6. NOISE

NOISE ELEMENT

INTRODUCTION

Noise in a community has often been cited as being a health problem, not only in terms of actual physiological damages such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in a community arise from interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the corresponding threat to public well-being is the basis for land use planning policies preventing exposures to excessive community noise levels.

The Noise Element requirements contained in California Government Code Section 65302(f) are summarized as follows:

> *The Noise Element shall identify and appraise noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:*
>
> - *Highways and freeways.*
> - *Primary arterials and major local streets.*
> - *Passenger and freight railroad operations and ground rapid transit systems.*
> - *Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.*
> - *Local industrial plants, including, but not limited to, railroad classification yards.*
> - *Other ground stationary sources identified by local agencies as contributing to the community noise environment.*

Noise contours shall be shown for all of these sources and stated in terms of the day-night average level (L_{dn}) or other appropriate noise descriptors. The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified above.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The noise element shall include policies, implementation measures, and possible solutions that address existing and foreseeable noise problems, if any.

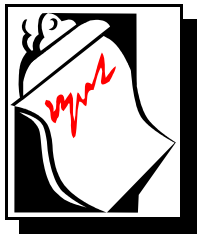
FUNDAMENTALS OF NOISE

Noise is often described as unwanted sound. Although there are many factors that can make a sound undesirable, one of the most common is loudness. The loudness of sound is measured by units called decibels (dB), and the range of sound volumes is covered by the decibel scale. A useful aspect of the decibel scale is that changes in levels correspond closely to human perception of relative loudness. This correspondence is

more closely approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of A-weighted levels (Figure 6-1).

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} shows very good correlation with a community's response to noise, and it is the foundation for other noise descriptors.

It is commonly assumed that people are more sensitive to noise at certain times of the day. Thus, noise descriptors have been developed that give extra weight to noises that occur at certain times. The day-night average level (L_{dn}) is one such descriptor. It is based upon the average noise level over a 24-hour day, with a 10-decibel weighting applied to noise occurring during nighttime hours (10:00 p.m.-7:00 a.m.). The Community Noise Equivalent Level (CNEL) is the same as Ldn, except that CNEL also has a 3-decibel weighting applied to noise occurring during evening hours (7:00 p.m. - 10:00 p.m.). Both L_{dn} and CNEL represent 24-hour averages; thus, both descriptors tend to disguise short-term variations in the noise environment.



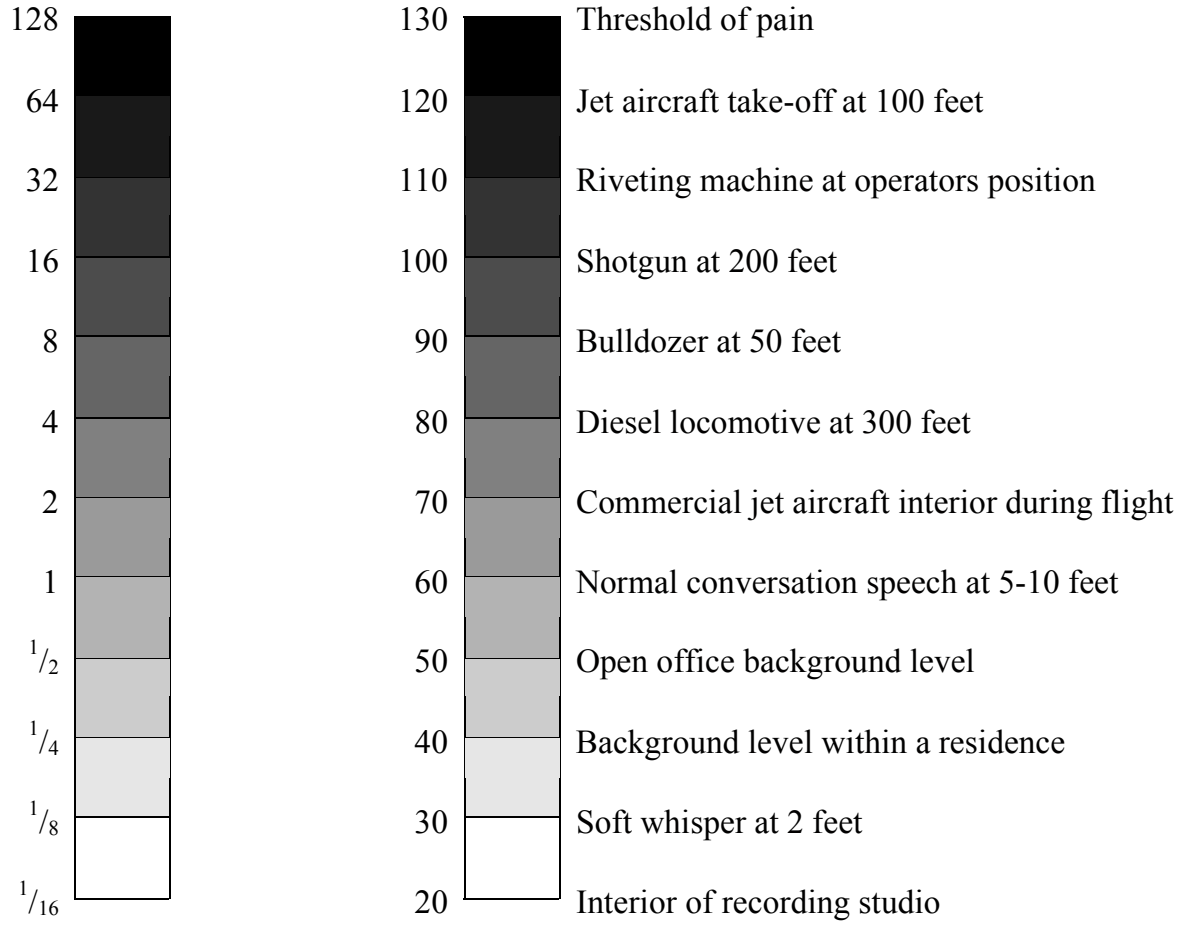
The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calveno vehicle noise emission curves was used to predict traffic noise levels within the Atwater City Limits. The FHWA Model is the traffic noise prediction model currently preferred by the Federal Highway Administration, the State of California Department of Transportation (Caltrans), and most city and county governments, for use in traffic noise assessment. Although the FHWA Model is in the process of being updated by a more sophisticated traffic noise prediction model, the use of RD-77-108 is considered acceptable for the development of General Plan traffic noise contours. The FHWA Model was used with traffic data obtained from Valley Research and Planning Technologies, published Caltrans traffic counts, and field surveys to develop existing and projected L_{dn} noise contours.

For railroads, existing noise emissions were quantified through continuous noise level measurements conducted over a 48-hour period (July 27-30, 1998) at the locations shown in Figure 6-5 on page 11.

For non-transportation sources, noise level measurements were conducted in the vicinity of the Atwater Canning Company facility, and an estimated location of the plant's 55 dB L_{eq} noise contour was developed. To quantify existing noise levels in the quieter parts of the City of Atwater, a community noise survey was performed at seven locations in the City which are somewhat removed from major noise sources. One of the seven locations was monitored over a continuous 24-hour period, while the other six locations were each monitored for two 15-minute periods during daytime hours and one 15-minute period during nighttime hours.

COMMUNITY NOISE SURVEY

Figure 6-1[9.1]
Comparative Sound Levels



Notes:
The loudness ratio is an expression of the magnitude increase of noise. A 10dBA increase in noise is perceived as twice as loud. For example, 70 dBA is perceived as twice as loud as 60 dBA.

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FIGURE 6-1
TYPICAL A-WEIGHTED SOUND LEVELS
OF COMMON NOISE SOURCES

GOAL NO-1. Protect residents from the harmful and annoying effects of exposure to excessive noise.

***Policy* NO-1.1.** Monitor and update data regarding the community's ambient and fixed noise levels.

***Policy* NO-1.2.** Require that an acoustical analysis be submitted for new development in locations where exterior and/or interior noise levels will likely exceed the City's noise standards, so that appropriate mitigation measures can be determined. The analysis must comply with the guidelines identified in Table 6-1 below.

Table 6-1
Guidelines for Acoustical Analysis

1.	The analysis shall be the financial responsibility of the applicant.
2.	The analysis shall be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
3.	Noise levels shall be documented with sufficient sampling periods and locations to adequately describe noise conditions and noise sources.
4.	Existing and projected (20 year) noise levels shall be estimated in terms of L_{dn} or CNEL and levels shall be compared to the policies of the Noise Element.
5.	Mitigation shall be recommended to comply with the standards of the Noise Element, giving preference to site planning and design rather than noise barriers.
6.	Noise exposure after the prescribed mitigation measures have been implemented shall be estimated.
7.	A post-project assessment program to evaluate the success of mitigation measures shall be described.

***Policy* NO-1.3.** Encourage the use of site planning and building materials/design as primary methods of noise attenuation.

***Implementation Program* NO-1.a.** Periodically update existing local noise maps as new information about the community's noise environment becomes available to ensure accuracy in land use compatibility planning and appropriate mitigation of noise impacts.

***Implementation Program* NO-1.b.** Adopt and enforce a Noise Ordinance that complies with the State's Noise Insulation Standards. Said ordinance shall contain policies and regulations addressing both ambient and fixed source noise impacts, including but not limited to:

- Permitted days and hours for non-emergency construction (AM starting time to PM cease of operations).
- Permitted days and hours of operation for noise-generating commercial and industrial outdoor equipment (leaf blowers, parking lot sweepers, etc.) on sites located adjacent to residential areas.
- Standards geared primarily toward commercial and industrial land uses, limiting peak noise emissions measured from the property line of the noise generating use.
- Guidelines for noise measurement/ monitoring activities and enforcement.

TRANSPORTATION NOISE SOURCES

Roadways

The FHWA Model was used to develop existing L_{dn} contours for SR 99 and major roadways within the City. The distances from the centerlines of the major roadways to the existing 60 and 65 dB L_{dn} contours are summarized in Table 6-2. The 60 dB L_{dn} contour locations for existing conditions on major roadways in the Atwater area are shown on Figure 6-2. The distances from the centerlines of the major roadways to the

Table 6-2
Traffic Noise Model Data Inputs and Distances to Existing Noise Contours

Seg.	Roadway Name	Segment Description	ADT	Day %	Night %	Truck Usage		Speed (mph)	Distance to L_{dn} Contours (feet)	
						Med.	Hvy.		60 dB	65 dB
1	State Route 99	Buhach - Shaffer	63,276	75	25	5	20	65	2,182	1,013
2		Shaffer - Winton	44,983	75	25	5	20	65	1,738	807
3		Winton - NW City Limits	43,742	75	25	5	20	65	1,706	79
4	Applegate Road	South City Limits - Atwater	20,023	83	17	5	5	50	409	190
5	Winton Way	Atwater - Bellevue	20,353	83	17	2	2	45	279	130
6		Bellevue - North City Limits	14,158	83	17	2	2	45	219	102
7	1st Street	Atwater - Bellevue	8,407	83	17	2	2	40	130	60
8	Giannini	Atwater Jordan - Commerce	1,846	83	17	5	5	45	73	34
9	Shaffer Road	Atwater - Bellevue	13,499	83	17	2	2	45	212	99
10		Bellevue - Santa Fe	12,207	83	17	2	2	45	199	92
11	Buhach Road	Broadway - Juniper	9,649	83	17	5	5	50	252	117
12		Juniper - Santa Fe	6,510	83	17	5	5	50	194	90
13	Atwater Boulevard	Wedel - Winton	15,425	83	17	5	5	45	302	140
14		Winton - Shaffer	18,270	83	17	5	5	45	338	157
15	Commerce Avenue	Applegate - Industry	3,047	83	17	5	5	45	102	47
16	Broadway	Winton - Shaffer	4,063	83	17	2	2	45	95	44
17		Shaffer - 99 (to the South)	6,825	83	17	5	5	45	175	81
18	Juniper Avenue	Winton - Shaffer	1,929	83	17	2	2	40	49	23
19		Shaffer - Buhach	7,451	83	17	2	2	40	120	56
20	Bellevue Road	Gibson - Shaffer	12,782	83	17	2	2	45	205	95
21		Shaffer - Santa Fe	13,278	83	17	2	2	45	210	98
22	Santa Fe Drive	Bellevue - Shaffer	15,518	83	17	5	5	55	391	182

Source: Valley Research and Planning Technologies, Bollard & Brennan, Inc., Caltrans.
ADT - Average Daily Traffic
Day%/Night % - percentage of daily traffic on road at day/night

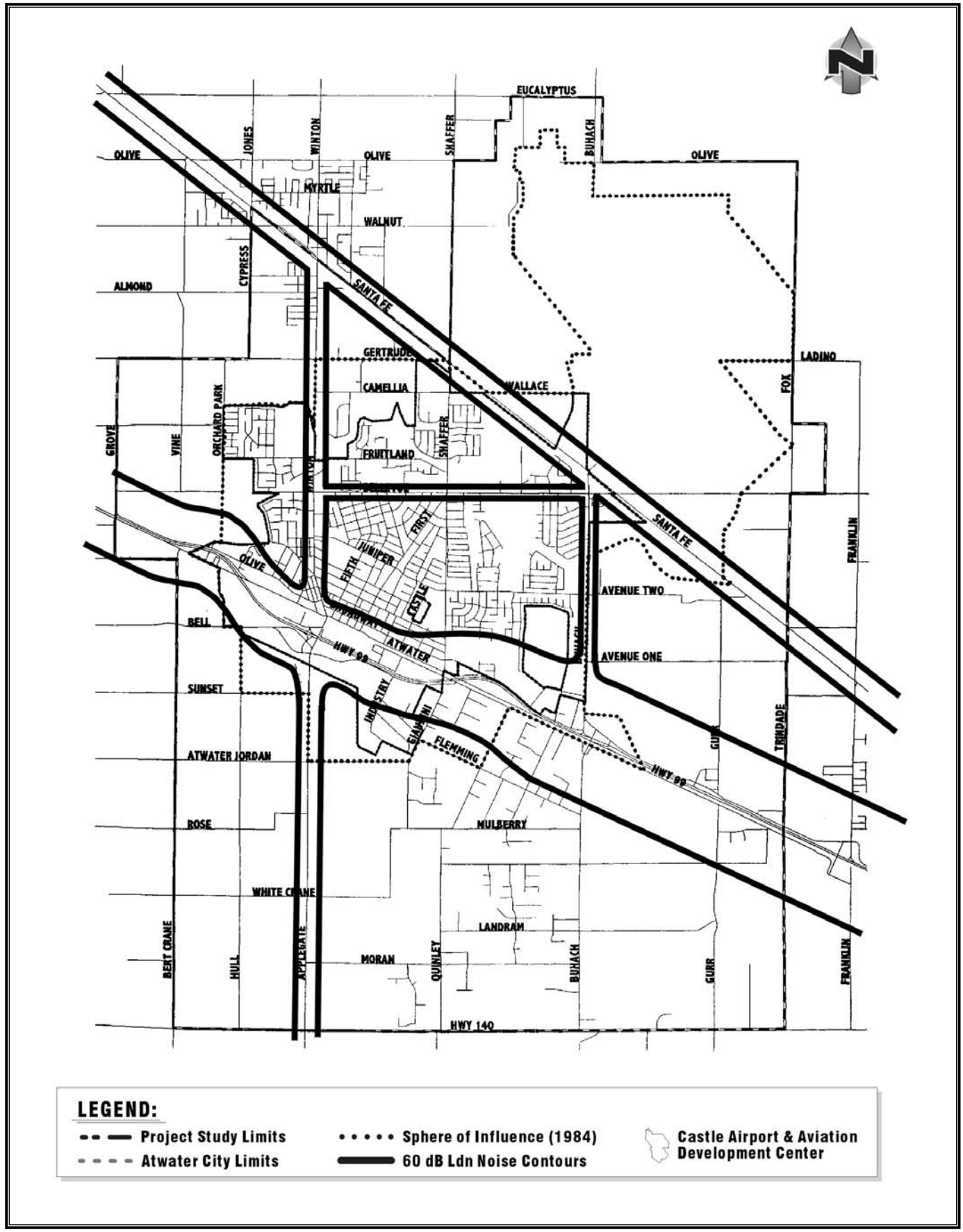

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FIGURE 6-2
EXISTING TRAFFIC NOISE CONTOURS 60 DBA LDN

projected future 60 and 65 dB L_{dn} contours are summarized in Table 6-3 on the following page. The 60 dB L_{dn} contour locations for projected future conditions on major roadways in the Atwater area are shown in Figure 6-3 on page 9.

To approximate the distances to the 60 dB L_{dn} contour for arterial roadways not included in Tables 6-2 and 6-3 or Figures 6-2 and 6-3, the nomograph in Figure 6-4 (displayed on page 10) can be utilized.

Within the framework of the Noise Element, it is not feasible to account for the variability in the SR 99 elevation or shielding of roadway noise in the City by intervening structures. Therefore, the noise exposure contours should be considered conservative estimates of traffic noise exposure, to be supplemented by detailed and project-specific studies as needed.

Railroads

Railroad activity in the City of Atwater consists of freight and passenger operations on the Burlington Northern & Santa Fe Railroad (BN&SF) and freight operations on the Union Pacific Railroad (UPRR) tracks. On average, there were approximately 24 and 20 railroad operations on the BN&SF and UPRR lines, respectively, over a 24-hour period.

For a conservative estimate of railroad noise exposure, it was assumed that existing operations on these railroad tracks consist of 25 daily trains, and that the trains would be randomly distributed throughout the day and nighttime hours. It was also assumed that the mean sound exposure level of the trains on both lines would be approximately 103 dB at a distance of 100 feet from the railroad tracks, including horn usage. The approximate location of the future 60 dB L_{dn} railroad noise level contours are shown on Figure 6-5 on page 11.

It is difficult to predict future railroad noise exposure in the City of Atwater without knowing if, or to what degree, railroad activity may change in the future. Therefore, predictions of future railroad noise exposure in the City are provided for various numbers of daily railroad operations on these lines. The results of this analysis are shown in Table 6-4.

Table 6-4
Distances to Existing and Future Railroad Noise Contours

Number of Daily Trains	Distance from Railroad Tracks to Noise Contours (feet)[1]		
	60 dB L_{dn}	65 dB L_{dn}	70 dB L_{dn}
25	856	397	184
30	967	449	208
35	1,072	497	231
40	1,171	544	252

1) Contour distances based on a mean sound exposure level of 103 dB at a reference distance of 100 feet, and a uniform distribution of trains throughout the daytime and nighttime hours.

Airport

Castle Airport is located immediately northeast of the City of Atwater. The conversion of the airfield from military to civilian use has resulted in a significant change in the characteristics of the noise generated at Castle. However, since the airfield has only recently been converted, the potential future character and volume of aircraft activity at Castle Airport remains uncertain.

Table 6-3
Traffic Noise Model Data Inputs and Distances to Future Noise Contours

Seg.	Roadway Name	Segment Description	ADT	Day %	Night %	Truck Usage		Speed (mph)	Distance to L_{dn} Contours (feet)	
						Med.	Hvy.		60 dB	65 dB
1	State Route 99	Buhach - Shaffer	106,985	75	25	5	20	65	1,437	3,097
2		Shaffer - Winton	80,808	75	25	5	20	65	1,192	2,569
3		Winton - NW City Limits	76,839	75	25	5	20	65	1,153	2,484
4	Applegate Road	South City Limits - Atwater	10,444	83	17	5	5	50	123	265
5	Winton Way	Atwater - Bellevue	35,886	83	17	2	2	45	189	408
6		Bellevue - North City Limits	24,604	83	17	2	2	45	147	317
7	1st Street	Atwater - Bellevue	13,078	83	17	2	2	40	81	175
8	Giannini	Atwater Jordan - Commerce	5,191	83	17	5	5	45	68	146
9	Shaffer Road	Atwater - Bellevue	30,701	83	17	2	2	45	171	367
10		Bellevue - Santa Fe	23,409	83	17	2	2	45	142	307
11	Buhach Road	Broadway - Juniper	12,937	83	17	5	5	50	142	306
12		Juniper - Santa Fe	13,738	83	17	5	5	50	148	318
13	Atwater Boulevard	Wedel - Winton	28,503	83	17	5	5	45	211	454
14		Winton - Shaffer	34,950	83	17	5	5	45	241	520
15	Commerce Avenue	Applegate - Industry	1,570	83	17	5	5	45	31	66
16	Broadway	Winton - Shaffer	3,540	83	17	2	2	45	40	87
17		Shaffer - 99 (to the South)	8,552	83	17	5	5	45	94	204
18	Juniper Avenue	Winton - Shaffer	4,607	83	17	2	2	40	40	87
19		Shaffer - Buhach	11,034	83	17	2	2	40	72	156
20	Bellevue Road	Gibson - Shaffer	26,981	83	17	2	2	45	156	337
21		Shaffer - Santa Fe	29,960	83	17	2	2	45	168	362
22	Santa Fe Drive	Bellevue - Shaffer	31,418	83	17	5	5	55	290	626
23	Castle Parkway	99 - Sante Fe	35,106	83	17	5	5	55	313	674

Source: Valley Research and Planning Technologies, Bollard & Brennan, Inc., Caltrans.
ADT - Average Daily Traffic
Day%/Night % - percentage of daily traffic on road at day/night

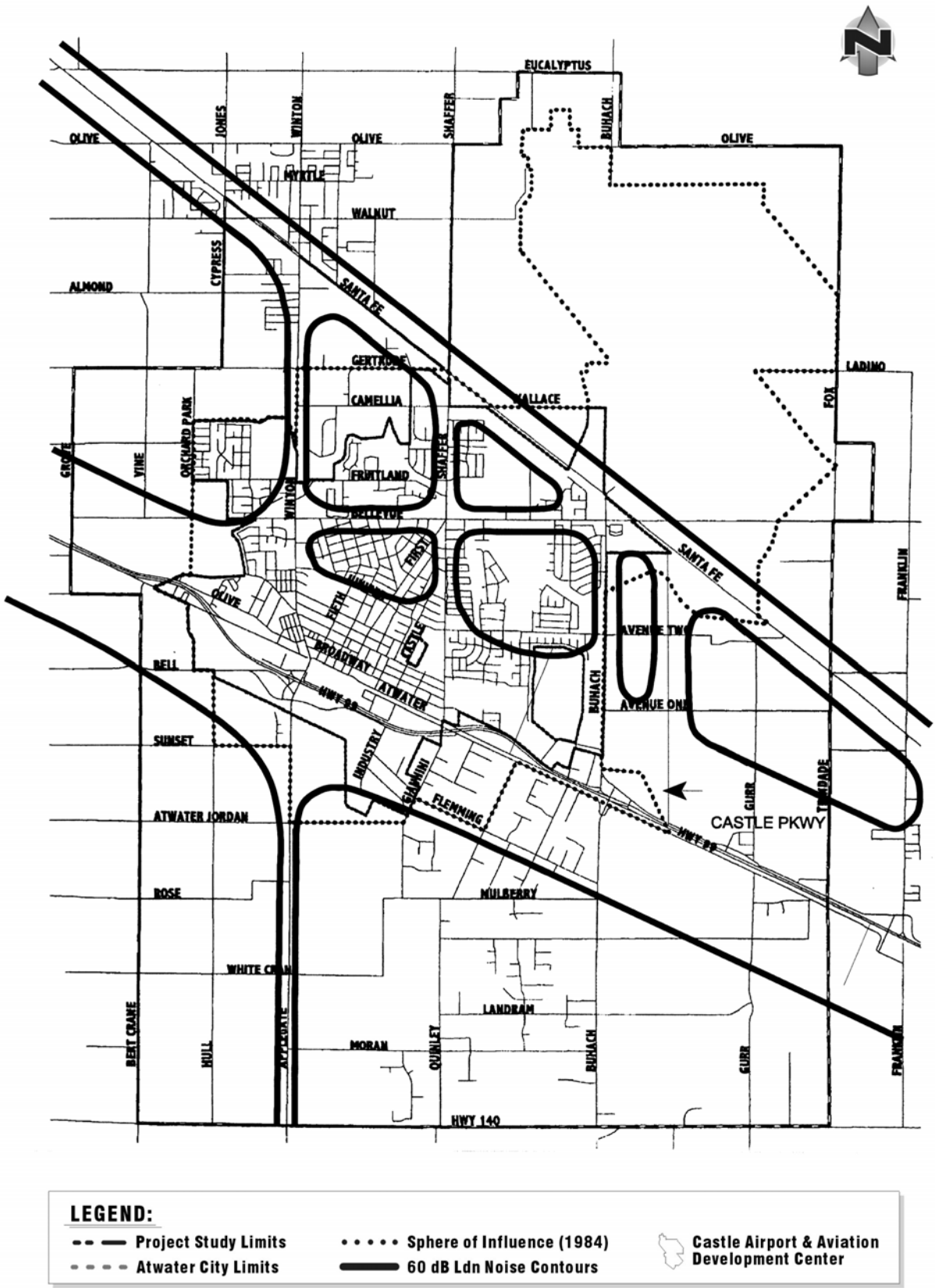

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FIGURE 6-3
FUTURE TRAFFIC NOISE CONTOURS 60 DBA LDN

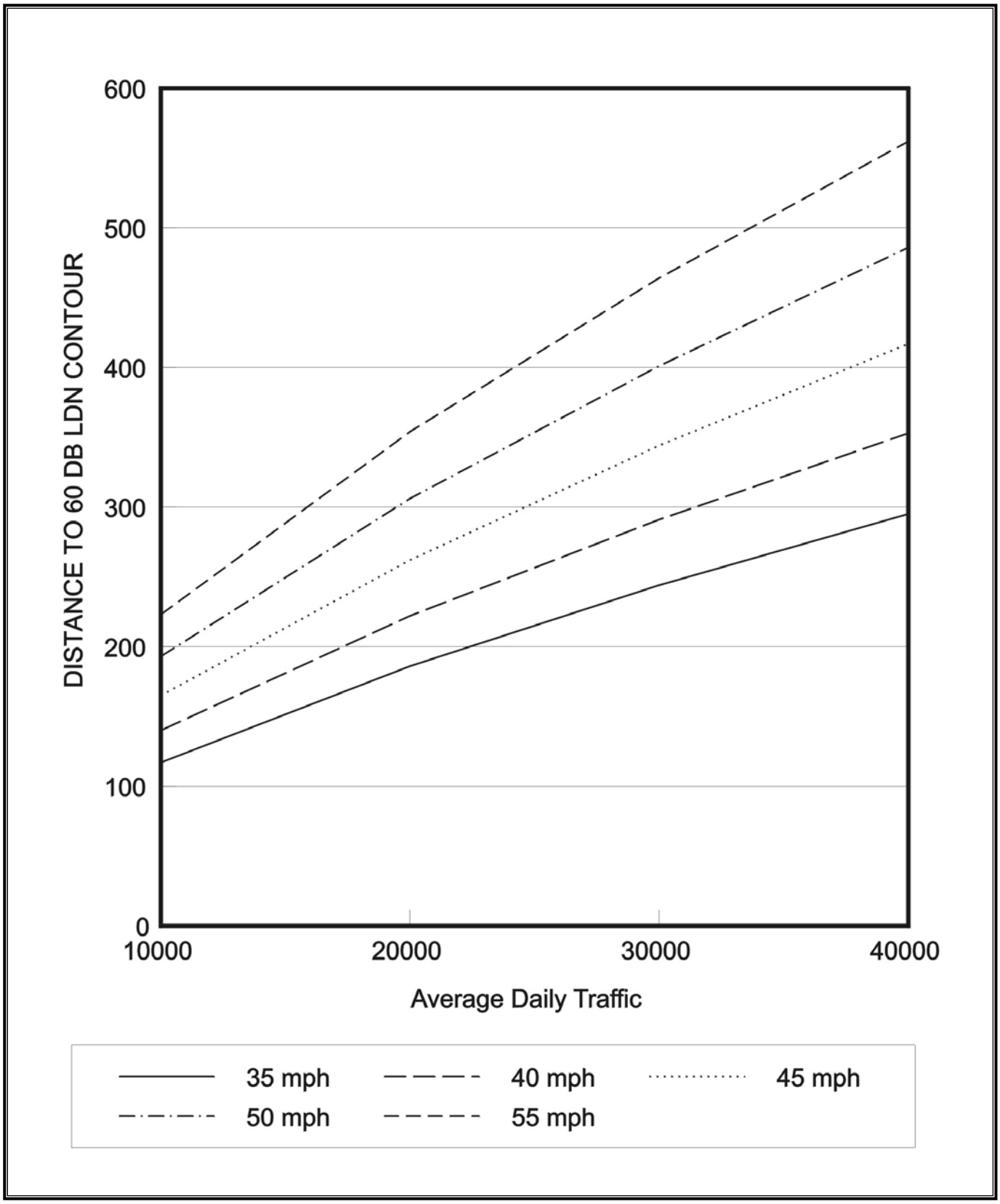

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FIGURE 6-4
METHODOLOGY FOR PREDICTING DISTANCE TO TRAFFIC NOISE CONTOURS FOR ARTERIAL TRAFFIC, CITY OF ATWATER NOISE ELEMENT

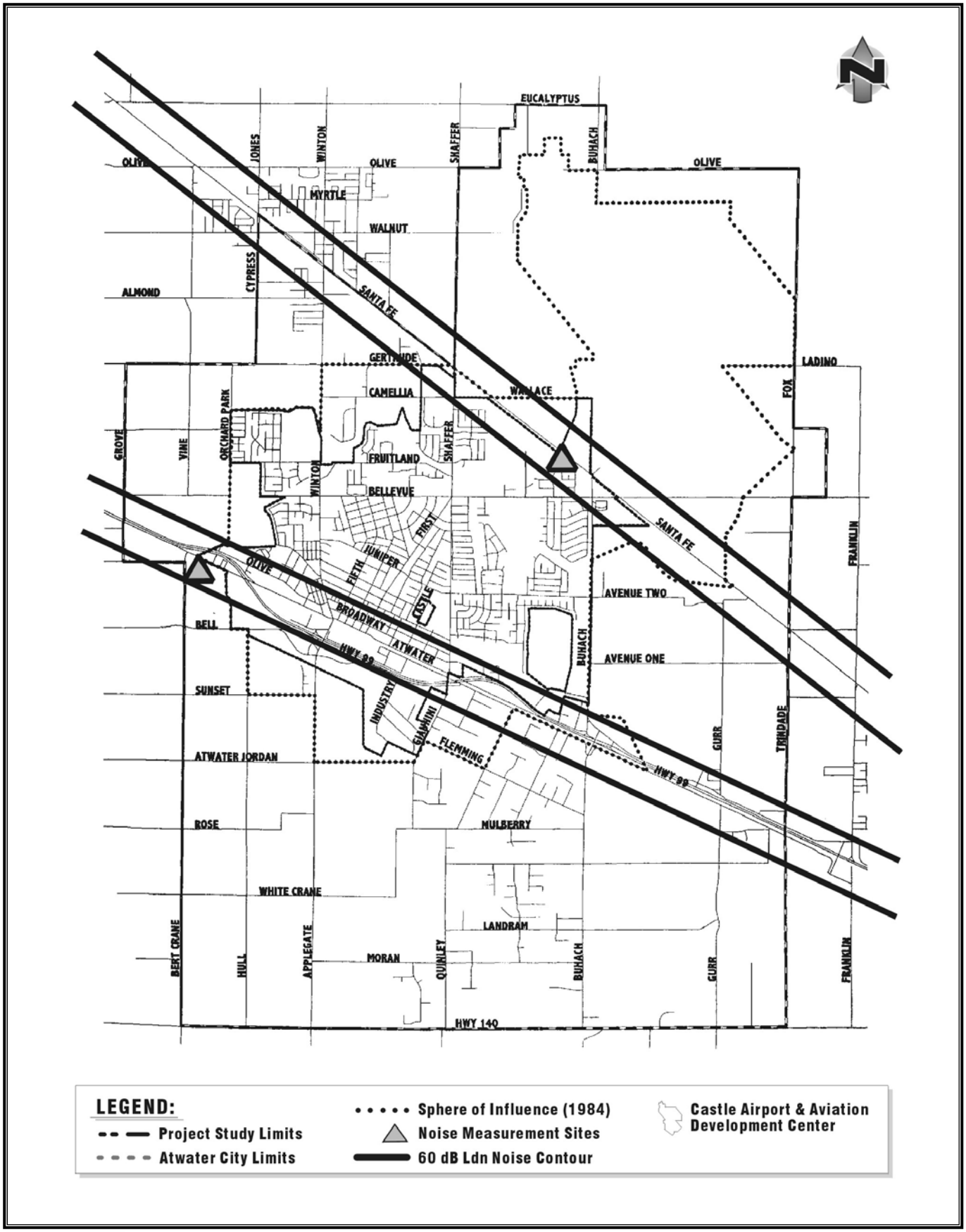

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FIGURE 6-5
RAILROAD NOISE CONTOURS

Estimates of future aircraft activity levels and flight paths were developed for the Merced County Airport Land Use Compatibility Plan. Noise exposure contours were developed and presented in that document based on these estimates. Those contours, which are reproduced in this document as Figure 6-6, indicate that the noise impact area for the airport would be located to the north and east of Santa Fe Drive. Although the City of Atwater would apparently not be located within the noise impact area, it is probable that aircraft overflights of the City will occur more frequently as the number of daily operations at the airport increase over time.

GOAL NO-2. Protect residents from exposure to excessive transportation related noise.

Policy **NO-2.1.** Periodically update existing and projected noise contours for all transportation noise sources.

Policy **NO-2.2.** Utilize Table 6-5 as a general guide when considering the feasibility of new development with respect to existing and future transportation noise levels. Noise levels should be measured from the outdoor activity area of each specified use.

Policy **NO-2.3.** Prevent new development of noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation sources which exceed the levels specified in Table 6-6, unless the project design includes effective mitigation measures to reduce interior and exterior volumes to the levels specified in that table.

Policy **NO-2.4.** Mitigate noise created by new transportation noise sources consistent with the levels specified in Table 6-6 in outdoor activity areas or interior spaces of existing noise-sensitive land uses.

Policy **NO-2.5.** Consider the significance of noise level increases associated with major roadway improvement projects prior to construction. In instances where mitigation will not reduce noise volumes to the levels recommended in Table 6-6, the following criteria should be used as a test of significance for roadway improvement projects:

a. Where existing traffic noise levels are less than 60 dB L_{dn}, in the outdoor activity areas of noise-sensitive uses, roadway improvement projects which increase noise levels to 60 dB L_{dn} will not be considered significant.

b. Where existing traffic noise levels range between 60 and 65 dB L_{dn} in the outdoor activity areas of noise-sensitive land uses, a +3 dB L_{dn} increase in noise levels due to a roadway improvement project will be considered significant.

c. Where existing traffic noise levels are greater than 65 dB L_{dn} in the outdoor activity areas on noise-sensitive uses, a +1.5 dB L_{dn} increase in noise levels due to a roadway improvement project will be considered significant.

Policy **NO-2.6.** Prevent the introduction of new incompatible land uses in areas impacted by existing and projected operations at Castle Airport.

Policy **NO-2.7.** Require an acoustical analysis when noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 6-6 so that noise mitigation may be included in the project design.

Implementation Program **NO-2.a.** Require development within the Area of Influence for Castle Airport to comply with the noise standards and recommendations contained within the Merced County Airport Land Use Compatibility Plan for that facility.

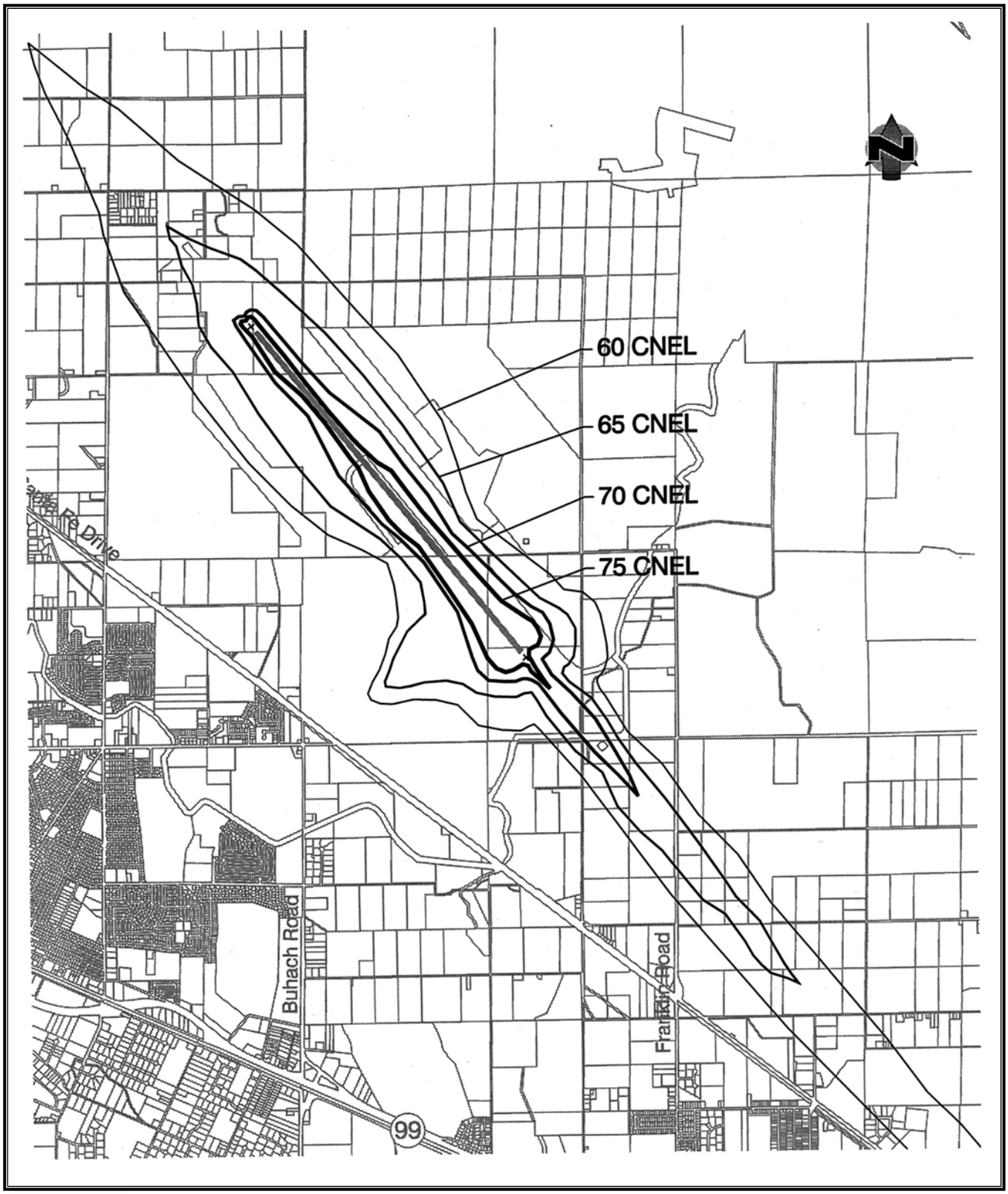

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FIGURE 6-6
NOISE IMPACT AREA - CASTLE AIRPORT

Table 6-5
Land Use Compatibility Guidelines for Development

Land Use Category		Community Noise Exposure L_{dn} or CNEL, dB						
		55	60	65	70	75	80	
Residential, Theaters, Meeting Halls, Churches, Auditoriums	A.							
	C.A.							
	U.							
Transient Lodging, Motels, Hotels	A.							
	C.A.							
	U.							
Schools, Libraries, Hospitals, Child Care, Museums	A.							
	C.A.							
	U.							
Playgrounds, Neighborhood Parks, Amphitheaters	A.							
	C.A.							
	U.							
Office Buildings, Businesses, Commercial and Professional	A.							
	C.A.							
	U.							
Industrial, Utilities, Manufacturing, Agriculture	A.							
	C.A.							
	U.							
Golf Courses, Riding Stables, Outdoor Spectator Sports	A.							
	C.A.							
	U.							

A. Generally Acceptable - No noise mitigation measures are required.
C.A. Conditionally Acceptable - Use should be permitted only after careful study and inclusion of mitigation measures as needed to satisfy the policies of the Noise Element.
U. Generally Unacceptable - Development is usually not acceptable.
Source: 1990 California General Plan Guidelines (Appendix A)

Table 6-6
Maximum Allowable Noise Exposure
Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dBA	Interior Spaces	
		L_{dn}/CNEL, dBA	L_{eq}, dBA[2]
Residential	60[3]	45	--
Transient Lodging	60[3]	45	--
Hospitals, Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60[3]	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	60[3]	--	45
Playgrounds, Neighborhood Parks	70	--	--

[1] The exterior noise-level standard shall be applied to the outdoor activity area of the receiving land use. Outdoor activity areas are normally located near or adjacent to the main structure and often occupied by porches, patios, balconies, etc.

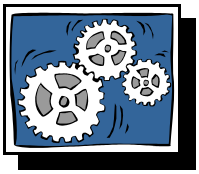
[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce the noise in outdoor activity areas to 60 dBA, L_{dn}/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 dBA, L_{dn}/CNEL may be allowed, provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this table.

STATIONARY NOISE SOURCES

Descriptions of existing fixed noise sources in the City of Atwater are provided below. These uses are intended to be representative of the relative noise generation of such uses, and are intended to identify specific noise sources which should be considered in the review of development proposals.

Industrial Activities



Industry in the City of Atwater is essentially focused in the area bounded by Broadway to the northeast, the City limits to the southwest, Giannini Road to the southeast, and the City limits to the west. This grouping of industries is ideally located in that it is in very close proximity to SR 99 and the UPRR, and in that it is fairly well removed from the established residential neighborhoods of the City.

Atwater Canning Company

The Atwater Canning Company is the largest industry identified within the City limits. Located between SR 99 and the UPRR tracks, it is situated with other major noise sources in the City. Operations at the Atwater Canning Company consist of canning fruits and vegetables. From June through September, the plant operates 7 days per week, 24 hours per day. The rest of the year it reportedly operates 5 days per week for 10 hours per day. The most significant noise-producing equipment at this facility is the steam generator, which is clearly audible in the plant vicinity. The plant generates approximately 35 truck trips on a typical day. In addition, the plant utilizes the railroad 2 to 3 times per month for deliveries. The railroad operations reportedly occur on weekdays between 6 a.m. and 6 p.m.

Noise level measurements conducted in the vicinity of this facility indicate that plant-generated noise levels vary, but are highest in the immediate vicinity of the main processing equipment. The estimated location of the plant 55 dB L_{eq} noise contour is shown on Figure 6-7. The plant is unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of the plant.

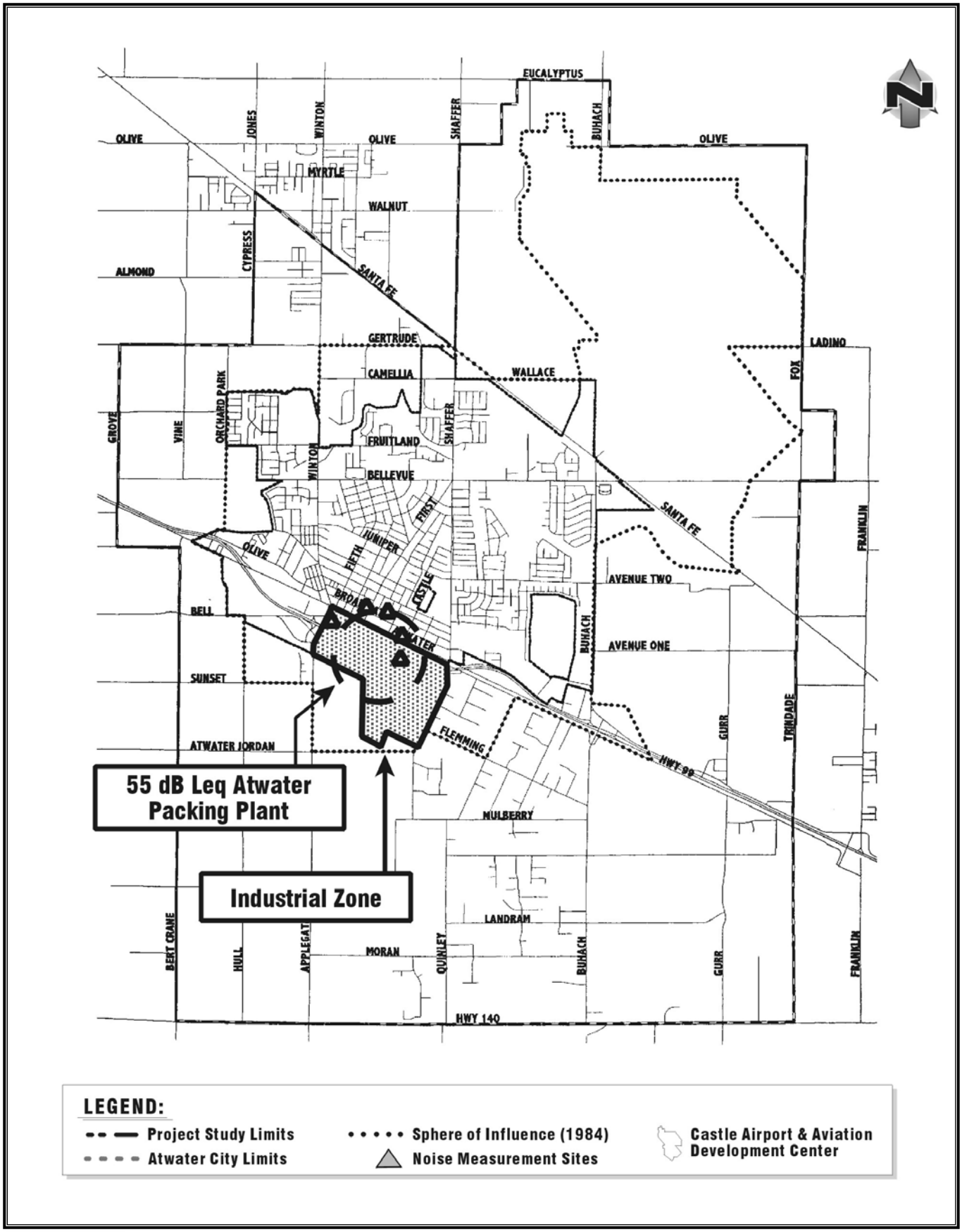


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FIGURE 6-7
INDUSTRIAL NOISE LOCATIONS

Commerce Avenue/Air Park Business Center Industries

A large group of industrial facilities is located in the Commerce Avenue/Air Park Business Center area. Businesses include moving, construction, packaging, glass, well drilling, and cabinet making companies, to name a few. In addition, the City's corporation yard, the Winton Disposal Company, and the NCI Building Systems company are located in this area. A detailed site inspection of this area revealed that, despite the presence of numerous industries in this area, most of the noise associated with these operations appears to be either equipment entering or leaving the site, or it is enclosed within warehouse-type buildings. As a result, no noise survey was conducted within this area. Nonetheless, this area should be considered a potentially significant source of noise, and proposals for development of noise-sensitive uses anywhere near this area should not proceed without a project-specific noise analysis.

General Service Commercial and Light Industrial Uses

Noise sources associated with service commercial uses are found within the City. They include automotive and truck repair facilities, wrecking yards, tire installation centers, car washes, loading docks, transfer stations, body shops, and feed stores. Many of these sources are located on Atwater Boulevard and Broadway, although several are located along Bellevue Road. The noise emissions of these uses are dependent on many factors, and therefore are difficult to quantify precisely. Nonetheless, noise generated by these uses contributes to the ambient noise environment in the immediate vicinity of these uses, and should be considered whenever either new noise-sensitive uses are proposed nearby or similar uses are proposed in existing residential areas.

Parks and School Playing Fields

There are several park and school uses within the City limits. These uses are spread throughout the City. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time, and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be much higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events, such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

Residential Areas

To quantify existing noise levels in the quieter parts of the City of Atwater, a community noise survey was performed at seven locations in the City which are somewhat removed from major noise sources. One of the seven locations was monitored over a continuous 24-hour period, while the other six locations were each monitored for two 15-minute periods during daytime hours and one 15-minute period during nighttime hours. The community noise survey noise measurement locations are shown on Figure 6-8. The results of the community noise survey are provided in Table 6-7, and Figure 6-9 shows the measurement results at the continuous monitoring site.

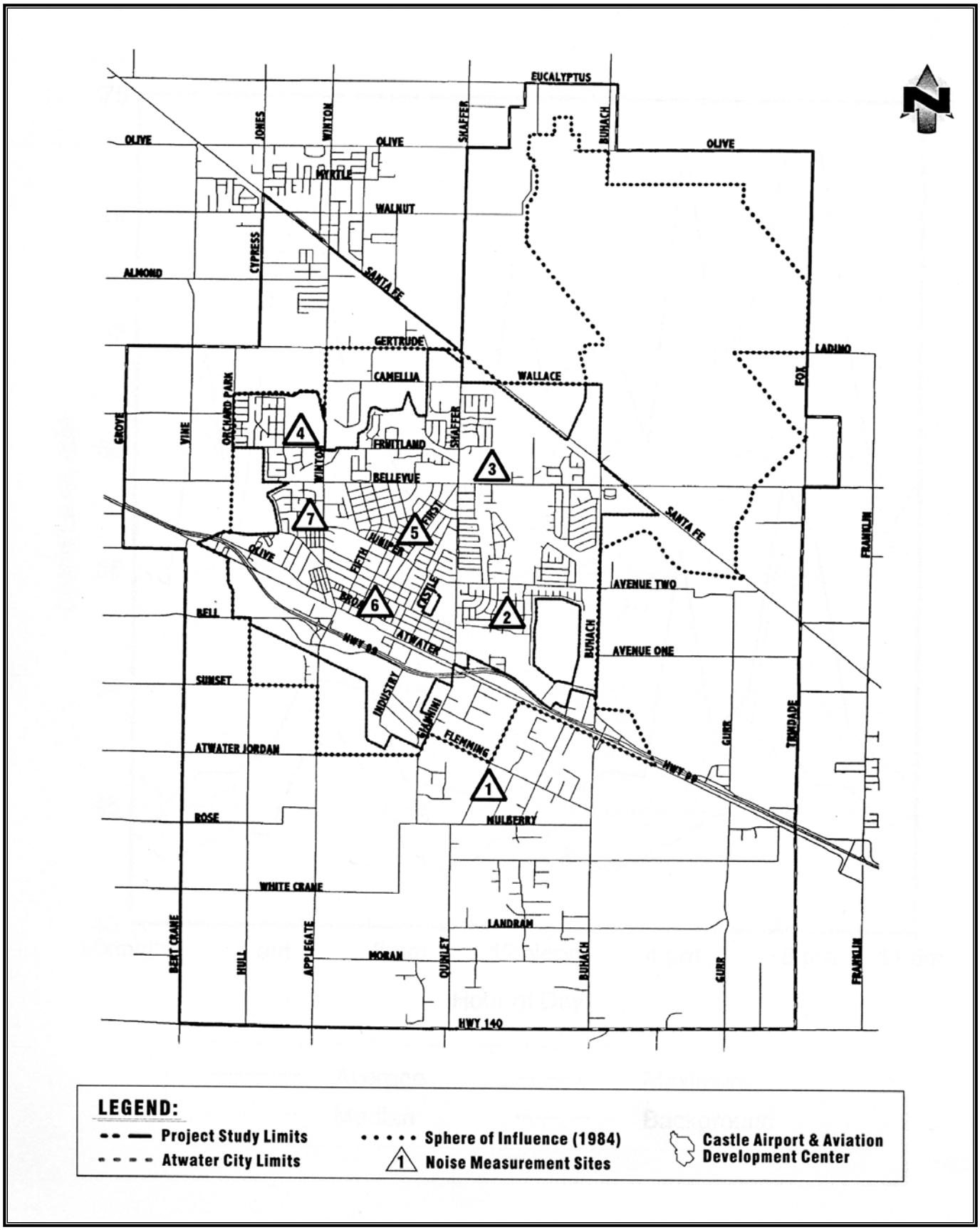

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FIGURE 6-8
NOISE SURVEY MEASUREMENT SITES

Table 6-7
Community Noise Measurement Survey Results

Site	Location	Date	Time Period	L_{eq}	L_{max}	Estimated L_{dn}	Sources
1	Violet Court	7-28-98	Morning	54	68		Train & distant traffic
		7-28-98	Afternoon	50	68	53	Traffic
		7-28-98	Nighttime	44	62		Distant traffic
2	Albiani Park	7-29-98	Morning	45	49		Air conditioning unit - distant traffic
		7-28-98	Afternoon	51	72	52	Distant Traffic
		7-28-98	Nighttime	44	54		Distant Traffic
3	Osborn Park	7-29-98	Morning	52	63		Distant Traffic
		7-28-98	Afternoon	59	67	59	Railroad horn - Traffic
		7-28-98	Nighttime	51	62		Traffic - Crickets
4	Atwater High School	7-29-98	Morning	58	68		Traffic - Children
		7-28-98	Afternoon	56	66	61	Local Traffic
		7-28-98	Nighttime	54	65		Traffic
5	Walter Park	7-29-98	Morning	54	66		Local Traffic
		7-28-98	Afternoon	53	63	55	Local Traffic
		7-28-98	Nighttime	47	50		Local Traffic
6	Bloss Park	7-29-98	Morning	52	56		Traffic
		7-28-98	Afternoon	57	71	58	Traffic - wind blowing through trees
		7-28-98	Nighttime	51	59		Traffic
7	St. Anthony's Church	7-28-98	Daytime	52	73	55	Distant Traffic
			Nighttime	48	72		

Source: BAC

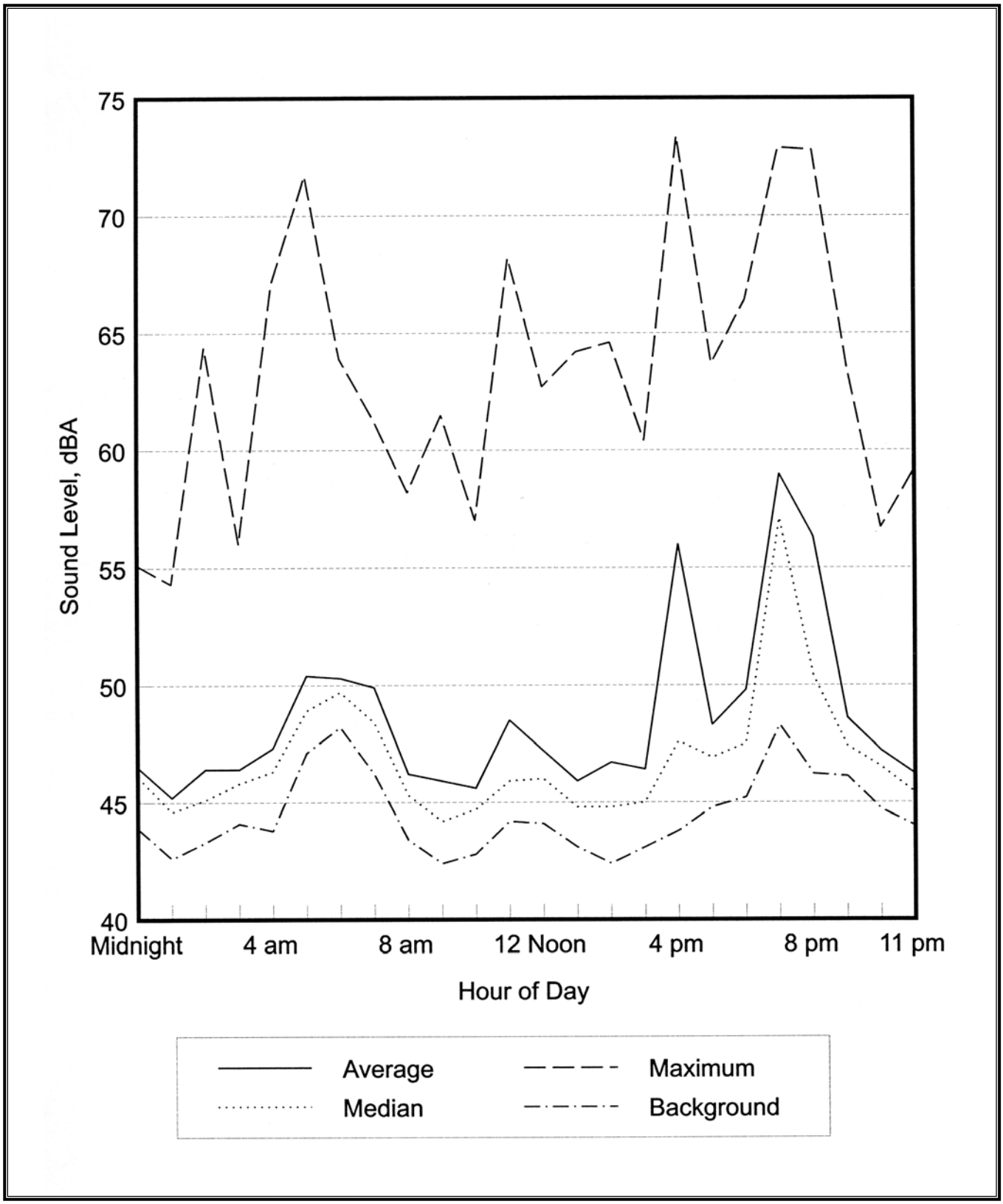

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FIGURE 6-9
MEASUREMENT RESULTS AT CONTINUOUS MONITORING SITE

GOAL NO-3. Protect the economic base of the City of Atwater by preventing incompatible land uses from encroaching upon existing or planned noise producing uses.

***Policy* NO-3.1.** Avoid development of new noise-sensitive uses where the noise levels generated by existing or anticipated non-transportation sources exceeds the noise level standards of Table 6-8 as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated.

Table 6-8
Noise Level Performance Standards for New Projects Affected By, or Including, Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7 am - 10 pm)	Nighttime (10 pm - 7 am)
Hourly L_{eq}	55 dB	45 dB
Maximum Level	75 dB	65 dB
Each of the noise levels specified shall be lowered by five dB for simple tone noises, noises consisting primarily of speech, or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).		

Note: For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations, and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are subject to local regulations, such as a noise control ordinance. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, loading docks, etc.

GOAL NO-4. Prevent the introduction of new fixed noise sources in noise-sensitive areas.

***Policy* NO-4.1.** Mitigate noise created by new proposed nontransporation sources consistent with the noise level standards of Table 6-8 as measured immediately within the property line of lands designated for noise-sensitive land uses.

***Policy* NO-4.2.** Require an acoustical analysis when proposed new nonresidential land uses or the expansion of existing nonresidential land uses is likely to produce noise level exceeding the performance standards of Table 6-8 immediately within the property line of existing or planned noise-sensitive uses.

***Implementation Program* NO-4.a.** Use the development review process to ensure that noise impacts are adequately addressed and sufficiently mitigated in accordance with the State's Noise Insulation Standards and the policies set forth in the General Plan.