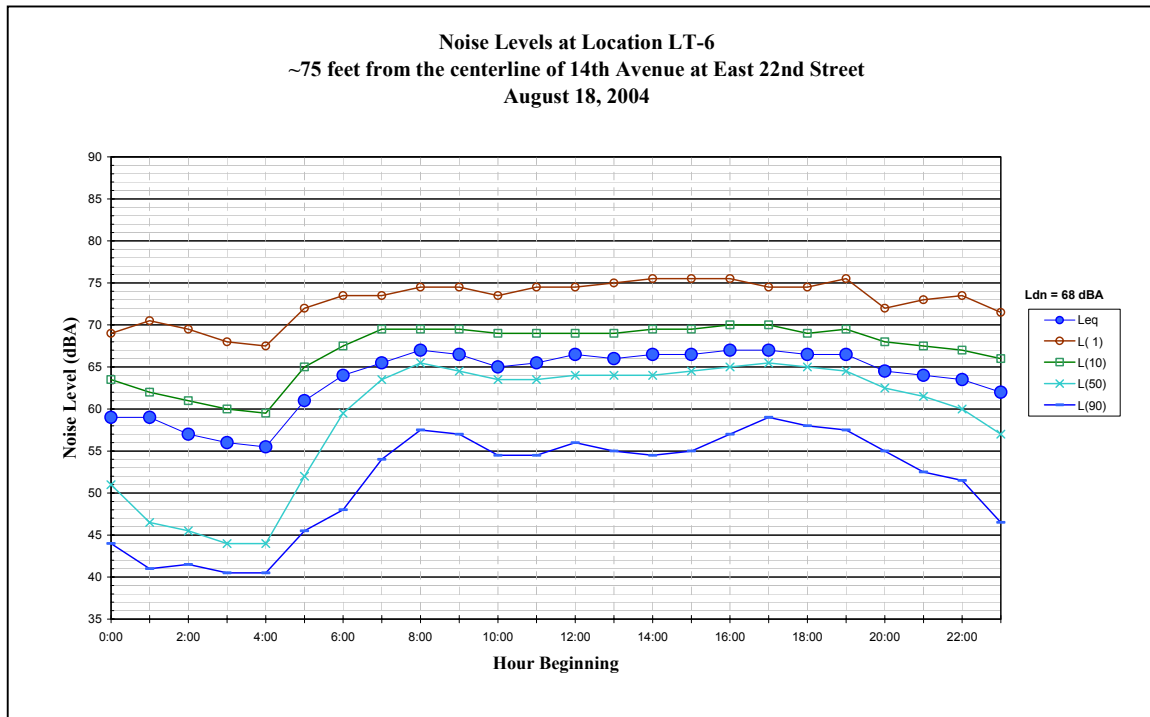


Figure A-8: Daily Trend in Noise Levels at LT-7

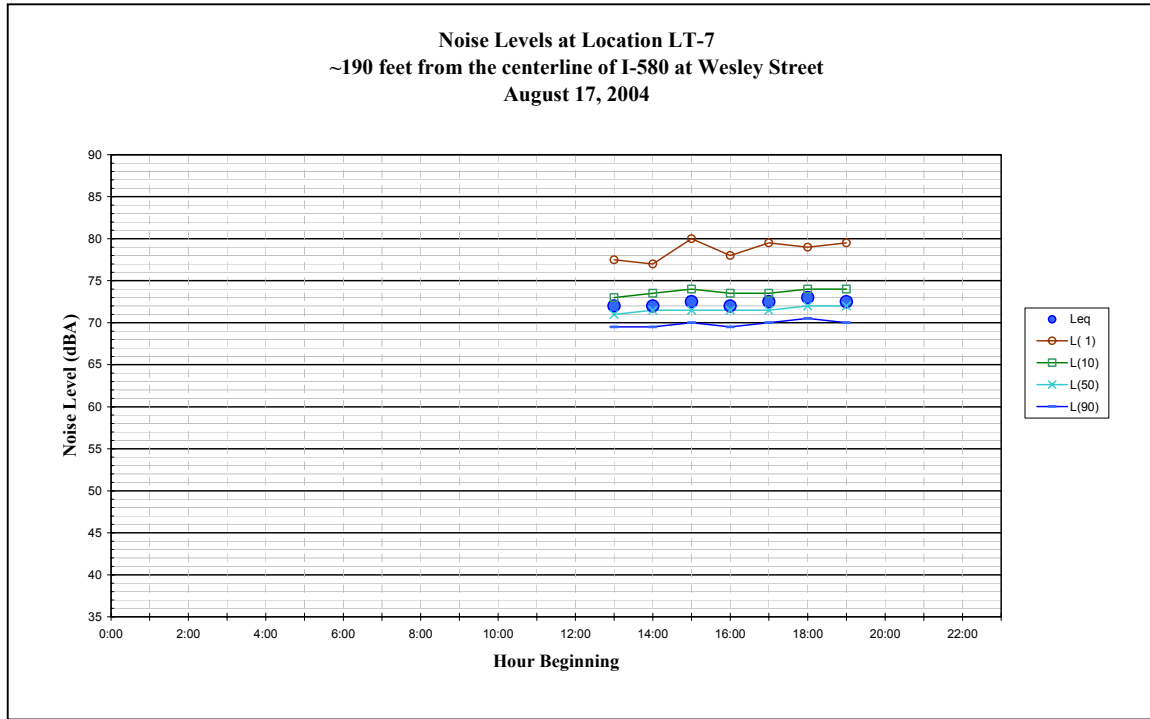


Figure A-9: Daily Trend in Noise Levels at LT-8

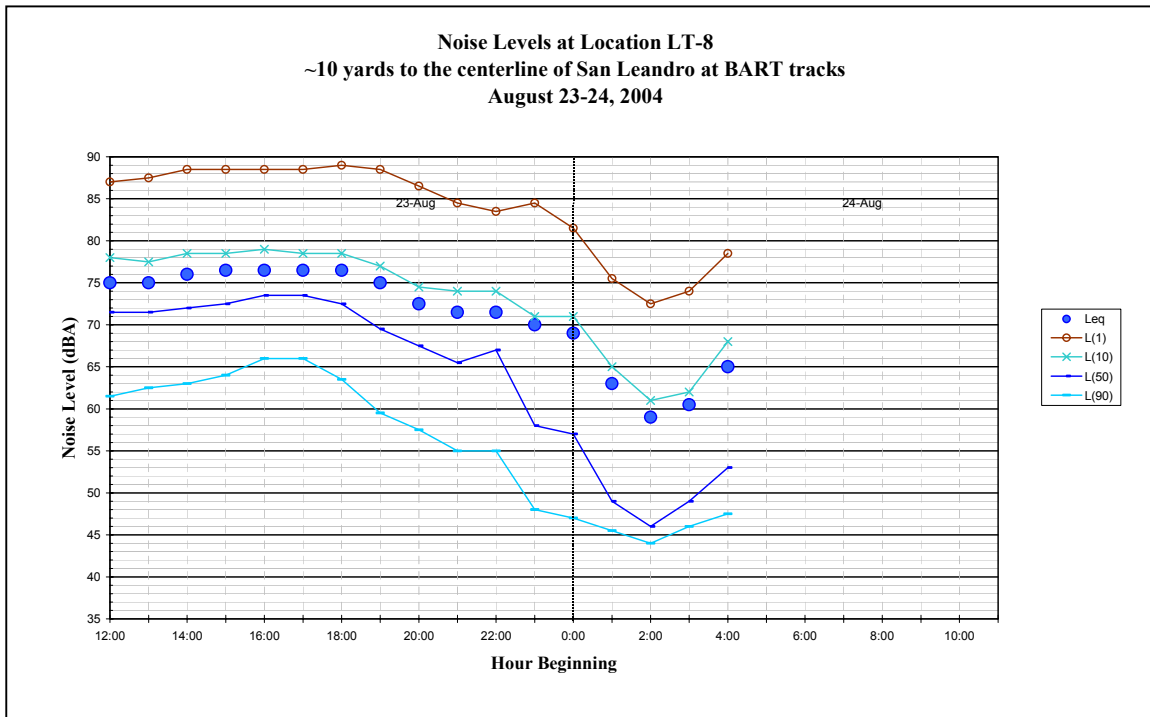


Figure A-10: Daily Trend in Noise Levels at LT-9

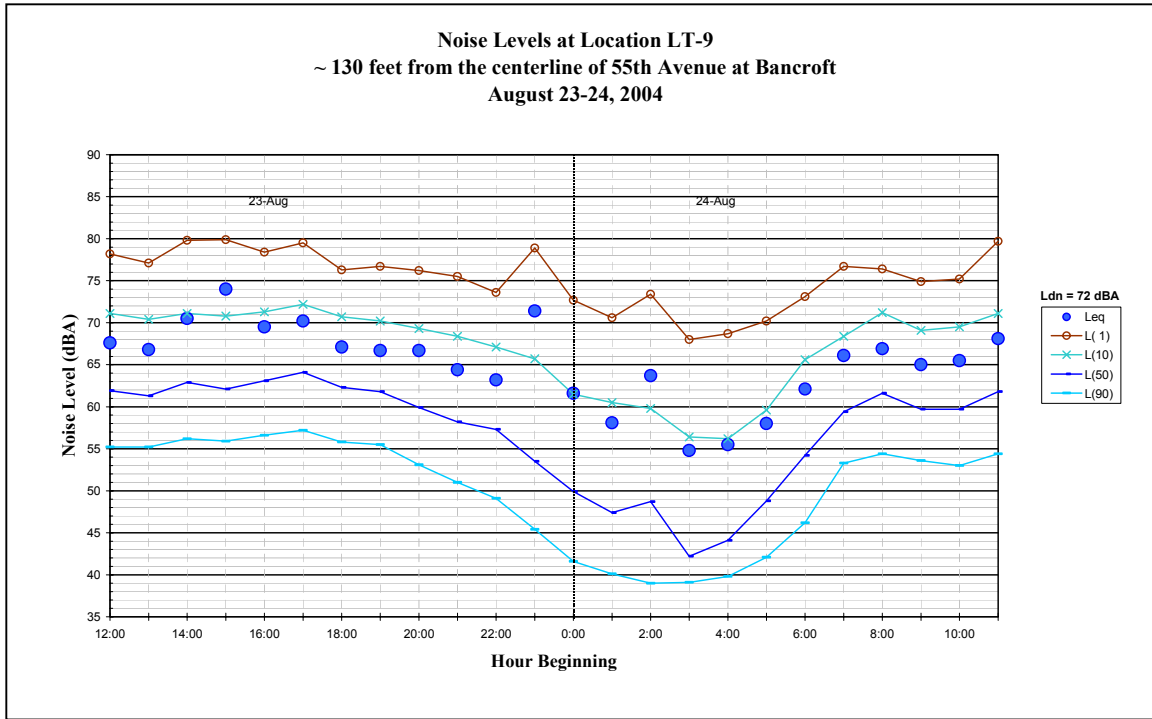


Figure A-11: Daily Trend in Noise Levels at LT-10

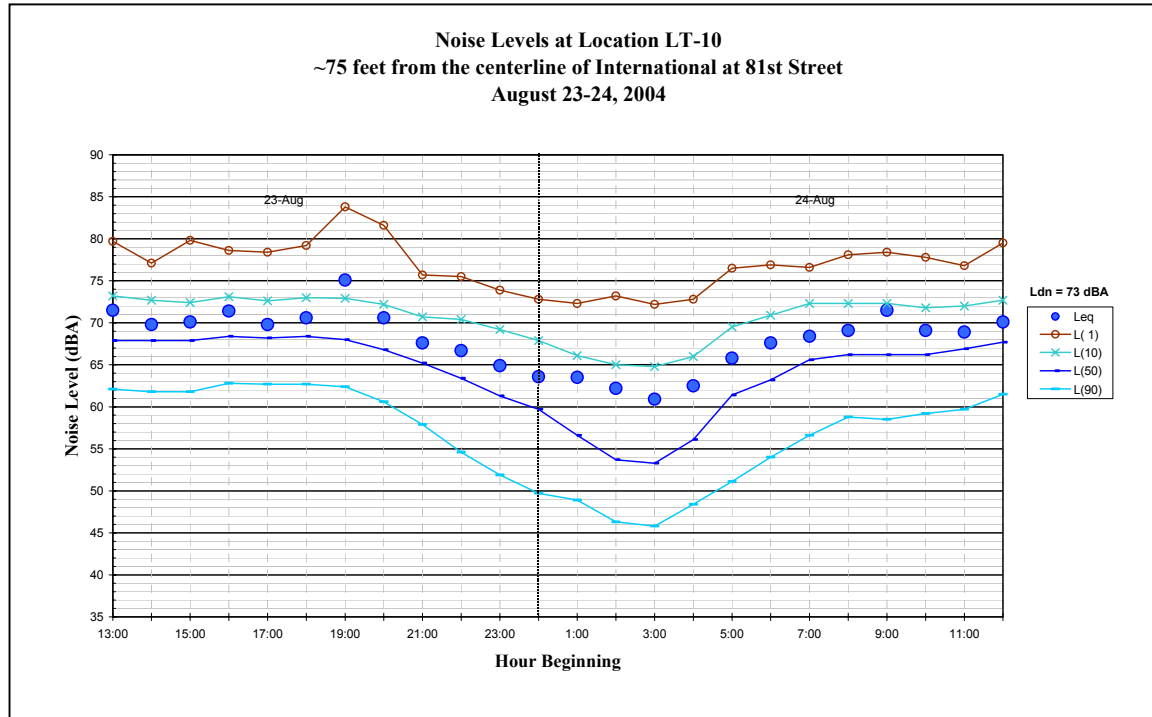


Figure A-12: Daily Trend in Noise Levels at LT-11

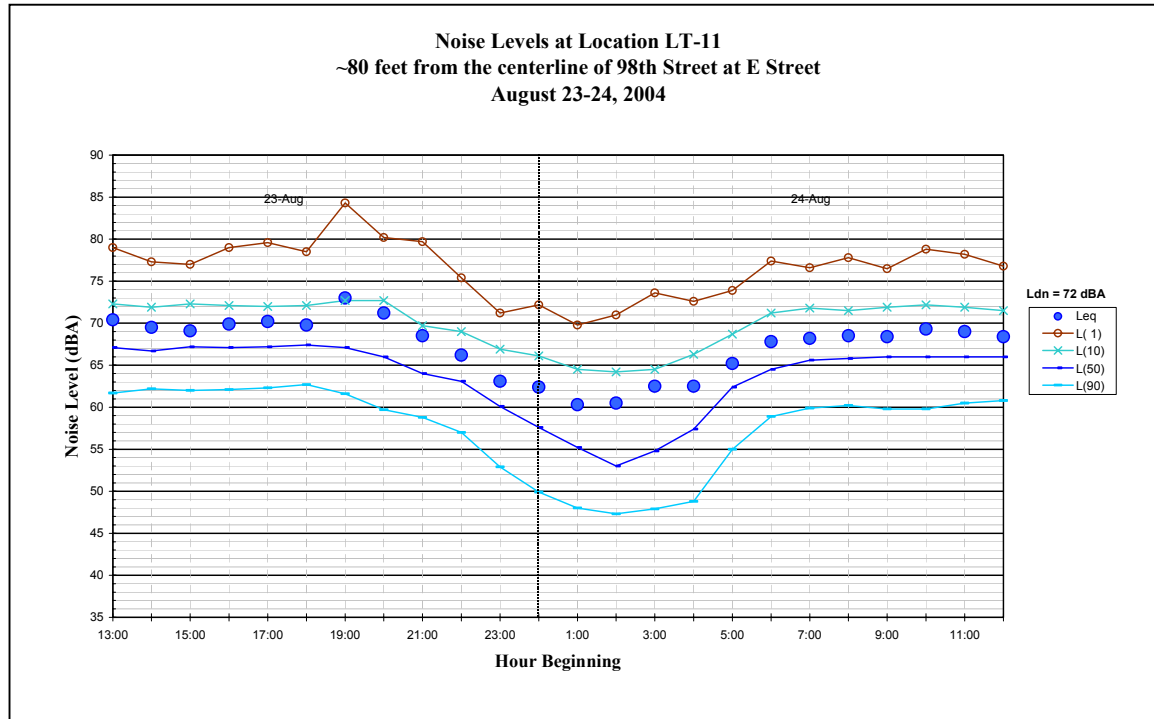


Figure A-13: Daily Trend in Noise Levels at LT-12

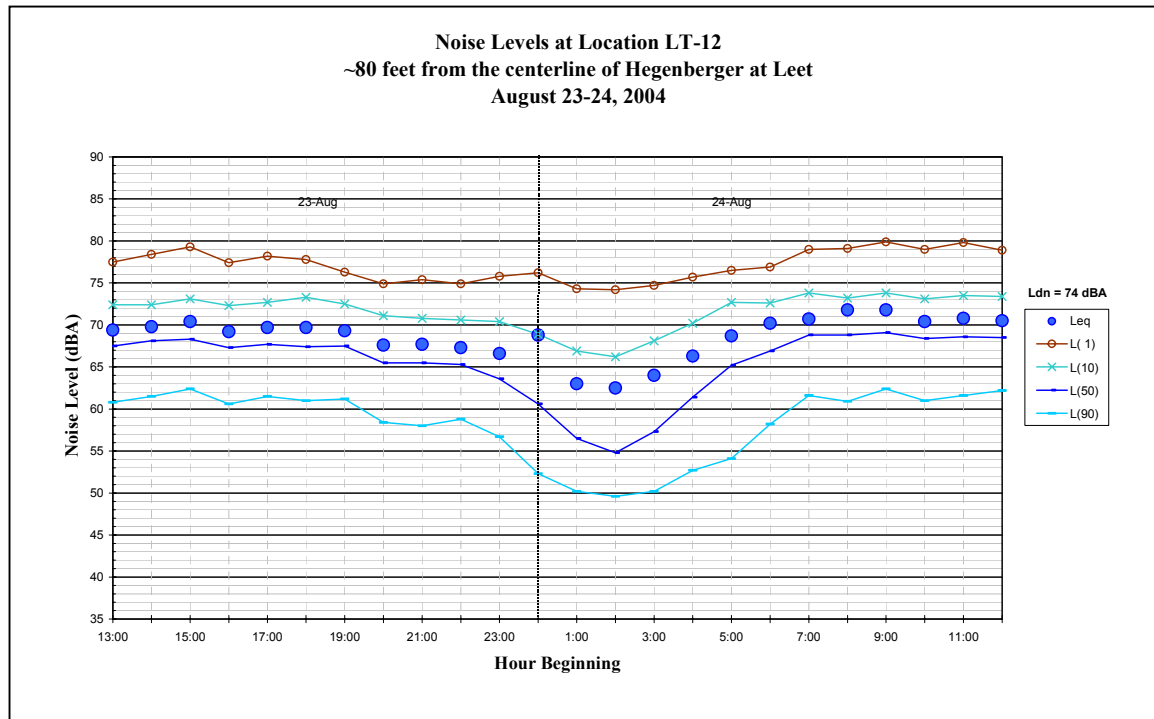
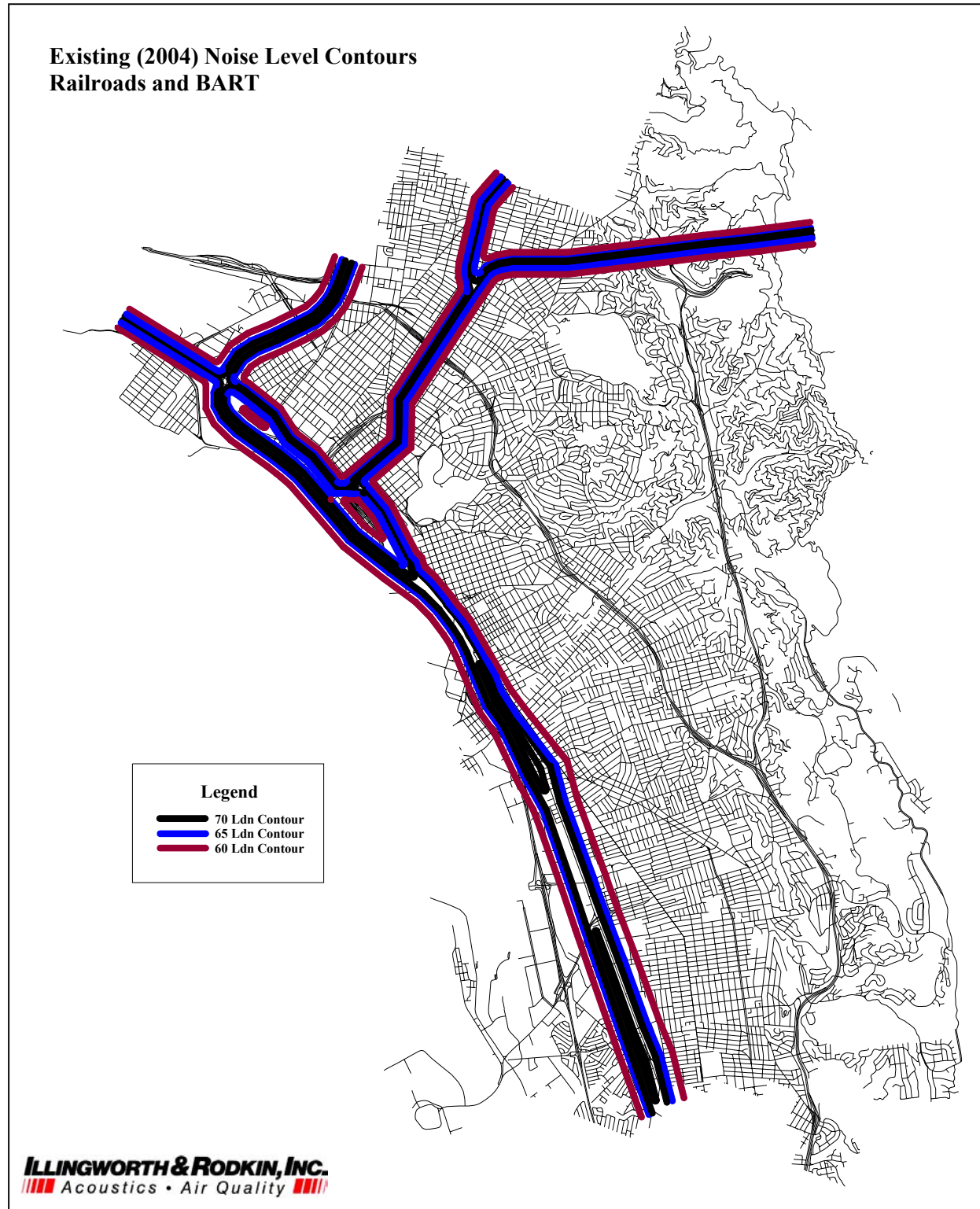


Table A-4: Noise Contour Distances for Railroad Lines in Oakland

Railroads	Distance (ft.) to Noise Contour from Track			
	75-Ldn	70-Ldn	65-Ldn	60-Ldn
UPRR (whistle)	80	180	390	840
BART + UPRR	130	280	600	1290

*Distances were calculated based on measured noise data including train warning whistles.

Figure A-14: Existing Noise Contour Map for Railroads and BART in Oakland



*Distances were calculated based on measured noise data including train warning whistles.

**Predicted L_{dn} values are worst-case estimates and do not take acoustical shielding from buildings or terrain into account.

Figure A-15: Existing (2004) CNEL Noise Contours for Oakland International Airport



Source: *Quarterly Noise Monitoring Report Metropolitan Oakland International Airport October – December 2003, Brown-Buntin Associates, Inc.*

Appendix B: Future Noise Environment

Table B-1: Calculated Vehicular Traffic Noise Levels for Major Local Roadways

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn	Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn
			dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
14TH Ave/BEAUMONT Ave	8TH St	21ST St	65	*	80	170	66	*	90	190
14TH Ave/BEAUMONT Ave	EAST 24TH St	EAST 27TH St	67	50	100	210	67	50	100	220
23RD Ave	EAST 7TH St	12TH St	68	60	120	260	69	60	140	300
23RD Ave	29TH Ave	EAST 7TH St	68	60	120	260	69	60	140	300
35TH Ave	FOOTHILL Blvd	EAST 14TH St	60	*	*	70	61	*	*	90
35TH Ave	MACARTHUR Blvd	FOOTHILL Blvd	66	*	80	180	66	*	90	190
42ND Ave	FOOTHILL Blvd (S)	14TH St	67	50	110	240	66	*	90	190
51ST St	SHATTUCK Ave	TELEGRAPH Ave	61	*	*	80	61	*	*	90
51ST St	TELEGRAPH Ave	BROADWAY	67	50	100	210	67	50	100	220
66TH Ave	OAKPORT St	SAN LEANDRO St	66	*	80	180	66	*	90	190
73RD Ave	BANCROFT Ave	MACARTHUR Blvd	69	60	130	280	70	70	160	350
73RD Ave	INTERNATIONAL Blvd	MACARTHUR St	71	90	190	410	72	100	220	470
73RD Ave	ARTHUR St	BANCROFT Ave	71	80	180	380	72	100	220	470
7TH St	FALLON St	FIFTH Ave	63	*	50	120	65	*	70	160
7TH St	WOOD St	MARKET St	66	*	90	190	67	50	100	220
98TH Ave	BANCROFT Ave	GOLF LINKS Rd	66	*	90	180	65	*	70	160
98TH Ave	SAN LEANDRO St	BANCROFT Ave	65	*	80	160	66	*	90	190

CITY OF OAKLAND
ENVIRONMENTAL BACKGROUND REPORT
NOISE

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA	Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA
98TH Ave	ROUTE 880 (E)	SAN LEANDRO St	67	50	110	230	68	60	120	260
ALCATRAZ Ave	TELEGRAPH Ave	BERKELEY city limits	64	*	60	140	68	60	120	260
ALCATRAZ Ave	BERKELEY city limits	SHATTUCK Ave	60	*	*	80	61	*	*	90
BANCROFT Ave	SEMINARY Ave	HAVENSCOURT Blvd	60	*	*	80	62	*	50	100
BANCROFT Ave	HAVENSCOURT Blvd	73RD Ave	66	*	90	200	67	50	100	220
BANCROFT Ave	98TH Ave	SAN LEANDRO city limits	66	*	90	190	66	*	90	190
BANCROFT Ave	73RD Ave	98TH Ave	66	*	90	200	67	50	100	220
BROADWAY	KEITH Ave	ROUTE 13 EB ONRAMP	69	60	140	300	71	90	190	410
BROADWAY	MACARTHUR Blvd	PLEASANT VALLEY Ave	66	*	90	200	67	50	100	220
BROADWAY	27TH St	MACARTHUR Blvd (WEST)	67	50	100	220	66	*	90	190
BROADWAY	PLEASANT VALLEY Ave	KEITH Ave	68	60	120	260	69	60	140	300
BRUSH St	5TH St	11TH St	67	50	100	230	69	60	140	300
CLAREMONT Ave	COLLEGE Ave	BERKELEY CITY LIMIT	65	*	80	160	66	*	90	190
CLAREMONT Ave	BERKELEY CITY LIMIT	CCC LIMIT	67	50	100	230	66	*	90	190
CLAREMONT Ave	TELEGRAPH Ave	COLLEGE Ave	66	*	90	190	65	*	70	160
COLISEUM Way	46TH Ave	66TH Ave (E)	66	*	90	190	61	*	*	90
EDES Ave	I-880 OFF RAMPS	85TH Ave	66	*	90	180	63	*	60	120
FOOTHILL Blvd	LAKESHORE	5TH Ave	58	*	*	60	59	*	*	60

CITY OF OAKLAND
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NOISE

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn	Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn
			dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
FOOTHILL Blvd	8TH Ave	14TH Ave	63	*	50	110	61	*	*	90
FOOTHILL Blvd	14TH Ave	19TH Ave	59	*	*	60	60	*	*	70
FOOTHILL Blvd	23RD Ave	FRUITVALE Ave	61	*	*	80	60	*	*	70
FOOTHILL Blvd	35TH Ave	38TH Ave	62	*	50	110	63	*	60	120
FOOTHILL Blvd	38TH Ave	42ND Ave (S)	63	*	50	110	61	*	*	90
FOOTHILL Blvd	HIGH St	VICKSBURG Ave	61	*	*	90	62	*	50	100
FOOTHILL Blvd	VICKSBURG Ave	55TH Ave	59	*	*	60	59	*	*	60
FOOTHILL Blvd	55TH Ave	SEMINARY Ave	60	*	*	80	59	*	*	60
FRUITVALE Ave	HAROLD St	INTERNATIONAL Blvd	62	*	*	100	63	*	60	120
FRUITVALE Ave	INTERNATIONAL Blvd	ALAMEDA city limits	63	*	50	120	63	*	60	120
GOLF LINKS Rd	FONTAINE St	98TH Ave	63	*	60	130	64	*	60	140
GRAND Ave	MACARTHUR Blvd	PIEDMONT city limits	66	*	90	190	65	*	70	160
GRAND Ave	HARRISON St	MACARTHUR Blvd	69	60	130	280	69	60	140	300
HARRISON St	HAMILTON Pl	SANTA CLARA Ave	66	*	90	200	67	50	100	220
HARRISON St	27TH St	HAMILTON Pl	66	*	90	200	67	50	100	220
HARRISON St	GRAND Ave	27TH St	66	*	90	200	67	50	100	220
HAVENSCOURT Blvd	INTERNATIONAL Blvd	BANCROFT Ave	62	*	50	100	63	*	60	120
HEGENBERGER Rd	EDES Ave	SAN LEANDRO St	75	160	340	730	76	190	410	870

CITY OF OAKLAND
ENVIRONMENTAL BACKGROUND REPORT
NOISE

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA	Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA
HEGENBERGER Rd	SAN LEANDRO St	14TH St	74	140	290	640	75	160	350	750
HEGENBERGER Rd	DOOLITTLE Dr	PARDEE Dr	70	80	160	350	71	90	190	410
HIGH St	BROOKDALE Ave	REDDING St	64	*	70	140	66	*	90	190
HIGH St	ALAMEDA city limits	OAKPORT St	70	70	160	330	69	60	140	300
HIGH St	COLISEUM Way	SAN LEANDRO St	65	*	80	160	66	*	90	190
HIGH St	FOOTHILL Blvd	BROOKDALE Ave	64	*	60	140	64	*	60	140
INTERNATIONAL BLVD	1ST Ave Pl	14TH Ave	64	*	70	140	64	*	60	140
INTERNATIONAL BLVD	14TH Ave	FRUITVALE	66	*	90	180	63	*	60	120
INTERNATIONAL BLVD	FRUITVALE Ave	42ND Ave	64	*	70	150	64	*	60	140
LAKESHORE Ave	18TH St EAST	12TH St EAST	65	*	70	150	66	*	90	190
LAKESIDE Dr	MADISON St	HARRISON St	63	*	50	120	64	*	60	140
MACARTHUR Blvd	FRUITVALE Ave	HIGH St	66	*	80	180	66	*	90	190
MACARTHUR Blvd	HIGH St	BUELL St	66	*	90	190	66	*	90	190
MACARTHUR Blvd	BUELL St	SEMINARY Ave (E)	68	50	110	240	68	60	120	260
MARKET St	55TH St	STANFORD Ave	66	*	90	180	65	*	70	160
MARTIN LUTHER KING Way	27TH St	MACARTHUR Blvd	63	*	60	120	64	*	60	140
MARTIN LUTHER KING Way	47TH St	END1	63	*	60	120	64	*	60	140
MILES Ave	COLLEGE Ave	ROUTE 24 SB OFF RAMP	61	*	*	90	63	*	60	120

CITY OF OAKLAND
ENVIRONMENTAL BACKGROUND REPORT
NOISE

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn	Ldn (75 ft.)	70-Ldn	65-Ldn	60-Ldn
			dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
MORAGA Ave	PIEDMONT city limits	ESTATES Dr	63	*	60	120	64	*	60	140
MORAGA Ave	ESTATES Dr	THORNHILL Dr	62	*	50	100	64	*	60	140
MORAGA Ave	THORNHILL Dr	MOUNTAIN Blvd	63	*	60	120	64	*	60	140
MOUNTAIN Blvd	EDWARDS Ave (S)	KELLER Ave	74	140	300	660	74	140	300	640
MOUNTAIN Blvd	HOLY NAMES COLLEGE	REDWOOD Rd (S)	65	*	70	160	64	*	60	140
MOUNTAIN Blvd	REDWOOD Rd (S)	CARSON St	62	*	50	100	62	*	50	100
MOUNTAIN Blvd	MORAGA Ave	PARK Blvd (N)	65	*	80	170	66	*	90	190
PARK Blvd	GROSVENOR Pl	WELLINGTON St	69	60	130	280	69	60	140	300
PARK Blvd	LEIMERT Blvd	TRAFALGAR Pl	64	*	60	130	64	*	60	140
PARK Blvd	SPRUCE St	MACARTHUR Blvd	65	*	70	160	66	*	90	190
PARK Blvd	WELLINGTON St	LEIMERT Blvd	65	*	70	150	64	*	60	140
REDWOOD Rd	ALISO Ave	SKYLINE Blvd WEST	66	*	90	200	66	*	90	190
REDWOOD Rd	ALISO Ave	END3	66	*	80	180	66	*	90	190
SAN LEANDRO St	66TH Ave	75TH Ave	67	50	100	230	68	60	120	260
SAN LEANDRO St	75TH Ave	SAN LEANDRO LIMIT	68	50	120	250	69	60	140	300
SAN LEANDRO St	HIGH St	66TH Ave	65	*	70	160	67	50	100	220
SAN LEANDRO St	FRUITVALE Ave	HIGH St	66	*	90	200	66	*	90	190
SEMINARY Ave	BANCROFT Ave	INTERNATIONAL	59	*	*	70	59	*	*	60

CITY OF OAKLAND
ENVIRONMENTAL BACKGROUND REPORT
NOISE

Street Name	From	To	Existing	Distance (ft.) to Noise Contour from Roadway Center			Future	Distance (ft.) to Noise Contour from Roadway Center		
			Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA	Ldn (75 ft.) dBA	70-Ldn dBA	65-Ldn dBA	60-Ldn dBA
SEMINARY Ave	SAN LEANDRO St	INTERNATIONAL	60	*	*	70	58	*	*	60
SHATTUCK Ave	52ND St	55TH St	61	*	*	90	62	*	50	100
SHATTUCK Ave	55TH St	ALCATRAZ Ave	63	*	60	130	64	*	60	140
STANFORD Ave	SAN PABLO Ave	ADELINE St	65	*	70	150	67	50	100	220
TELEGRAPH Ave	WEST GRAND Ave	27TH St	62	*	50	100	60	*	*	70
TELEGRAPH Ave	27TH St	WEST MACARTHUR Blvd	62	*	50	100	62	*	50	100
TELEGRAPH Ave	40TH St	50TH St	62	*	50	100	63	*	60	120
TELEGRAPH Ave	51ST St	AILEEN St	63	*	50	120	63	*	60	120
TELEGRAPH Ave	AILEEN St	ALCATRAZ Ave	68	60	120	260	68	60	120	260
TELEGRAPH Ave	ALCATRAZ Ave	BERKELEY city limits	68	60	120	260	68	60	120	260
WEST MACARTHUR Blvd	MARKET St	TELEGRAPH Ave	66	*	90	200	67	50	100	220
WEST MACARTHUR Blvd	TELEGRAPH Ave	BROADWAY	67	50	110	230	68	60	120	260
WEST MACARTHUR Blvd	BROADWAY	FAIRMOUNT Ave	68	50	110	240	68	60	120	260

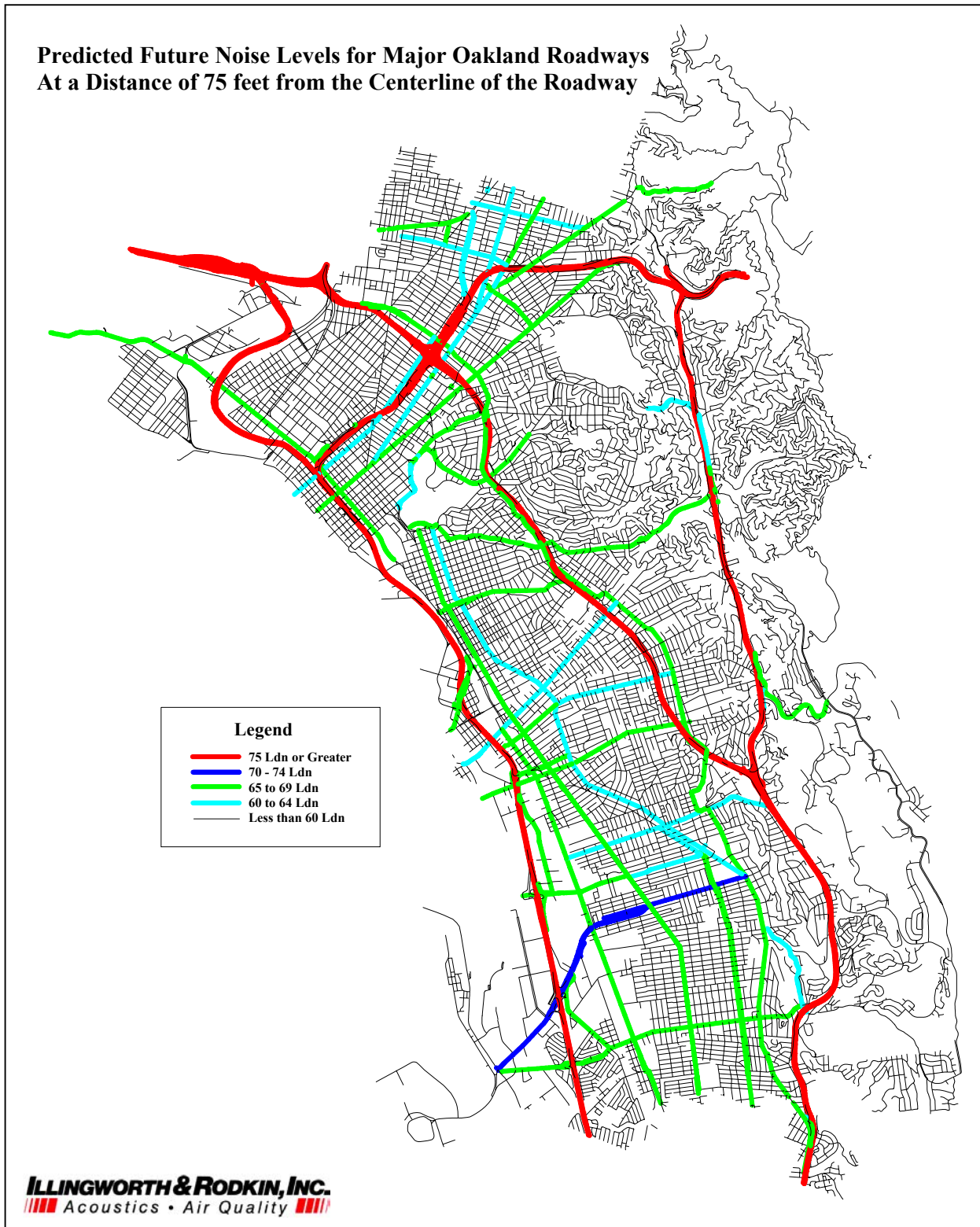
* Distances of less than 50 feet are not included in this table.

Table B-2: Calculated Vehicular Traffic Noise Levels for Highways and Interstates

Highway	Vicinity	Existing	Distance (ft.) to Noise Contour from Roadway Center		
		Ldn (150 ft.)	70-Ldn	65-Ldn	60-Ldn
SR 13	OAKLAND, CARSON STREET	71	170	380	810
SR 13	OAKLAND, REDWOOD ROAD	71	170	380	810
SR 13	OAKLAND, LINCOLN AVENUE	72	200	440	950
SR 13	OAKLAND, PARK BOULEVARD	73	240	510	1100
SR 13	OAKLAND, MORAGA AVENUE	72	200	440	950
SR 13	OAKLAND, BROADWAY TERRACE	73	240	510	1100
SR 13	OAKLAND, JCT. RTE. 24	73	240	510	1100
SR 24	OAKLAND, TELEGRAPH/ CLAREMONT AVENUES	79	600	1290	2770
SR 24	OAKLAND, BROADWAY/PATTON STREET	79	600	1290	2770
SR 24	OAKLAND, JCT. RTE. 13 AT LANDVALE ROAD	80	700	1500	3230
SR 24	OAKLAND, CALDECOTT LANE	79	600	1290	2770
SR 24	CALDECOTT TUNNEL	80	700	1500	3230
I-580	OAKLAND, FOOTHILL BOULEVARD	78	550	1180	2540
I-580	OAKLAND, 106TH AVENUE	78	540	1170	2510
I-580	OAKLAND, GOLF LINKS ROAD	79	570	1220	2630
I-580	OAKLAND, KELLER AVENUE	79	570	1230	2640
I-580	OAKLAND, EDWARDS AVENUE	79	570	1230	2660
I-580	OAKLAND, KUHNLE AVENUE	79	610	1320	2840
I-580	OAKLAND, JCT. RTE. 13 NORTH	79	600	1290	2770
I-580	OAKLAND, MAC ARTHUR BOULEVARD	78	530	1130	2440
I-580	OAKLAND, HIGH STREET	78	510	1100	2360
I-580	OAKLAND, 35TH AVENUE	78	550	1190	2560
I-580	OAKLAND, COOLIDGE AVENUE	79	600	1290	2780

Highway	Vicinity	Existing	Distance (ft.) to Noise Contour from Roadway Center		
		Ldn (150 ft.)	70-Ldn	65-Ldn	60-Ldn
I-580	OAKLAND, FRUITVALE AVENUE	78	550	1190	2560
I-580	OAKLAND, BEAUMONT AVENUE	79	610	1320	2840
I-580	OAKLAND, PARK BOULEVARD	79	560	1200	2580
I-580	OAKLAND, LAKESHORE AVENUE/PARK BOULEVARD	79	620	1350	2900
I-580	OAKLAND, VAN BUREN/GRAND AVENUES	79	570	1230	2640
I-580	OAKLAND, OAKLAND AVENUE/HARRISON STREET	79	620	1340	2890
I-580	OAKLAND, JCT. RTES. 80 AND 880	79	610	1300	2810
I-880	OAKLAND, 98TH AVENUE	83	1070	2310	4980
I-880	OAKLAND, HEGENBERGER ROAD	83	1030	2220	4790
I-880	OAKLAND, 66TH AVENUE	83	1090	2350	5060
I-880	OAKLAND, JCT. RTE. 77, HIGH STREET/42ND AVENUE	81	810	1750	3770
I-880	OAKLAND, 29TH/FRUITVALE AVENUES	83	1120	2410	5180
I-880	OAKLAND, 23RD AVENUE	83	1110	2400	5160
I-880	OAKLAND, EMBARCADERO	83	1180	2550	5490
I-880	OAKLAND, 5TH AVENUE	83	1180	2550	5490
I-880	OAKLAND, OAK/MADISON STREETS	83	1170	2520	5430
I-880	OAKLAND, JACKSON STREET/BROADWAY	83	1090	2360	5080
I-880	OAKLAND, JCT. RTE. 980; MARKET STREET	83	1100	2370	5100
I-880	ADELIN/UNION STREETS	80	700	1520	3270
I-880	7TH STREET	80	730	1560	3370
I-880	WEST JCT. RTE. 80	80	670	1440	3110
I-980	OAKLAND, 14TH STREET	80	700	1500	3230
I-980	OAKLAND, 18TH STREET	81	810	1750	3770
I-980	OAKLAND, JCT. RTE. 580	82	950	2040	4390

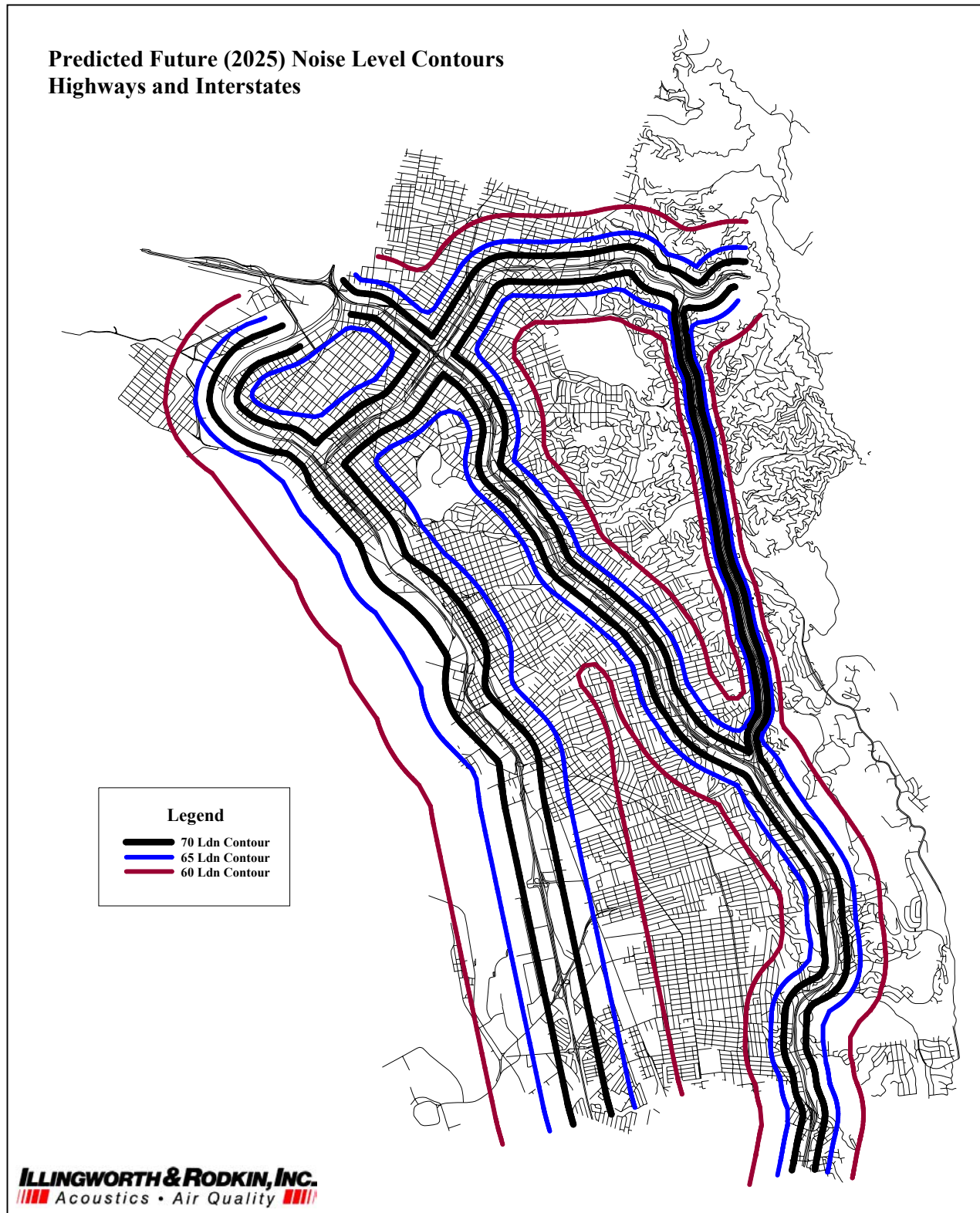
Figure B-1: Noise Contour Map for Major Roadway Noise Sources in Oakland



*To maintain consistency, predicted highway noise contours are shown at a distance of 75 feet from the centerline in Figure B-1, which may be within the Right-of-Way.

**Predicted L_{dn} values are worst-case estimates and do not take acoustical shielding from buildings or terrain into account.

Figure B-2: Future (2025) Noise Contour Map for Highways and Interstates in Oakland



*Predicted L_{dn} values are worst-case estimates and do not take acoustical shielding from buildings or terrain into account.

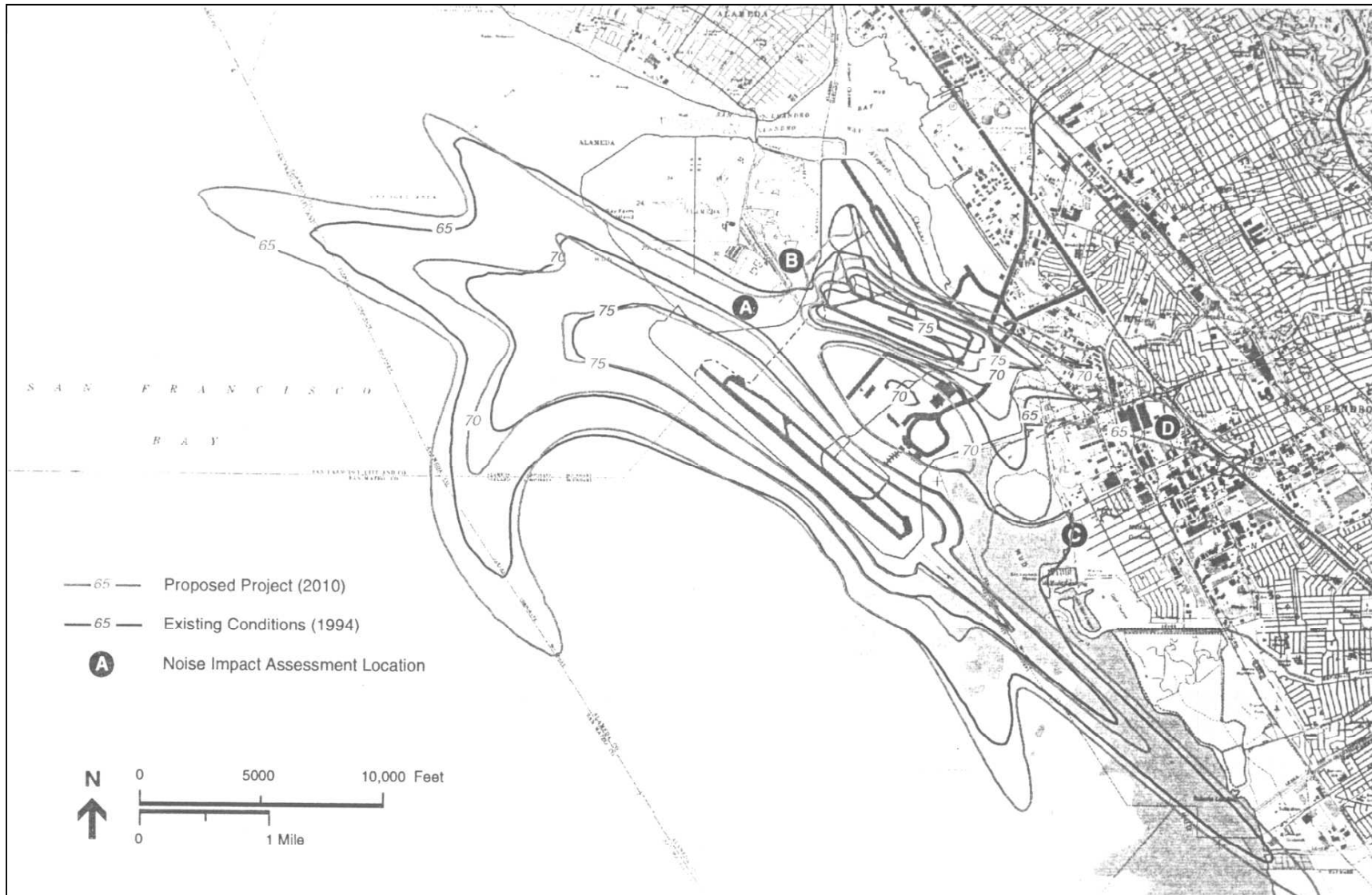


Figure B-3: CNEL Noise Contours, Proposed Project (2010) Versus Existing (1994)

Source: Port of Oakland, Environmental Impact Statement/Environmental Impact Report, U.S. Army Corps of Engineers, September 10, 1996.