
Chapter 4

NOISE



Adopted: May 7, 1996

Last Revised: May 7, 1996

(Council Resolution No. 8535, 1996 Series)

Please see the next page.



CHAPTER 4 NOISE ELEMENT

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INTRODUCTION

The City's General Plan guides the use and protection of various resources to meet community purposes. It reflects consensus and compromise among a wide diversity of citizens' preferences, within a framework set by State law. The General Plan is published in separately adopted sections, called elements, which address various topics.

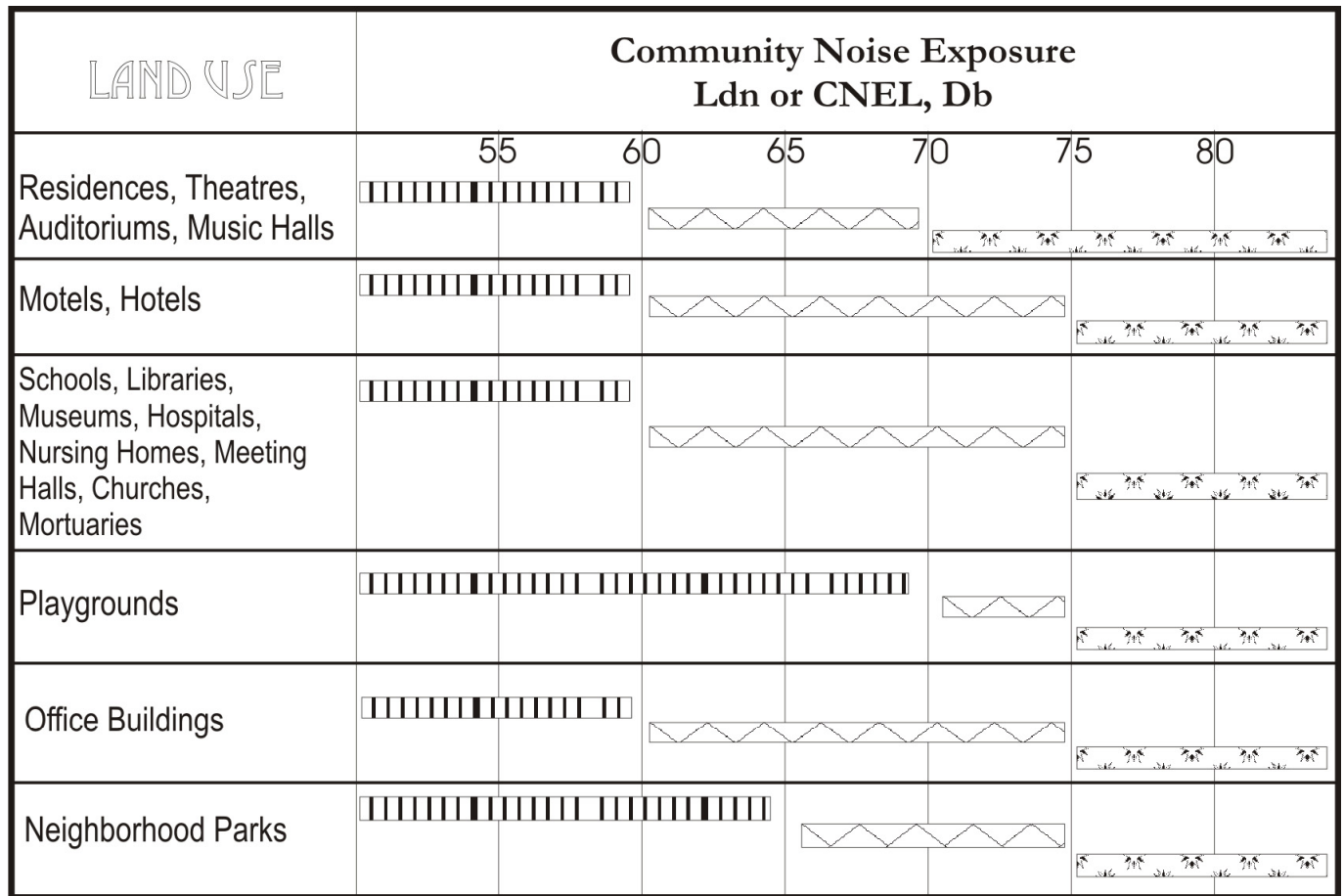
State law requires the City to adopt a noise element that assesses noise sources and noise exposure, and which aims to minimize noise conflicts. The City's first Noise Element was adopted in 1975. This revision, prepared in conjunction with updates to the Land Use Element and the Circulation Element, was adopted in 1996. These elements are related, since traffic circulation is the source of much community noise, and the location of noise-sensitive receptors is largely determined by land use designations.

The Noise Element sets noise exposure standards for noise-sensitive land uses, and performance standards for new commercial and industrial uses. A companion document, the Noise Guidebook, contains guidelines for those involved in land use choices, and in project design and review, with methods for reducing noise exposure in relatively simple situations. The Noise Guidebook also contains more detailed background information on local noise levels. The Noise Guidebook is not part of the General Plan.

Before adopting or revising any General Plan element, the Planning Commission and the City Council must hold public hearings. The City publishes notices in the local newspaper to let citizens know about the hearings at least ten days before they are held. Also, the City prepares environmental documents to help citizens understand the expected consequences of its planning policies before the hearings are held.

Anyone may suggest or apply for amendments to General Plan elements. The City will probably update this element about every ten years, or more frequently if necessary.

Figure 1 Acceptability of New Noise-Sensitive Uses Exposed to Transportation Noise Sources



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- Acceptable, Development may be permitted without specific noise studies or mitigation.
- Conditionally Acceptable, Development may be permitted if designed to meet noise exposure standards; a specific noise study is usually required.
- Unacceptable, Development with acceptable noise exposure generally is not possible.

Source: Brown-Buntin Associates, modified from State of California's Guidelines for the Preparation and Content of the Noise Element of the General Plan.



GOALS

1. Protect people from the harmful and annoying effects of exposure to noise.
2. Preserve the tranquility of residential neighborhoods by preventing noise-producing uses from encroaching upon existing or planned noise-sensitive uses.
3. Help citizens understand the effects of exposure to excessive noise and the methods available for minimizing such exposure.
4. Emphasize the reduction of noise impacts through careful site planning and project design, giving second preference to the use of noise barriers and structural features.
5. Prevent incompatible land uses from encroaching on existing or planned uses which are desired parts of the community, but produce noise.
6. Encourage practices and technologies which reduce noise.

1. POLICIES

1.1. Minimizing Noise

The numerical noise standards of this element are maximum acceptable noise levels. New development should minimize noise exposure and noise generation.

1.2. Land Use and Transportation Noise Sources

Figure 1 shall be used to determine the appropriateness of designating land for noise-sensitive uses, considering noise exposure due to transportation sources. Figure 1 shows the ranges of noise exposure, for various noise-sensitive land uses, which are considered to be acceptable, conditionally acceptable, or unacceptable.

In **acceptable** noise environments, development may be permitted without requiring specific noise studies or specific noise-reducing features.

In **conditionally acceptable** noise environments, development should be permitted only after noise mitigation has been designed as part of the project, to reduce noise exposure to the levels specified by the following policies. In these areas, further studies may be required to characterize the actual noise exposure and appropriate means to reduce it.

In **unacceptable** noise environments, development in compliance with the policies generally is not possible.

1.3. New Development Design and Transportation Noise Sources

New noise-sensitive development shall be located and designed to meet the maximum outdoor and indoor noise exposure levels of Table 1.

Table 1. Maximum Noise Exposure for Noise-Sensitive Uses Due to Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹	Indoor Spaces		
	L _{dn} or CNEL, in dB	L _{dn} or CNEL, in dB	L _{eg} in db ²	L _{max} in db ³
Residences, hotels, motels, hospitals, nursing homes	60	45	-	60
Theaters, auditoriums, music halls	-	-	35	60
Churches, meeting halls, office building, mortuaries	60	-	45	-
Schools, libraries, museums	-	-	45	60
Neighborhood parks	65	-	-	-
Playgrounds	70	-	-	-

¹ If the location of outdoor activity areas is not shown, the outdoor noise standard shall apply at the property line of the receiving land use.

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

³ L_{max} indoor standard applies only to railroad noise at locations south of Orcutt Road.

Source: Brown-Buntin Associates

1.4. New Transportation Noise Sources

Noise created by new transportation noise sources, including road, railroad, and airport expansion projects, shall be mitigated to not exceed the levels specified in Table 1 for outdoor activity areas and indoor spaces of noise-sensitive land uses which were established before the new transportation noise source.

1.5. Traffic Growth

The noise level standards in Table 1 should be used as criteria for limiting traffic growth on:

- Residential Collector streets, as designated by the Circulation Element;
- Local Streets, as designated by the Circulation Element, which extend through areas designated for residential uses.

1.6. New Development and Stationary Noise Sources

New development of noise-sensitive land uses may be permitted only where location or design allow the development to meet the standards of Table 2, for existing stationary noise sources.

1.7. New or Modified Stationary Noise Sources

Noise created by new stationary; noise sources, or by existing stationary noise sources which undergo modifications that may increase noise levels, shall be mitigated to not exceed the noise level standards of Table 2, for lands designated for noise-sensitive uses. This policy does not apply to noise levels associated with agricultural operations.



Table 2. Maximum Noise Exposure for Noise-Sensitive Uses Due to Stationary Noise Sources

Duration	Day (7a.m to 10 p.m.)	Night (10 p.m. to 7 a.m.)
Hourly L_{eq} in dB ^{1,2}	50	45
Maximum level in dB ^{1,2}	70	65
Maximum impulsive noise in dB ^{1,3}	65	60

¹ As determined at the property line of the receiver. When determining effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property-line noise mitigation measures.

² Sound level measurements shall be made with slow meter response.

³ Sound level measurements shall be made with fast meter response.

Source: Brown-Buntin Associates

1.8. Preferred Noise Mitigation Approaches

When approving new development of noise-sensitive uses or noise sources, the City will require noise mitigation in the descending order of desirability shown below. For example, when mitigating outdoor noise exposure, providing distance between source and recipient is preferred to providing berms and walls. Before using a less desirable approach, the applicant must show that more desirable approaches are not effective or that it is not practical to use the preferred approaches consistent with other design criteria based on the General Plan.

1.8.1. Mitigating Noise Sources

- A. Arrange activity areas on the site of the noise-producing project so project features, such as buildings containing uses that are not noise-sensitive, shield neighboring noise-sensitive uses;
- B. Limit the operating times of noise-producing activities;
- C. Provide features, such as walls, with a primary purpose of blocking noise.

1.8.2. Mitigating Outdoor Noise Exposure

- A. Provide distance between noise source and recipient;
- B. Provide distance plus planted earthen berms;
- C. Provide distance and planted earthen berms, combined with sound walls;
- D. Provide earthen berms combined with sound walls;
- E. Provide sound walls only;
- F. Integrate buildings and sound walls to create a continuous noise barrier.

1.8.3. Mitigating Indoor Noise Exposure

- A. Achieve indoor noise level standards assuming windows are open
- B. Achieve indoor noise level standards assuming windows must be closed (this option requires air conditioning or mechanical ventilation in buildings.)

1.9. Sound Walls

Noise mitigation walls (sound walls) may be used only when it is shown that preferred approaches are not effective or that it is not practical to use the preferred approaches consistent with other design criteria based on the General Plan. Where noise mitigation walls are used, they should help create an attractive pedestrian, residential setting through features such as setbacks, changes in alignment, detail and texture, places for people to walk through them at regular intervals, and planting.

In the Irish Hills Special Design Area and the Margarita and Orcutt expansion areas, dwellings shall be set back from Regional Routes and Highways, Parkway Arterials, Arterials, Residential Arterials, and Collector streets so that the interior and exterior noise standards can be met without the use of noise walls.

1.10. Existing and Cumulative Impacts

The City will consider the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where cumulative increases in noise levels resulting from new development significantly impact existing noise-sensitive land uses. (See also Chapter 2 of the Land Use Element, concerning residential neighborhoods.)

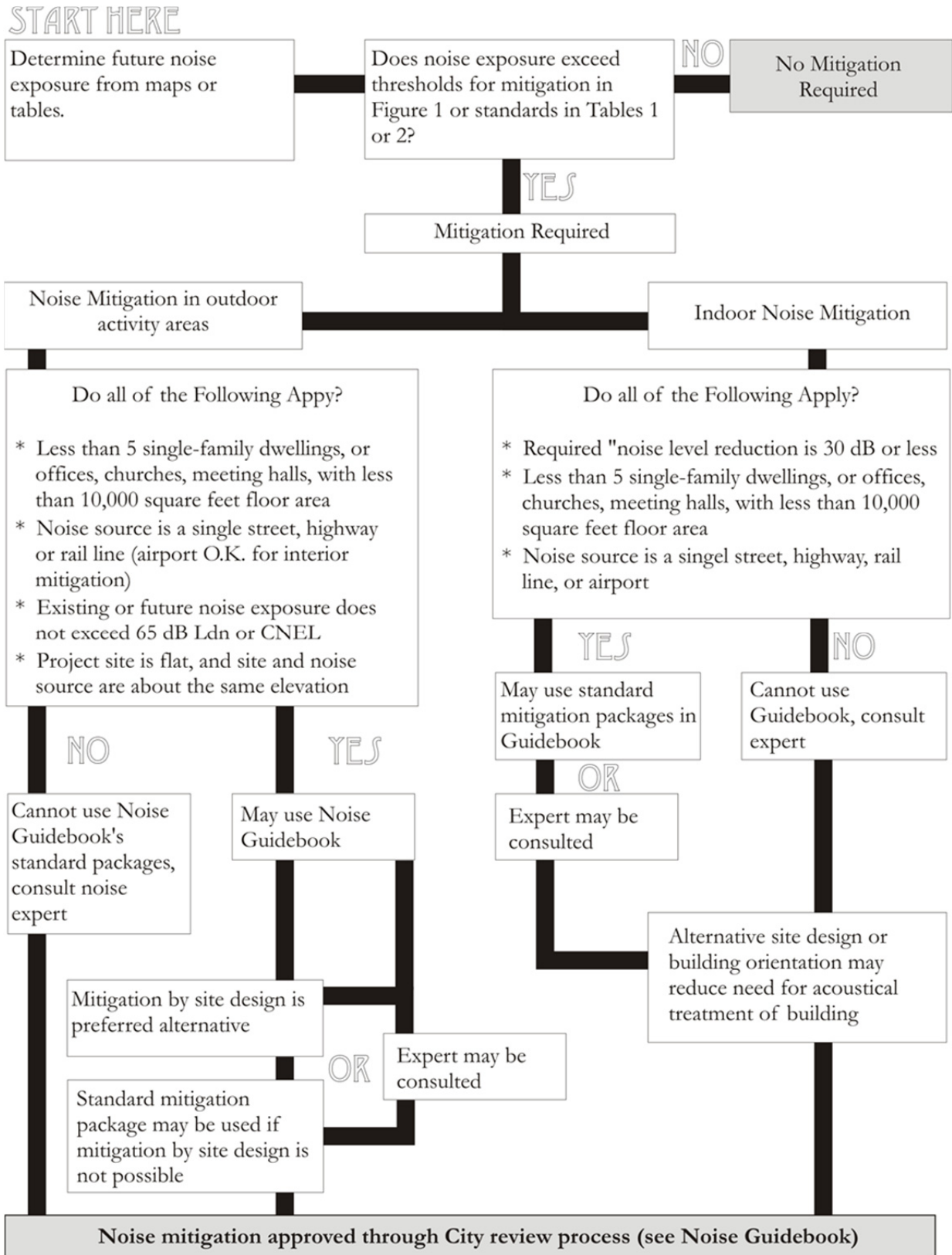
- A. Rerouting traffic onto streets that can maintain desired levels of service, consistent with the Circulation Element, and which do not adjoin noise-sensitive land uses.
- B. Rerouting trucks onto streets that do not adjoin noise-sensitive land uses.
- C. Constructing noise barriers.
- D. Lowering traffic speeds through street or intersection design methods (see also the Circulation Element).
- E. Retrofitting buildings with noise-reducing features.
- F. Establishing financial programs, such as low cost loans to owners of noise-impacted property, or establishment of developer fees to pay for noise mitigation or trip reduction programs.

1.11. Exceptions for Residential Noise Barriers

The City shall approve fence height exceptions to the extent required for effective noise-blocking walls in existing residential street yards, where existing traffic noise levels exceed the standards in Table 1. Such fence height exceptions shall be conditioned to minimize the aesthetic impacts to neighborhood character as perceived from the street and sidewalk. Such walls should help create an attractive pedestrian, residential setting through features such as setbacks, change in alignment, detail and texture, places for people to walk through them at regular intervals, and planting.



Figure 2 Chart for Determining Noise Exposure and Mitigation



PROGRAMS

To carry out its noise goals and policies, the City will undertake the following programs. These programs focus on preventing noise-related land use conflicts by requiring that new development be reviewed to determine whether it complies with the policies. Figure 2 outlines the steps in determining and mitigating noise levels for development projects.

Information sources for development review include this element's noise exposure maps and the Noise Guidebook.

The noise exposure maps are intended for screening proposed developments to see if they may be exposed to excessive noise levels, and so need mitigation. The maps also guide long range planning. Generally, the noise exposure maps provide a conservative (worst-case) assessment of noise exposure for the major noise sources identified in this element. Other major sources of noise may be identified during project review. This will be especially true of stationary noise sources, since only a representative sample of such sources was evaluated during the preparation of this element.

The Noise Guidebook includes standard noise mitigation packages which may be used to reduce indoor and outdoor noise exposure by specified amounts. The Guidebook can help decide if proposed noise mitigation measures are a reasonable application of the techniques available, and likely to achieve the desired results.

1.12. Development Review

The Community Development Department shall review new public and private development proposals to determine conformance with the policies of this element.

1.13. Noise Studies

Where a project may expose people to existing noise levels or projected built-out noise levels exceeding acceptable limits, the City shall require the applicant to provide a noise study early in the review process so that noise mitigation may be included in the project design. The City will maintain standards and procedures for the preparation of noise studies. (See the Noise Guidebook for specifics.)

1.14. Assuring Compliance

The City will ensure that required noise mitigation measures are carried out as a project is built, including enforcement of the State Building Code Chapter 35, "Sound Transmission Control," as amended, and the "Noise Insulation Standards" (California Code of Regulations, Title 24).

1.15. Monitoring

The City will monitor compliance with required noise mitigation measures after completion of projects.

1.16. Vehicle Code Enforcement

The City will enforce within its jurisdiction California Vehicle Code sections on loud vehicle exhaust systems and sound amplification systems, and ask the California Highway Patrol and the County Sheriff's Office to do so within their jurisdictions.

1.17. City Operations and Purchasing

The City will pursue alternatives to the use of noisy equipment, such as leaf blowers, and will purchase equipment and vehicles only if they incorporate the best available noise reduction technology.

1.18. Noise Element Updates

The City will periodically review and update the Noise Element to ensure that noise exposure information and policies are appropriate and consistent with other elements.



1.19. Design Guidelines

The City will make the Noise Guidebook available to anyone involved in project design and review.

NOISE EXPOSURE INFORMATION

Noise Levels in San Luis Obispo

Most areas of San Luis Obispo are noisier than surrounding rural land, but not as noisy as many more urbanized places. Major noise sources are road traffic, the airport, and the railroad. Noise level measurements in the community show that the noise exposure polices have a reasonable basis in local conditions. Citywide noise levels at build-out are not expected to be substantially different from 1990 noise levels. Most additional noise is expected to come from higher road traffic levels and more frequent aircraft operations, which will be largely offset by quieter aircraft and vehicles. In a few cases, road extensions will expose residents to higher noise levels.

Considering mapped 1990 noise contours and 1995 land use patterns, about 700 dwellings (less than four percent of the City's total) are in locations with noise levels above 65 dB, and lack noise walls or other deliberate measures to reduce outdoor noises. These dwellings are mainly where arterial streets, highways, and the railroad are bordered by residential development dating from the 1970's or earlier. Sixty-five decibels was chosen as an indicator of "excessive" noise levels because it is midway in the "conditionally acceptable" range (Figure 1), and the 75dB contour is often close enough to the noise source that intervening landforms and buildings will not substantially reduce noise exposure. The 60dB contour, corresponding to the upper limit of "acceptable" noise exposure, typically lies a block or more beyond the edge of major noise sources (such as Highway 101) where intervening buildings would be expected to reduce actual noise exposure.

Figure 3 shows where to find noise exposure information. The Noise guidebook provides details on how noise levels were measured or estimated.

Figure 3 Chart for Locating Noise Exposure Information

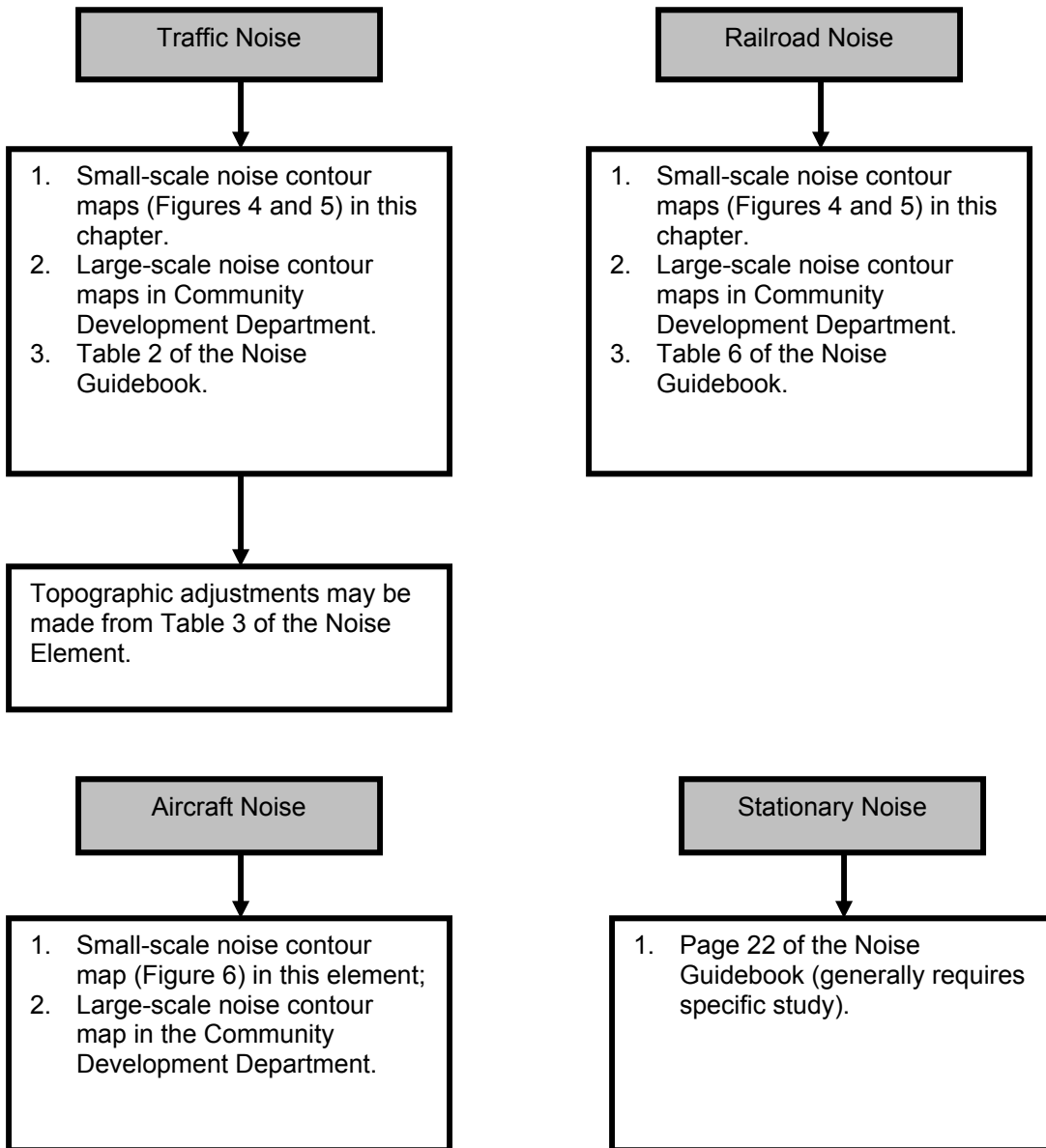




Figure 4 1990 Noise Contours



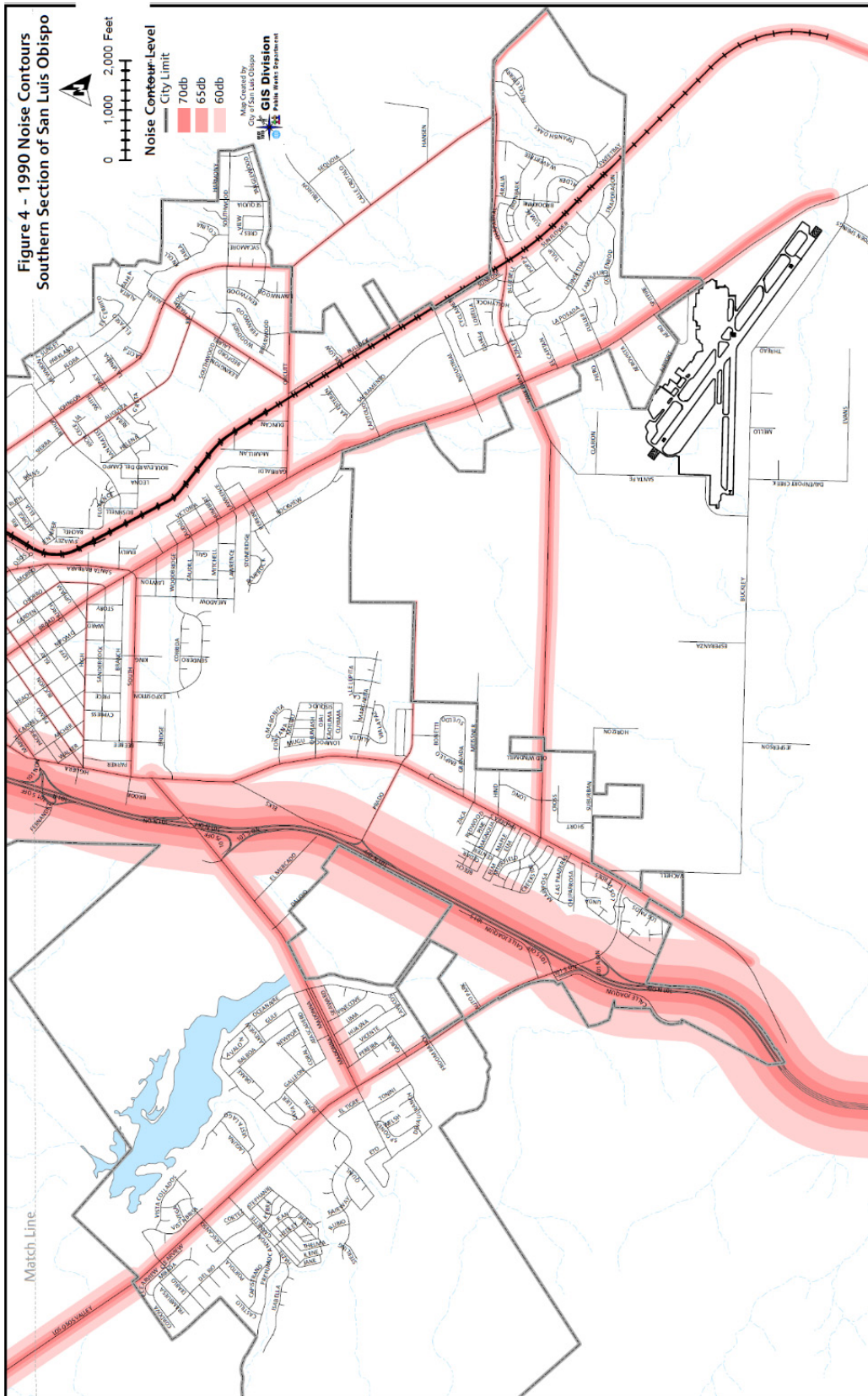
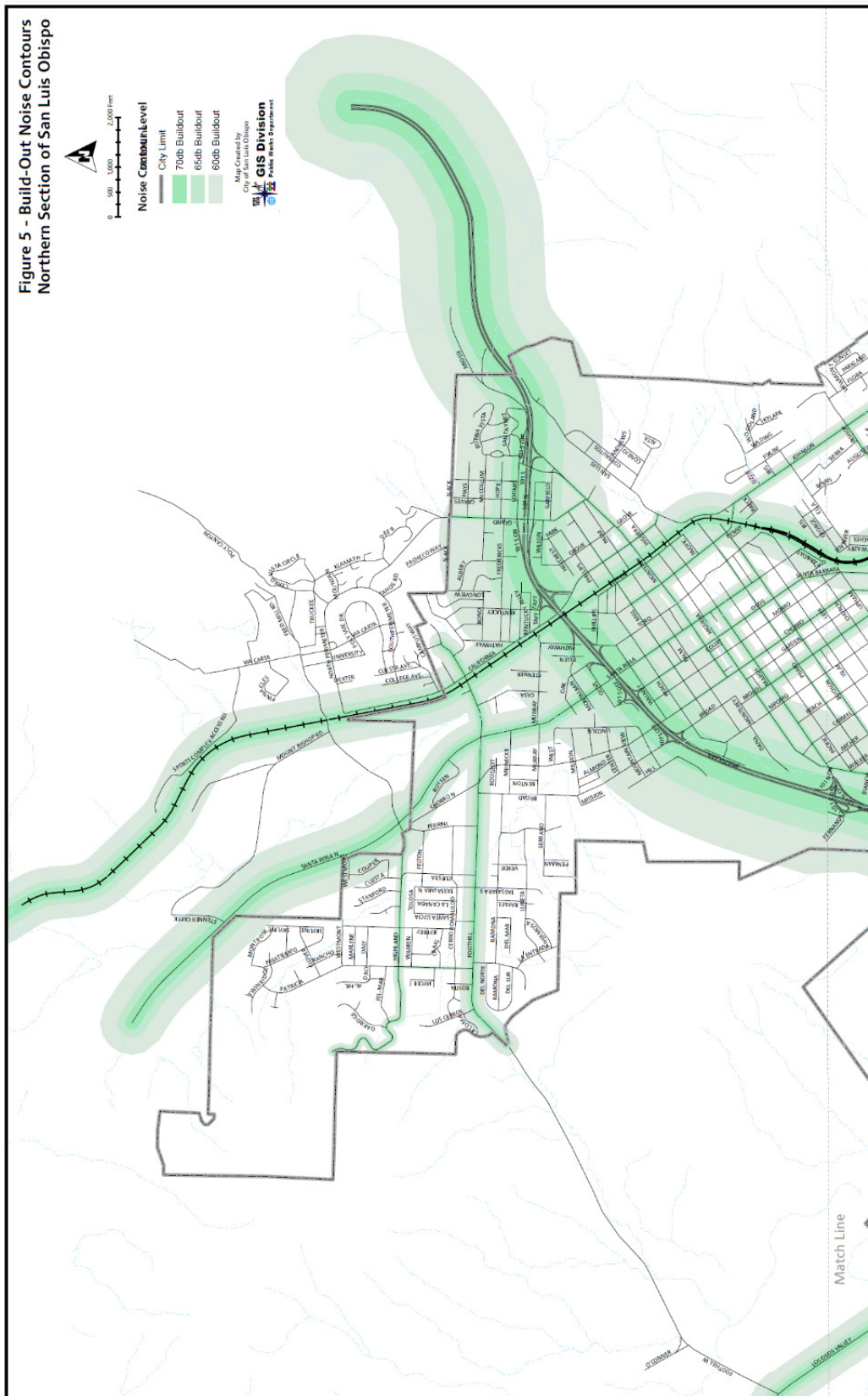
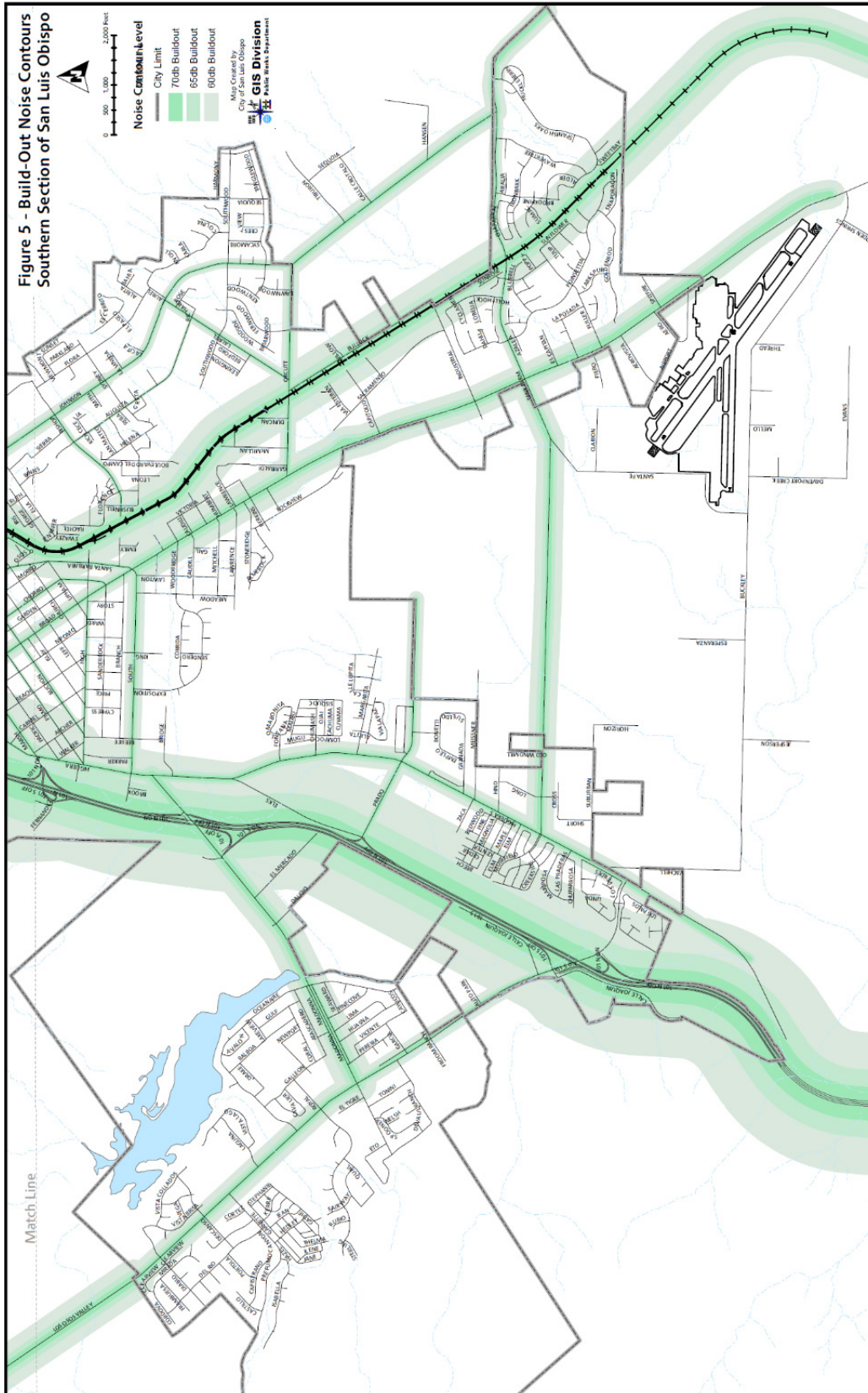




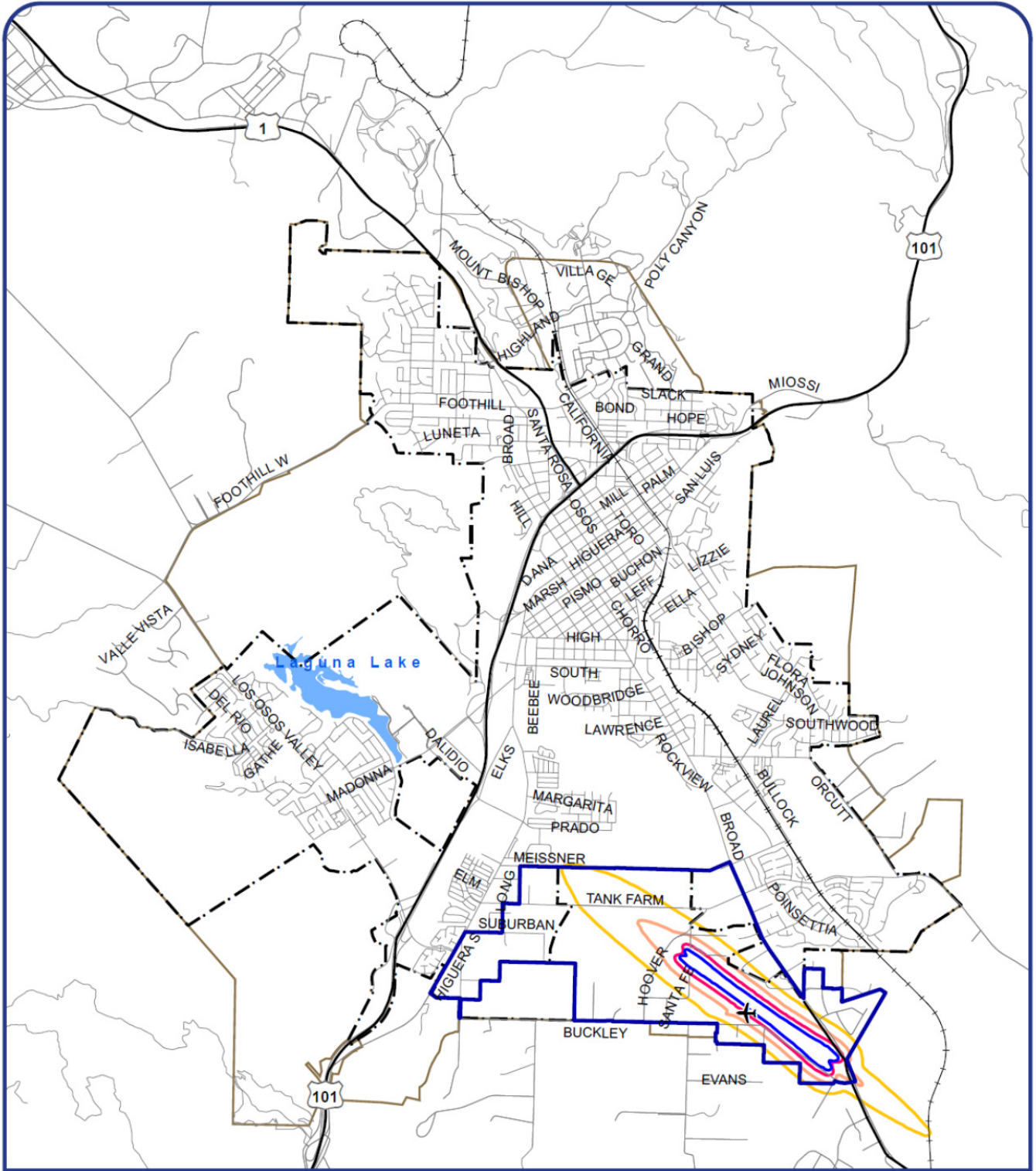
Figure 5 Build-Out Noise Contours







Air



Legend

- | | | | |
|--------------------------------|----------------------------|---------------|------------|
| Noise Contour (dB CNEL) | Airport Area Specific Plan | City Limits | Railroad |
| 60 | 70 | LUCE SOI Area | Highway |
| 65 | 75 | Roads | Airport |
| | | | Water Body |

Source: Airport Master Plan EIR

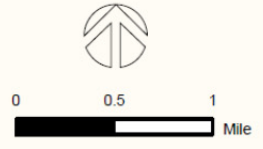


Figure 6
Airport Noise Contours

BACKGROUND

1.20. Effects of Noise

Community noise has often been cited as being a health problem, in terms of inhibiting general well-being and contributing to stress and annoyance. The health effects of community noise arise from the 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 sources increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the basis for land use planning policies directed toward the prevention of exposure to excessive community noise levels. There are also economic effects of community noise: reduction in property values, inefficiency in the workplace, and lost hours due to stress.

1.21. State Direction

Noise element contents and preparation methods are determined by Section 65302 (f) of the California Government Code, and by the Guidelines for the Preparation and Content of Noise Elements of the General Plan (by the California Department of Health Services) which are included in the State of California General Plan Guidelines, published by the State Office of Planning and research. The Guidelines requires that major noise sources and areas containing contours for current and projected conditions. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL) or the Day-Night Average Level (Ldn), which are descriptors of total noise exposure at a given location for an annual average day. (CNEL and Ldn are generally considered to be equivalent descriptors of the community noise environment within plus or minus 1.0 dB. (See the Definitions section for special terminology used in this element and in the Guidebook.)

1.22. Relationships with Other General Plan Elements

The Noise Element is related in particular to the Land Use, Housing, Circulation, and Conservation and Open Space elements of the General Plan. The relationships between noise and these four mandated elements must be understood to prepare an internally consistent general plan, and to make decisions which will keep noise exposure within acceptable levels. Relationships between these elements are outlined below.

Land Use: Ideally, to be consistent with Noise Element, the Land Use Element would show acceptable land uses in relation to existing and projected noise levels. This can be done in the city's expansion areas. Doing so is more difficult where most land uses and major noise sources were developed before there was attention to noise issues. In those areas, acceptable noise exposure must be achieved through project design, since changes to land use designations often would not be consistent with other General Plan policies. (For example, designating as commercial part of a residential neighborhood near the highway would not be consistent with policies concerning protection of residential areas.)

Housing: The Housing Element describes adequate sites for housing and some standards for residential development. Since residential land uses are noise-sensitive, the noise exposure information of the Noise element must be considered in planning and designing housing. The State Noise Insulation Standards and other noise mitigation measures may influence the locations and construction costs of dwellings, which should be considered by the Housing Element.

Circulation: The circulation system, which is a major source of noise, must be correlated with the Land Use Element. This is especially true for roads which carry significant numbers of trucks. Noise exposure will be a factor in locating and designing transportation facilities, and in mitigating noise produced by existing facilities.



Open Space: Excessive noise impairs the enjoyment of recreational open space, particularly where quiet is a valued part of the recreational experience. Thus, noise exposure should be considered in planning for this kind of open space use. Conversely, some types of open space can be used to buffer noise-sensitive uses from noise sources.

1.23. Relationship to Noise Ordinance

Noise elements are directed at minimizing future noise conflicts, while noise ordinances are intended mainly to resolve noise conflicts. A noise control ordinance addresses noise generated by industrial, commercial, agricultural, and residential uses that are not subject to Federal or State noise regulations. The regulation of noise sources such as traffic on public roads, rail line operations, and aircraft in flight is preempted by Federal and State regulations, meaning that such sources generally cannot be controlled by a local ordinance. The Noise Element can address the prevention of noise conflicts from all sources, however. The standards of a noise control ordinance should be consistent with the Noise Element, to achieve consistency in the implementation of noise control programs, and to provide businesses with consistent design criteria for development or expansion. The City has adopted, occasionally amends, and enforces a noise control ordinance, which is chapter 9.12 of the Municipal Code.

Please see the next page.

Noise Element

APPENDICES

Appendix A: Resolution 8535

Chapter 4

Please see the next page.

APPENDIX A: COUNCIL RESOLUTION

RESOLUTION NO. 8535 (1996 Series)

A RESOLUTION OF THE SAN LUIS OBISPO CITY COUNCIL APPROVING A NEGATIVE DECLARATION, REPEALING THE 1975 NOISE ELEMENT, AND ADOPTING A NEW NOISE ELEMENT

WHEREAS, the Planning Commission and the City Council have held public hearings on this matter in accordance with the California Government Code; and

WHEREAS, the updated element comes to the Council upon the favorable recommendation of the Planning Commission; and

WHEREAS, the potential environmental impacts of the project have been evaluated in accordance with the California Environmental Quality Act and the City's Environmental Guidelines.

BE IT RESOLVED by the Council of the City of San Luis Obispo as follows:

SECTION 1. Environmental Determination. The City Council has considered the initial study of environmental impact (ER 144-94), finds that there will be no significant impacts, and approves a negative declaration.

SECTION 2. Findings. This Council, after considering the draft documents and staff's analysis, the Planning Commission's recommendation, and public testimony, finds that the new element is consistent with the General Plan.

SECTION 3. Repeal of Previous Element. The Noise Element adopted in 1975 is hereby repealed.

SECTION 4. Element Adoption. The Noise Element (Revised Hearing Draft, April 1996) is hereby adopted as part of the General Plan.

SECTION 5. Guidebook Approval. The Noise Guidebook (Draft, March 1996) is hereby approved as a reference, separate from the General Plan.

R8535

Resolution No. 8535 (1996 Series)
Page 2

On motion of Council Member Roalman, seconded by Council Member Smith and on the following roll call vote:

AYES: Council Members Roalman, Smith, Mayor Settle

NOES: Council Members Romero, Williams

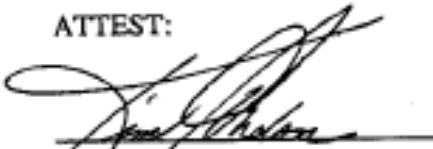
ABSENT: None

the foregoing resolution was passed and adopted this 7 day of May, 1996.



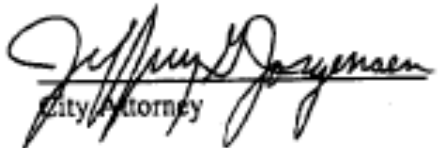
Mayor Allen K. Settle

ATTEST:



City Clerk
by Asst. City Clerk Kim Condon

APPROVED:



City Attorney

RES.NSE