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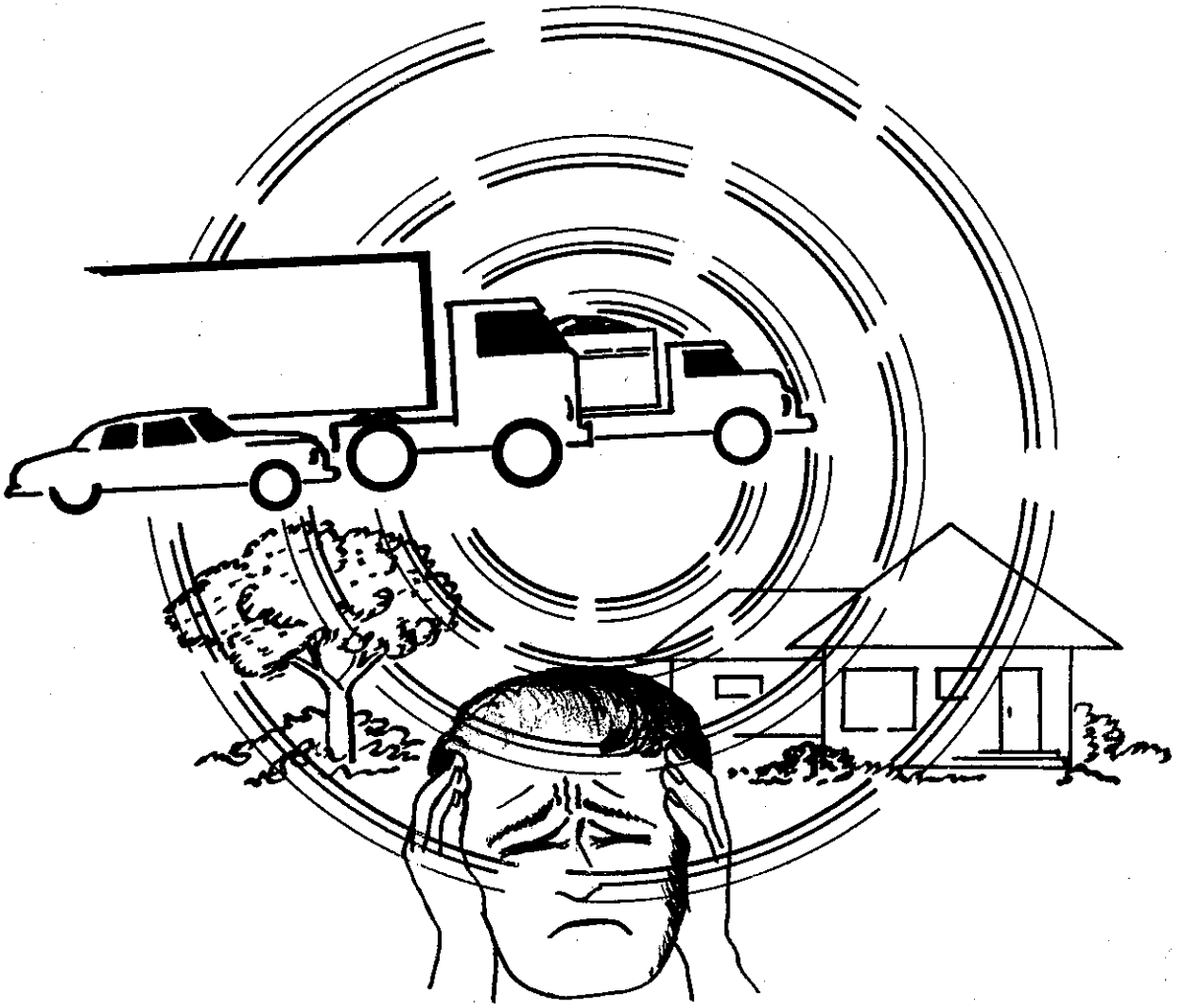
TRAFFIC GENERATED FREEWAY NOISE



A Report on Traffic Noise Attenuation Needs on California Freeways

DND

DECEMBER 1975

75-53

DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA

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of California

Business and Transportation Agency

Memorandum

: ALL DISTRICT DIRECTORS OF TRANSPORTATION

Date: January 19, 1976

File : 501 C1

: DEPARTMENT OF TRANSPORTATION
Division of Project Development - Office of Planning and Design

Mr. Maloney's memorandum of September 12, 1974 supplemented Policy & Procedure Memorandum P74-47 regarding freeway traffic noise reduction and requested submission of an inventory of freeway noise-sensitive locations. The $3 million budgeted for the 1975-76 fiscal year for traffic noise attenuation was subsequently reverted in view of the overall transportation funding shortage.

Forwarded are two copies of a report on Traffic Generated Freeway Noise, dated December 1975, which was supplied the Legislature to acquaint them with the magnitude of the traffic noise problem and our inability to proceed with a remedial program for lack of funds. The report shows a total remedial need of approximately $350 million and includes a listing of the more severe problem locations in appended Exhibit E.

W. R. GREEN
Chief, Office of Planning and Design

Attachments

FLJ:jec

cc: Dist. Coordinators
FLJackson
Plng. & Design Files
Central Files

SMcCausland
HHeckeroth
PRaine
MStephenson
HParrish
ESpartz
GHill
CSweet
GRussell

JGordon
EKress
HKagan
JKozak
DOTP
SHelwer
RAdams
JRupp

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STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF DIRECTOR
1120 N STREET
SACRAMENTO, CALIFORNIA 95814
(916) 445-2201

January 12, 1976

Hon. Darryl R. White
Secretary of the Senate
State Capitol
Sacramento, CA 95814

Hon. James D. Driscoll
Chief Clerk of the Assembly
State Capitol
Sacramento, CA 95814

Gentlemen:

The California Department of Transportation has been constructing sound walls along new freeways since 1970 to reduce the adverse impact of traffic noise on adjacent residents. This action has resulted in many requests to add sound walls to previously completed urban freeways. A policy was adopted in July 1974 to develop a program within practical and financial limits to reduce the effects of motor vehicle noise upon noise sensitive developments adjacent to existing freeways. A statewide inventory was then undertaken to identify problem locations as a basis for logical selection of projects for funding. The inventory has now been completed, but in the meantime severe financial limitations have developed in the overall transportation program.

Accordingly, the attached Traffic Noise Report has been prepared to report on the magnitude of the problem. A sum of $300 to $350 million would be needed to construct sound walls to adequately reduce noise impact in existing problem areas. The report provides more detailed data and a partial listing of the greater problem areas.

The report is for informational purposes to acquaint the Legislature with the magnitude of the traffic noise problem and our inability to proceed with a remedial program in view of current financial limitations.

Sincerely,

Sidney C. McCausland

SIDNEY C. McCAUSLAND
Director of Transportation

Attachment

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6.	Problem Noise Locations	Exhibit E

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TRAFFIC GENERATED FREEWAY NOISE

I. PURPOSE

This report provides data regarding excessive noise generated by traffic along existing State freeways and the costs to reduce the noise levels to acceptable standards.

II. BACKGROUND

The adverse effect of traffic-generated freeway noise in California was recognized during the 1950's. As a result, research was initiated to develop methods to predict noise along freeways and ways to reduce noise by special design treatment. Several experimental noise barriers were constructed in the 1960's. As a result of this research and experimental construction, a freeway noise policy was adopted by the Department of Public Works in 1970 which provided for incorporating noise attenuation measures in the design and planning of new freeways. As far as is known, California was the first state to adopt such a policy. The measures taken included:

1. Special emphasis to locate freeways away from noise-sensitive areas.

2. Use of depressed grade lines.

3. Provision of maximum lateral clearance to building improvements where feasible.

4. Construction of earth mounds or noise walls along new freeways.

The Federal Highway Administration (FHWA) adopted a Policy and Procedure Memorandum February 8, 1973 relating to noise standards. Desirable maximum exterior noise levels established follow:

60 dBA	Amphitheaters or similar areas requiring special qualities of serenity or quiet.
70 dBA	Residences, motels, hotels, schools, churches, libraries, hospitals, parks, and playgrounds.
75 dBA	Other developed areas not listed above.

In addition, a 55 dBA interior level is specified for residences, motels, hotels, schools, churches, libraries, hospitals, and auditoriums.

The sound levels indicated represent the level that may be exceeded 10 percent of the time (or not exceeded 90% of the

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time). Attached Exhibit A is a scale showing representative noise levels for increasing levels of loudness.

A revised Caltrans' noise policy was adopted July 24, 1974 to place greater emphasis on reducing noise levels along California freeways, within practical and financial limitations. See attached Exhibit B. This was followed by supporting memorandum dated September 12, 1974, attached Exhibit C.

III. POLICY

Caltrans' current noise policy is based upon a three-phase effort to reduce noise at the source, to encourage compatible adjacent land uses, and to decrease noise reaching adjacent areas by attenuation measures.

A. Reduction at the Source

Section 27160 of the Vehicle Code establishes allowable noise standards for new vehicles in California. See attached Exhibit D. The maximum allowable levels are scheduled for reduction periodically until 1988 when no vehicle shall exceed a level of 70 dBA.

Caltrans is actively participating in research to develop technology to reduce vehicle noise. Reduction of traffic noise at the source is the most effective measure to lower noise levels for adjacent improvements since this reduces noise on all roads and streets as well as on State freeways. The existing law establishing allowable new vehicle noise levels is very significant. Adherence to the schedule required by the law would eventually resolve the problem of excessive traffic noise.

B. Encouraging Compatible Adjacent Land Use

Local governmental agencies should share in the responsibility for discouraging development of noise-sensitive land uses in highway noise impacted areas or for ensuring that any such development that does occur is planned to minimize the adverse effects of noise. As an aid, Caltrans has recently provided copies of the manual prepared by the FHWA for highway noise and land use entitled "The Audible Landscape", to all cities and counties within the State. The manual describes a variety of techniques for achieving noise-compatible land use near highways. Included are administrative techniques which can be used by local governments to require or encourage improved noise compatability, and the physical methods available in site planning and building construction to achieve the desired noise impact reduction.

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A "Quiet City Report" has been prepared by the Los Angeles County Division of the League of California Cities. This report gives specific recommendations to aid in solving community noise problems and includes a model noise ordinance.

All local governments have been advised that Caltrans cannot accept the responsibility for noise protection of new developments planned and constructed after November 1, 1974 adjacent to existing or adopted freeways.

Several cities and counties have already adopted excellent ordinances requiring protection of new development from traffic noise.

C. Noise Attenuation

The objective of Caltrans is to reduce freeway traffic noise to specified levels, within practical and financial limitations.

New freeways constructed since 1970 have included sound barriers to attenuate traffic noise in noise-sensitive areas that were developed before freeway route adoption. In addition, special planning and design emphasis has included locating freeways away from building developments and depressing the grade line where feasible.

Funding has not been available as yet to add sound barriers to freeways constructed prior to 1970, although Caltrans' present policy provides for such a program. An inventory has recently been completed to determine the magnitude of the problem.

Section 216 of the Streets and Highways Code provides for a noise abatement program to reduce the freeway traffic noise in school classrooms to a level of 50 dBA. This has been an active program and has included construction of sound barriers and physical sound-proofing of school buildings. The estimated cost to complete this program is $36 million. The program could be completed in about 7 years with an annual funding level of $6½ million. Current funding limitations have resulted in virtual suspension of the program in the 1975-76 fiscal year.

Additional details on this program can be found in the annual report to the Legislature which is made in February of each year.

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IV. NOISE INVENTORY

An inventory has been developed of locations where existing noise-sensitive development is exposed to freeway noise levels in excess of Federal Standards.

A. Priorities

Three categories were established for preparation of the inventory:

1. Development which existed or was under construction prior to freeway route adoption.

2. Development which occurred after the freeway route adoption but before initial freeway construction.

3. Development which occurred after initial freeway construction and planning for which had been approved prior to November 1, 1974.

First priority in an attenuation program will be given to projects within Category 1 which would protect developments which are exposed to the highest noise levels, and which would benefit the greatest number of improvements.

B. Unit Cost

The cost of urban sound walls varies from approximately $50 to $100 per lineal foot and is dependent on the height of wall and proximity to traffic. Walls at the hinge point of embankment require a concrete safety barrier base which increases the cost.

Sound walls on each side of a freeway costing $100 per lineal foot results in a total cost of one million dollars per mile. This is equivalent to the entire cost of constructing a one mile, 4-lane expressway, or the cost of constructing one-half mile of 4-lane rural freeway typical of the I-5 freeway gap remaining to be constructed between Stockton and Sacramento.

C. Magnitude

Estimates for the inventory represent the cost of constructing sound walls to reduce the traffic noise levels along existing freeways to the acceptable Federal standards shown in Section II.

Alternate measures will be studied before actual construction, including a study of comparative cost of soundproofing adjoining development.

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For purposes of simplicity in reporting, the State has been subdivided into three geographical areas. Area 1 represents the Los Angeles metropolitan area and includes the entire county areas of Los Angeles, Orange, and Ventura. Area 2 represents the San Francisco Bay Area and includes the 9 counties adjoining San Francisco Bay plus Santa Cruz County. Area 3 represents the remaining areas of the State.

The total statewide estimate of needs is shown in the table on the next page.

In addition, appended Exhibit E is a compilation of some of the more severe problem noise locations within Category 1 listed by the 11 Transportation Districts. Included are 216 separate locations with estimated total needs of $44 million for construction of sound walls. This listing represents approximately one-third of the total Category 1 locations. All projects listed in the Los Angeles area have estimated or measured noise levels of 84 dBA or greater.

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NOISE WALL INVENTORY

Cost in Millions of Dollars

Area	Category			
	1 Before Fwy. Rte. Adopt.	2 Btw. Fwy. Rte. Adopt. & Fwy. Construction	3 Btw. Fwy. Constr. & Nov. 1974	TOTAL
1 Los Angeles, Orange, & Ven. Counties	$ 81	$62	$32	$175
2 9 San Francisco Bay Counties including Santa Cruz County	25	10	30	65
3 Balance of State	30	11	24	65
Statewide Total	136	83	86	305
Percent	45	27	28	

The above estimates are considered conservative and could increase because of necessity to replace existing freeway appurtenances affected by noise wall construction such as landscaping and irrigation lines. A less conservative and possibly more realistic estimate, not considering inflation, would place the total cost in the neighborhood of $350 million.

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DISCUSSION

Progressive reduction of vehicle noise is the most effective method of noise control. Few sound walls would be required if today's vehicles met the California noise limit of 70 dBA specified for 1987. Existing statutory vehicle noise controls are essential to final resolution of the problem and should not be relaxed. Trucks and buses are the noisiest vehicles on the freeways and are largely responsible for the problem.

Proper land use planning and soundproofing of new building developments are essential along noisy freeways to avoid creating additional problem areas. Fifty-five percent of the problem areas identified in the noise inventory consist of improvements constructed after route adoption or freeway construction. Sound wall attenuation would cost between $170 and $190 million to protect these improvements. Adoption of necessary zoning, subdivision, and building regulations is essential on the part of local governments. To date too little interest has been demonstrated by most of these agencies.

Noise abatement measures have been included in California freeway projects constructed since May 1970. At that time sound walls were added to protect development that existed prior to route adoption. In July 1974, the program was expanded to provide noise walls on new freeway construction to protect all development planned or constructed prior to November 1, 1974.

The noise inventory shows a total remedial need of $300 to $350 million to build noise walls to reduce traffic noise levels to 70 dBA along all older California freeways. Of this amount, $140 to $160 million is needed to protect the building improvements existing before freeway route adoption.

Some of the properties have changed ownership since freeway construction and should have been purchased with the knowledge of the traffic noise. Also some of the improvements are soundproofed.

Many residents however are living with unwanted traffic noise. Increasing requests from "hot spot" areas demonstrate growing dissatisfaction and demands for relief. Residents in the older homes without wall insulation and air conditioning are particularly bothered. Other complaint sources include residents of new subdivisions that were constructed after route adoption but before freeway construction. They enjoyed a low ambient noise level prior to the freeway construction.

No foreseeable funding is available for a remedial program to construct sound walls. The $3 million originally budgeted for the 1975-76 fiscal year to start the program was reverted in view of the overall transportation funding shortage. Federal-aid funds may now be used for noise abatement work on existing highways on any Federal-aid system, but this produces additional revenue only on the Interstate System.

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Inflation, reduced gasoline usage, and diversion of highway revenues to other uses are severely restricting new construction projects. Use of normal highway revenues to construct sound walls can be challenged, as greater overall public benefit would result by use of available funds to close existing freeway gaps, undertake safety or capacity improvements, or rehabilitate obsolescent roads.

The cost of constructing sound walls on each side of a mile of freeway is $1 million. An equivalent sum would finance a mile of 4-lane expressway construction or 1/2 mile of 4-lane rural freeway.

VI. CONCLUSIONS

1. Existing statutory noise controls should be strictly adhered to in order to progressively attain quieter vehicles to reduce traffic noise.

2. Adoption of timely zoning, subdivision, and building ordinances by all local governmental agencies is essential to protect new improvements to be constructed adjacent to transportation corridors.

3. An annual remedial noise abatement program of $20 million per year would be desirable for Category 1 projects in areas developed prior to freeway route adoption.

4. Present financial limitations and higher priority transportation needs preclude proceeding with a program for noise attenuation along existing urban freeways in California at this time.

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EXHIBIT A

COMMON OUTDOOR NOISE LEVELS	NOISE LEVEL (dBA)	COMMON INDOOR NOISE LEVELS
	110	Rock Band
Jet Flyover at 1000 ft		
	100	Inside Subway Train (New York)
Gas Lawn Mower at 3 ft		
	90	
Diesel Truck at 50 ft		Food Blender at 3 ft
Noisy Urban Daytime	80	Garbage Disposal at 3 ft Shouting at 3 ft
Gas Lawn Mower at 100 ft	70	Vacuum Cleaner at 10 ft
Commercial Area		Normal Speech at 3 ft
Heavy Traffic at 300 ft	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theatre, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
	30	Bedroom at Night
Quiet Rural Nighttime		Concert Hall (Background)
	20	
		Broadcast and Recording Studio
	10	
		Threshold of Hearing
	0	

COMMON INDOOR AND OUTDOOR NOISE LEVELS.

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EXHIBIT B

CALIFORNIA
DEPARTMENT OF TRANSPORTATION

policy & procedure

TITLE: Freeway Traffic Noise Reduction	DIVISION: Director's Office	NO. P74-47
		DATE ISSUED 7/24/74
		PAGE 1 OF 5
SUBJECT AREA: Motor Vehicle Noise	ISSUING UNIT: Office of Transportation Policy Planning	DISTRIBUTION: D
REFERENCE: CEQA (Chap. 1299, Stat. 1970); NEPA (PL 91-190); Federal Aid Highway Act of 1970 (PL 91-605); Federal Noise Act of 1972 (PL 92-574)	APPROVED BY: [signature]	

I. PURPOSE:

This directive outlines the basic policy and responsibilities of the Department in dealing with noise generated by motor vehicles on State freeways.

II. POLICY:

It is the objective of the Department of Transportation to reduce freeway traffic noise to specified standards on new construction and to achievable levels within practical and financial limits on existing freeways. Policies in support of this Departmental objective are described below in terms of the three approaches to alleviation of traffic noise problems -- reducing the motor vehicle noise source, encouraging compatible adjacent uses, and decreasing the noise reaching adjacent areas.

A. Reduction at the Source

Reduction of traffic noise at the source is the most effective control; therefore, the Department encourages and supports legislation to require reduction in motor vehicle noise as advances in the state of the art of motor vehicle engineering permit.

B. Encouraging Compatible Adjacent Use

The Department encourages those who plan and develop land and the local governments controlling development or planning land use near known freeway locations to exercise their powers and responsibility to minimize the effect of vehicle noise and to locate land uses appropriately. For example, cities and counties have the power to control development by the adoption of land use plans and zoning, subdivision, building and housing regulations.

C. Noise Attenuation

The Department of Transportation will locate, design, construct, and operate freeways to minimize the traffic noise reaching adjacent areas.

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III. PROCEDURE:

A. Reduction at the Source

Existing State law requires progressively lower allowable noise levels for new vehicles through 1987. As motor vehicle engineering advances are made these vehicle noise emission laws should be updated to further reduce vehicle noise to achievable levels.

Further, the Department encourages and supports local, State, and Federal agencies in the effective enforcement of existing vehicle noise laws. It is effective enforcement that gives meaning to adopted vehicle noise laws and ordinances.

The Department will work with the appropriate Federal agencies in the implementation of the Federal Noise Act of 1972 (PL 92-574).

Cities and counties should adopt a noise ordinance which includes reference to vehicle noise and should pursue a vehicle noise law enforcement program.

B. Encouraging Compatible Adjacent Use

Vehicle noise attenuation is a shared responsibility; therefore, mitigation measures by the Department will be taken in relation to the assumption of local responsibilities by the respective cities and counties. These local actions would include, but not be limited to:

- An adopted transportation noise element in the community general plan (as required by Section 65302(g), California Government Code).
- Subdivision regulations which provide for proper site design and building location where noise sensitive uses must locate in proximity to freeways.
- Zoning regulations which separate noise sensitive land uses from proximity to freeways and locate land uses compatible with traffic noise adjacent to freeways.
- Building construction requirements for sound proofing buildings from exterior noise.

C. Noise Attenuation

1. Freeway Mitigation Measures

The Department will take the following actions, within practical and financial limits:

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a. During the route location study phase, the Department will endeavor to protect adjacent noise sensitive buildings and land uses by appropriate means of location and design, such as depressing of the freeway or construction of noise barriers.

b. For existing freeways (including freeways under construction and adopted freeway routes on which construction has not started), the Department will develop a program of appropriate measures to mitigate the effects of traffic noise upon noise sensitive developments and land uses. The program will be based on factual data, objective criteria, and a system of priorities for action. A major criterion in determing priorities will be local action as listed in III, B to assume responsibility for planning and regulating land uses and buildings adjacent to freeways so as to reduce the effect of traffic noise.

In those areas where adjacent noise sensitive developments came into existence after commencement of construction of a now existing freeway, the local action listed in III. B. will be considered a requirement before the Department would consider remedial measures.

2. Research and Study of Noise Pollution

The Department will perform and encourage research to reduce the noise generated by motor vehicles.

The Department will continue research on noise barrier design and the development of improved noise reduction techniques. The Department also will study the impact of vehicle noise on individuals and the environment, and make other studies dealing with freeway noise. This activity will be coordinated with other public and private research and development on noise reduction.

3. Noise Abatement for Schools

The Department will undertake noise abatement measures in accordance with Section 216 of the Streets and Highways Code.'

4. Technical Assistance

The Department will provide to cities and counties the sound level information relating to traffic on State highways that these local units need for the preparation of the transportation noise element of their general plan as required by Section 65302(g) of the California Government Code.

The Department will advise and assist in analyzing freeway traffic noise relating to land use, building, and housing regulation within its area of expertise.

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IV. ACTION REQUIRED:

A. The Legislative Affairs Unit shall:

1. Review, analyze, and recommend departmental positions on State and federal legislation which requires reduced motor vehicle noise emissions.

2. Introduce and support legislation which will aid and implement departmental policies on motor vehicle noise control.

B. The Division of Transportation Planning shall:

1. Prepare and issue guidelines for systems planning and corridor studies that would achieve motor vehicle noise levels that are compatible with existing and planned adjacent land uses.

2. Provide noise control consulting services to the Districts for systems planning and corridor studies.

C. The Division of Highways shall:

1. Pursuant to III.C. 1, develop and provide to the Districts a program, within practical and financial limits, to reduce the effects of motor vehicle noise upon noise sensitive developments and land uses adjacent to freeways, including existing freeways, freeways under construction, and adopted freeway routes where construction has not started.

2. Conduct an active program of research on noise problems, including but not limited to noise reducing devices and possible noise limits for motor vehicles, noise reduction barriers, and the impact of freeway noise on people.

3. Provide noise control consulting services to Districts for project development.

D. The Transportation Districts and Toll Bridge Administration shall:

1. Carry out the statewide program to reduce the effects of motor vehicle noise generated by freeway traffic.

2. Assist local agencies and transportation planning agencies to incorporate noise control measures in systems planning and corridor studies.

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3. Work with local units of government to encourage the use of control measures that will alleviate the effect of motor vehicle noise on land adjacent to freeways.

4. Provide cities and counties with the noise level information required by California Government Code Section 65302(g) for those cities and counties to prepare the transportation noise elements of their general plans.

5. Undertake noise abatement programs for elementary and secondary schools as required by Section 216, Streets and Highways Code.

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EXHIBIT C

State of California

Business and Transportation Agency

Memorandum

To : All District Directors of Transportation

Date: September 12, 1974

File :

From : DEPARTMENT OF TRANSPORTATION
Director's Office

Subject: Policy on Traffic Generated Freeway Noise

Policy and Procedure No. 74-47 dated July 24, 1974 states basic Departmental policy on traffic-generated freeway noise. This letter contains further details and implementing instructions.

The basic policy liberalizes and extends noise reduction measures to be taken on existing and planned freeways. These measures are, in some cases, contingent on local governments regulating future development near freeways to be compatible with the freeway environment.

Local governments' promotion and regulation of future development which is compatible with the Department's future projects or existing facilities must be a cooperative effort on everyone's part. The actions which we will expect local governments to accomplish are detailed in Sections II-B and III-B of P 74-47.

We, in turn, should take positive steps to inform local governments of what they can expect from the Department. To this end, the Districts shall:

1. Inform local governments of Departmental policy by sending copies of P 74-47 and this letter, together with appropriate explanation. Include a statement that there will be further consultation with CSAC and the League of Cities regarding criteria for the priorities stated under Sec. C.

2. Continue the practice of reviewing and commenting on proposed subdivision plans, local project EIR's, etc., pointing out possible noise impacts and the effect of Departmental policy.

3. Continue to furnish information to local planning agencies to assist them in preparing the noise element of general plans per Sec. 65302(g) of the California Government Code.

4. Advise and assist in analyzing freeway traffic noise relating to land use, building, and housing regulations within our area of expertise.

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Departmental development of freeway projects can be divided into three categories: (A) route studies prior to route adoption; (B) new construction on routes already adopted or reconstruction of existing freeways; and (C) noise attenuation projects on existing freeways.

A. Route Studies prior to route adoption: Section III-C 1-a of P 74-47 states the basic policy which conforms to existing policy and Federal and State laws and regulations.

B. New construction on routes already adopted, or reconstruction of existing freeways.

1. Residences and other noise sensitive development in existence or under construction as of the date of notification of local governments of Departmental policy, as previously stated, will be protected similar to A without protection being conditioned on adoption of local ordinances, regulations, etc.

2. Protection of development which begins after notification of local governments of Departmental policy will be conditioned on adoption of proper ordinances, regulations, building codes, etc.

   Where these local actions are taken, the Department will undertake whatever design steps or modifications are feasible and required for further attenuation of noise impact. Federal noise level standards or lower would be a goal for achievement, but would not be mandatory. If proper local control has been achieved, required Departmental effort should be minimal.

   Where local responsibilities are not fulfilled, special justification for Departmental financial obligation must be submitted for approval to DOH Project Development Branch.

3. There may be cases where local responsibilities have been fulfilled per Sec. III-B of P 74-47, but excessive noise impact from a freeway construction project will still remain. The Department will take whatever steps may be feasible, consistent with cost-effectiveness and traffic safety, to reduce the remaining impact. However, development in this category should be discouraged as not being compatible development through the District's review and comment on subdivision plans and EIR's.

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C. Noise attenuation on existing freeways. A new element of the HB-36 Program will be recommended as a part of the 1975-76 fiscal year budget, and will continue as an on-going program. Basic to this on-going program will be an inventory of locations where noise-sensitive development is exposed to freeway noise levels in excess of Federal standards. Work on this inventory should begin immediately and should be basically completed so that a logical selection of projects, and a funding level, can be made for the 1976-77 F.Y. budget. Include in this inventory any projects which were identified for the cost estimate developed for the 1975-76 F.Y. budget. This inventory will be used to develop annual District targets for the on-going HB-36 program. It is anticipated that funding of this program will be modest, and therefore a systematic approach to setting of priorities is important.

The following interim priorities are established:

1. Noise sensitive development which existed or was under construction prior to route adoption. Projects for noise protection in this first priority will not be conditioned on local enactment of ordinances, etc.. At the expected level of funding, it will probably be a number of years before completion of all projects in this category.

   a. Within this category, first priority is given to development which is exposed to the highest noise levels.

   b. There will undoubtedly be many areas exposed to about the same noise levels. To set priorities within these comparable areas, use the following approach:

      * Achievable reduction x number of living units

      Cost

      * Achievable L_{10} noise level reduction, expressed in dBA, based on measurements of existing noise levels, and interpreted as instructed in "Instructions on Noise Studies" dated June 19, 1974.

* Sec. C projects on Interstate routes may be eligible for Federal participation in engineering, R/W, and construction costs under the provisions of Sec. 114 of the 1973 F.A. Highway Act.

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- Attenuation measures may consist of the most appropriate and cost-effective construction methods whether inside or outside the R/W, including barriers or treatment of structures. Measures such as purchase of noise easements or buying and/or re-selling of homes will not be used. PPM 90-2 noise levels are a desirable goal to be achieved but are not mandatory.

- Local financial participation in Section C projects is encouraged. Local funds should be considered to reduce the denominator of the formula in C-1b for the purpose of setting priorities.

- Policies previously established regarding other forms of cooperation with local agencies are continued where appropriate. These include granting of permits for local projects on State R/W and maintaining features constructed by others, all subject to proper controls.

- There will undoubtedly be cases where structures post-dating route adoption are intermixed with those pre-dating route adoption. As a general rule, no distinction should be made and all considered as warranting protection. Judgment will have to be used in deciding what length of gap to close, under this general rule.

2. Development occurring after route adoption but before initial freeway construction, and

3. Development occurring after initial freeway construction.

Since it is anticipated that it will be a considerable length of time before any projects in Categories 2 or 3 are undertaken, detailed guidelines will not be established at this time. It can be stated, however, that local enactment or proper ordinances etc. will be an important factor in setting priorities within these categories.

The following applies to all noise attenuation features constructed and/or maintained by the Department.

Environmental laws and Federal and State policies and regulations all treat noise attenuation as one aspect of achieving environmental compatibility with governmental actions. It is to be considered within the overall environment, and other elements may

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sometimes overrule noise mitigation. Within this philosophy, Departmental actions and projects must be considered in terms of cost, effectiveness, and possible undesirable results such as reduced safety, geometric standards, or aesthetics. It is recognized that decisions will sometimes have to be made that consideration of these other elements overrules the desirability of noise attenuation.

Original Signed By J. F. Maloney

JOHN F. MALONEY
Deputy Director
for Operations

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Motor Vehicle Noise Limits

27160. (a) ( )[1] *The Department of Motor Vehicles shall not register* a new motor vehicle, except an off-highway *motor* vehicle subject to identification as defined in Section 38012, *on a dealer's report of sale*, which produces a maximum noise exceeding the following noise limit at a distance of 50 feet from the centerline of travel under test procedures established by the Department ( )[2] *of the California Highway Patrol:*

(1)	Any motorcycle manufactured before 1970	92 dbA
(2)	Any motorcycle, other than a motor-driven cycle manufactured after 1969, and before 1973	88 dbA
(3)	Any motorcycle, other than a motor-driven cycle manufactured after 1972, and before 1975	86 dbA
(4)	Any motorcycle, other than a motor-driven cycle, manufactured after 1974, and before 1978	80 dbA
(5)	Any motorcycle, other than a motor-driven cycle, manufactured after 1977, and before 1988	75 dbA
(6)	Any motorcycle, other than a motor-driven cycle, manufactured after 1987	70 dbA
(7)	Any snowmobile manufactured after 1972	82 dbA
(8)	Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1967, and before 1973	88 dbA
(9)	Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1972, and before 1975	86 dbA
(10)	Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1974, and before 1978	83 dbA
(11)	Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1977, and before 1988	80 dbA
(12)	Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1987	70 dbA
(13)	Any other motor vehicle manufactured after 1967, and before 1973	86 dbA
(14)	Any other motor vehicle manufactured after 1972, and before 1975	84 dbA
(15)	Any other motor vehicle manufactured after 1974, and before 1978	80 dbA
(16)	Any other motor vehicle manufactured after 1977, and before 1988	75 dbA *
(17)	Any other motor vehicle manufactured after 1987	70 dbA *

(b) The department may accept a dealer's certificate as proof of compliance with this section.

( )[3] *(c)* Test procedures for compliance with this section shall be established by the Department *of the California Highway Patrol*, taking into consideration the test procedures of the Society of Automotive Engineers.

(d) No person shall sell or offer for sale a new motor vehicle, except an off-highway motor vehicle subject to identification as defined in Section 38012, which produces a maximum noise exceeding the noise limits set forth in subdivision (a) for which noise emission standards or regulations have not been adopted by the Administrator of the Environmental Protection Agency pursuant to the Federal Noise Control Act of 1972 (P.L. 92-574).

(e) No person shall sell or offer for sale a new motor vehicle, except an off-highway motor vehicle subject to identification as defined in Section 38012, which produces noise that exceeds or in any way violates the noise emission standards or regulations adopted for such a motor vehicle by the Administrator of the Environmental Protection Agency pursuant to the Federal Noise Control Act of 1972 (P.L. 92-574).

(f) As used in this section, the term "register" is equivalent to the term "licensing" as used in Section 6(e)(2) of the Federal Noise Control Act of 1972 (P.L. 92-574).

Added Ch. 1841, Stats. 1961. Effective Sept. 15, 1961.
Repealed Ch. 2152, Stats. 1963. Effective Sept. 20, 1963.
Added Ch. 1287, Stats. 1967. Operative Jan. 1, 1968.
Amended Ch. 1318, Stats. 1969. Effective Nov. 10, 1969.
Amended Ch. 1769, Stats. 1971, superseding Chs. 714 and 1444. Operative May 3, 1972.
Amended Ch. 973, Stats. 1972. Effective Aug. 16, 1972 by terms of an urgency clause.
Amended Ch. 359, Stats. 1974. Effective Jan. 1, 1975.
the 1974 amendment added the italicized material and at the points indicated deleted:
[1] "No person shall sell or offer for sale"
[2] ":"
[3] "(b)"

***Deleted by 1975 Legislative Session.**

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 01 Eureka

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Hum-101	91.8	0.3 Mi. Nly School Road	McKinleyville	73	10±	$100,000
2	Hum-101	11.0	0.1 Mi. Sly Rte. 175	Hopland	72	20±	80,000
3	Hum-101	100.4	0.3 Mi. Sly Trinidad Road	Trinidad	75	10± (Rv. Park)	80,000
4	Hum-101	47.6	1.7 Mi. Nly Jordan Road	Stafford	71	5	60,000
5	Hum-101	92.8	0.2 Mi. Sly Murray Road	McKinleyville	72	4	45,000
6							
7							
8							
9							
10						TOTAL	$365,000

EXHIBIT E

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 02 Redding

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Sha-5	17.8 L	0.3 Mi. Sly Twinview Blvd.	Redding	*	*	$ 270,000
2	Sha-5	12.9	0.8 Mi. Nly Churn Cr. Rd.	Redding			120,000
3	Sis-5	3.7 L	0.8 Mi. Nly Siskiyou Avenue	Dunsmuir			155,000
4	Sha-299	26.7/26.9 L	0.5 Mi. Wly to 0.3 Mi. Wly Old Oregon Trail	Redding			95,000
5	Sha-5	24.8/25.6 R&L	1.2 Mi. to 0.4 Mi. Sly Fawndale Inter.	Mountain Gate			160,000
6	Sis-5	44.3/44.4 R	1.2 Mi. Sly Rte. 3	Yreka			105,000
7	Sha-44	2.3 L	0.2 Mi. Ely Shasta View Drive	Redding			60,000
8	Sha-44	0.4 R & L	0.3 Mi. Ely Hilltop Road				70,000
9	Sha-299	26.2 R & L	0.7 Mi. Ely Hawley Road				225,000
10	Sha-299	25.5 R & L	At Hawley Road				50,000

* Data Not reported by Transp. Dists. 2,3,5,6,7, & 10

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 02 Redding

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
11	Sis-5	47.5 R & L	At Miner Street	Yreka			$ 95,000
12	Sha-44	1.0/1.3 R & L	0.2 Mi. Wly to 0.1 Mi. Ely Victor Avenue	Redding			150,000
13	Sha-5	9.9/10.2 R&L	0.1 Mi. to 0.4 Mi. Nly Knighton Road	Redding			65,000
14	Sha-5	14.5/15.8 R&L	Cypress St. to 0.3 Mi. Nly	Redding			65,000
15	Sis-5	2.0 R	2 Mi. Nly Shasta Co. Line	Dunsmuir			30,000
						TOTAL	$1,715,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 03 MARYSVILLE

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Sac-5	17.6/18.1 R	56th Avenue to Goria Dr.	Sacramento			260,000
2	Sac-5	16.8/17.0 R 18.7/18.9 R	Sly. Florin Rd. and 43rd Ave. to 35th Ave.	Sacramento			180,000
3	Sac-5	16.2/16.6 R	Nly. Pocket Rd.	Sacramento			220,000
4	Sac-5	17.4/18.4 R	Nly. Florin Rd. to Nly. Gloria Drive	Sacramento			140,000
5	Sac-99	21.9/22.6 R	Fruitridge Rd. to 21st Ave.	Sacramento			360,000
6	Sac-99	22.7/23.1 R	21st Ave. to 12th Ave.	Sacramento			260,000
7	Sac-99	21.0 /21.5 R	47th Ave. to 35th Ave.	Sacramento			260,000
8	Sac-99	21.0/21.2 23.1/23.2 L	47th Ave. to 41st Ave. Sly. 12th Ave. to 14th Ave.	Sacramento			180,000
9	Sac-99	21.7/22.7 L/R	Sacramento Ave. to 21st Ave.	Sacramento			410,000
10	Sac-80	7.8/8.1 L/R	Connie Dr. to Nly. Marconi Ave.	Sacramento			280,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 03 Marysville

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
11	Sac-80	7.5/7.8 L/R	Frienza Ave. to Helena Ave.	Sacramento			270,000
12	Sac-160	45.6/46.0 L	Canterberry Rd. to Royal Oaks Dr.	Sacramento			190,000
13	Sac-880	5.0/6.0 L	Northgate Blvd. to Norwood Ave.	Sacramento			200,000
14	Sac-880	7.6/7.1 L/R	Raley Blvd. to Pinell St.	Sacramento			220,000
5							
6							
7							
8							
9							
0							
						TOTAL	$3,430,000

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 1 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
1	Ala	Oakland	17	28.5 (L)	85	74	9	10' x 350'	A	28,000		1
2	Ala	San Leandro	17	24.5 (R)	83	71	25	10' x 400' + 14' x 400' + 10' x 500'	A	116,000		2
3	San	–	101	19.0 (L)	83	72	10	10' x 450' + 8' x 475'	A	67,000		1
4	SF	San Francisco	101	3.8 (L)	81	69	12	8' x 500'	A	32,500		1
5	SF	San Francisco	101	3.2 (R)	79	70	36	6' x 450' + 10' x 600'	A	70,500		2
6	SM	San Mateo	101	14.3 (R)	81	71	15	12' x 550'	B	49,500	Motel	1
7	SCl	San Jose	17	14.8 (L)	79	68	24	12' x 1075'	A	102,100		1
8	SF	San Francisco	101	0.5 (L)	81	73	6	6' x 440'	A	22,000		3
9	San	Santa Rosa	101	20.7 (R)	81	71	10	8' x 550'	A	36,000		2
10	SCl	San Jose	17	15.7 (L)	81	70	28	10' x 1600' + 8' x 225' + 6' x 225'	A	155,100		2

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 2 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
11	CC	Walnut Creek	680	15.4 (L)	79	69	10	10' x 700'	A	56,000		1
12	SF	San Francisco	101	3.9 (R)	79	69	9	12' x 270' + 8' x 330'	A	47,100	Small playground plus homes	4
13	CC	Pleasant Hill	680	16.9 (L)	81	72	21	12' x 1650'	B	132,000		2
14	Ala	Oakland	17	27.9 (L)	79	69	6	10' x 575'	B	46,000		3
15	SF	San Francisco	101	4.0 (R)	79	70	10	12' x 500' + 8' x 350'	A	70,400		5
16	Ala	Castro Valley	580	29.8 (R)	81	72	4	12' x 390' + 8' x 390'	A	62,400		4
17	SM	San Mateo	101	13.9 (R)	78	69	16	10' x 800'	B	63,850	Motel	2
18	SM	San Bruno	280	21.1 (L)	75	65	8	6' x 285'	A	21,200		3
19	Ala	Oakland	17	28.9 (R)	75	68	8	8' x 215'	B	15,050		5
20	Ala	Oakland	580	40.4 (R)	75	65	4	6' x 175'	A	8,750		6

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 3 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
21	SF	San Francisco	101	3.2(L)	77	69	14	8' x 600'	A	39,000		6
22	SM	San Mateo	101	12.8(R)	75	68	16	8' x 530'	B	37,250	Motel	4
23	SCl	San Jose	680	3.5(L)	77	69	8	6' x 350'	A	17,500		3
24	Son	Santa Rosa	101	19.0(R)	75	68	8	8' x 330'	A	21,000	Motel	3
25	Ala	Castro Valley	580	29.3(R)	77	70	24	6' x 620' + 12' x 700'	A	97,500	Mobile Home Park plus homes	7
26	Ala	San Lorenzo	238	15.0(R)	77	69	14	8' x 700'	A	45,500		8
27	SCl	San Jose	17	15.0(R)	77	67	26	10' x 1650'	A	132,000		4
28	Mrn	San Rafael	101	11.9(L)	75	67	16	8' x 830'	B	58,000		1
29	Nap	Napa.	29	11.5(R)	75	66	5	8' x 300'	A	20,000		1
30	SCl	San Jose	17	15.0(L)	75	68	32	8' x 1950'	B	136,500		5

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 4 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
31	Ala	San Jose	101	36.2 (L)	77	68	17	10' x 1000'	B	80,000		6
32	SCl	San Jose	280	5.0 (R)	75	67	27	8' x 1850'	B	129,500		7
33	SF	San Francisco	101	3.4 (L)	75	71	30	8' x 410' + 10' x 410'	A	59,450		7
34	SCl	San Jose	101	35.5 (L)	75	69	22	8' x 1130'	B	74,450		8
35	CC	Richmond	80	3.1 (L)	75	69	11	8' x 665'	B	46,600		3
36	Ala	San Lorenzo	238	15.6 (L)	75	71	18	6' x 820'	B	49,200		9
37	SCl	San Jose	17	15.6 (R)	75	68	11	8' x 900'	B	63,000		9
38	SM	San Mateo	101	13.4 (R)	75	68	3	8' x 245'	B	17,150		5
39	Mrn	San Rafael	101	12.1 (R)	77	67	26	8' x 2000' + 10' x 500'	B	180,000		2
40	SCl	Sunnyvale	85	19.2 (R)	75	68	37	8' x 3300'	B	231,000	Adjacent to proposed Cupertino Jr. High School 8'x750' barrier (1975)	10

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 5 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
41	SF	San Francisco	101	0.9 (L)	77	70	14	10' x 1200'	A	96,000		8
42	CC	Antioch	4	36.7 (R)	75	68	6	8' x 600'	A	39,000		4
43	Ala	San Lorenzo	238	15.3 (R)	75	69	12	6' x 1100'	B	66,000		10
44	Nap	Napa	29	11.4 (R)	77	68	3	8' x 470'	A	29,000		2
45	Son	Santa Rosa	101	22.7 (R)	77	68	11	10' x 1000'	A	80,000	Mobile Home Park	4
46	Son	Santa Rosa	101	19.7 (R)	77	68	City Park	10' x 850'	A	68,000	Adjacent to school being evaluated for noise barrier	5
47	Son	Santa Rosa	101	22.9 (R)	77	69	5	10' x 560'	A	44,800	Motel	6
48	SCl	Campbell	17	12.8 (R)	75	68	5	8' x 620'	A	40,200		11
49	SCl	San Jose	101	36.0 (R)	75	68	6	8' x 505' +10' x 200'	B A	51,350		12
50	SCl	Campbell	17	12.8 (L)	75	67	16	10' x 1840'	A	147,200		13

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROPOSED DISTRICT PRIORITY FOR NOISE BARRIER CONSTRUCTION

TOTAL NO. OF PROJECTS = 60 Transportation Dist. 04 San Francisco SHT. 6 OF 6

DISTRICT PRIORITY	LOCATION				L_{10}		NO. OF UNITS AFFECTED	PROPOSED WALL			COMMENTS	COUNTY PRIORITY
	COUNTY	CITY	ROUTE	PM (L) (R)	BEFORE	AFTER		SIZE	TYPE *	COST $		
51	CC	El Cerrito	80	2.0 (R)	75	70	5	6' x 560'	B	33,600	Mobile Home Park	5
52	Nap	Napa	29	12.1 (R)	77	66	6	10' x 685' + 8' x 350'	A	78,000		3
53	CC	Richmond	80	2.2 (R)	77	70	4	8' x 700'	B	49,000		6
54	Nap	Napa	29	11.9 (L)	77	69	5	8' x 1350'	B	88,000		4
55	CC	Pacheco	680	20.4 (R)	75	69	3	8' x 600'	B	42,000		7
56	CC	Richmond	80	3.6 (L)	74	67	22	6' x 1700'	A	85,000		8
57	SCI	San Jose	680	1.0 (R)	74	66	12	8' x 1050'	B	73,500		14
58	CC	San Pablo	80	4.0 (L)	74	66	5	8' x 500'	A	32,500		9
59	SCI	Cupertino	280	9.0 (L)	74	68	4	8' x 850'	B	55,250		15
60	Ala	Oakland	580	37.5 (R)	73	65	16	6' x 870'	B	52,200		11

TOTAL $4,000,000

* A = Concrete block on spread footing.
B = Concrete block on Type 50 Concrete Barrier base with piles.

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 05 SAN LUIS OBISPO

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	SB-101	14.0/18.4	Castillo St. to Rte. 154	Santa Barbara			$1,500,000
2							
3							
4							
5							
6							
7							
8							
9							
10							

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 06 - FRESNO

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Mad-99	10.4/10.6 R	0.1 Mi. to 0.3 Mi. Nly. Rte. 145	Madera			70,000
2	Mad-99	11.2/11.5 R	Second St. to 0.3 mi. Nly.	Madera			100,000
3	Fre-99	28.3/28.4 R	Northerly of Shaw Ave.	Fresno			40,000
4	Tul-99	6.1/6.2 R	Vicinity Earlimart Ave.	Earlimart			240,000
5	Tul-99	18.7/19.3	Between Rte. 190 & Olive Avenue	Tipton			190,000
6	Tul-99	28.1/28.4	One Mi. Sly. Route 137	Tulare			80,000
7	Fre-99	27.8/28.0 R	Southerly of Shaw Ave.	Fresno			70,000
8	Fre-99	4.0/6.0 L		Selma			470,000
9							
10							
						TOTAL	$1,260,000

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MAJOR - PROBLEM NOISE LOCATIONS
TRANSPORTATION DISTRICT 07 - LOS ANGELES

Route	P.M.	Dir.	Location Description	City	Cost/ $1,000
LA-007	6.9/9.4	S/B	In Long Beach from Pacific Coast Hwy to San Diego Fwy	Long Beach	1,720,
LA-405	29.5/39.4	S/B	From Rte 10 to Rte 101	LA	300
LA-010	22.3/28.0	E/B W/B	From Fremont Ave to Baldwin Ave	Alhambra	420
LA-101	4.85/5.17	N/B	Melrose Ave UC to Kingsley Ave PUC	Hollywood	250
LA-101	3.34/3.0	S/B	Benton Way OC to Rosemont Ave UC	LA	310
LA-101	S1.2/S0.9	S/B	Mission Rd UC to First St UC LA-101 Spur	LA	330
LA-101	4.8/4.4	S/B	Melrose Ave UC to Vermont OC	LA	410
LA-10	R3.4/R3.7	E/B	0.15 mi E Cloverfield to Stewart St UC	Santa Mnca	260
LA-5	27.8/27.2	S/B	Western Ave UC to LA River	Glendale	410
LA-91	R13.6/R14.1	E/B	Paramount Blvd UC to Downey Ave UC	No. Long Bch	360
LA-101	(Rte 11) 23.8/ (Rte 101) 2.07	N/B	Sunset Blvd OC (Rte 11) to E Edgeware Rd OC	No Long Bch	380
LA-134	0.86/1.36	E/B	Cahuenga Blvd UC to Forman Ave UC	Toluca Lake	410
LA-101	2.86/3.34	N/B	Alvarado St to Benton Way OC	LA	440
LA-101	7.31/7.74	N/B	Ivar Ave UC to Odin St UC	Hollywood	340
LA-134	R6.08/R6.57	E/B	0.1 mi W Concord St UC to Pacific Ave UC	Glendale	240
LA-101	3.76/3.51	S/B	Silverlake Blvd UC to Parkman Ave UC	Silverlake	230

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MAJOR - PROBLEM NOISE LOCATIONS
TRANSPORTATION DISTRICT 07 - LOS ANGELES

Route	P.M.	Dir. Location Description	City	Cost/ $1,000
LA-10	R9.12/R8.83	W/B Ballona Creek to LA Cienega Blvd UC	LA	230
LA-101	2.48/2.86	N/B Glendale Blvd UC to Alvarado St UC	Echo Park	280
LA-101	S 0.6/S 0.9	N/B Fourth St OC to First St UC LA-101 Spur	LA	310
LA-11	22.12/21.88	S/B Olympic Blvd to 12th Street UC	Central LA	240
LA-7	22.45/22.60	N/B Washington Blvd UC to Leonis St PUC	Commerce	110
LA-134	2.39/2.67	E/B California St OC to Catalina St UC	Burbank	240
LA-405	0.96/0.78	S/B Stearns St UC to Los Cerritos Channel	Lng Bch	120
LA-10	R10.75/R11.0	E/B Harcourt Ave UC to West Blvd UC	LA	260
LA-405	42.96/42.36	S/B Stagg St to Sherman Way UC	Sepulveda	570
LA-101	15.91/15.38	S/B Van Nuys Blvd UC to Hazeltine Ave UC	Sherman Oaks	330
LA-91	R16.07/R16.54	E/B Woodruff Ave to East Bellflower OH	Bellflower	340
LA-5	27.19/27.54	N/B LA River to Sonora Ave UC	Glendale	140
LA-10	R5.28(Rte 10)/ 29.16(Rte 405)	E/B NW Conn (Rte 405) OC to National Blvd (Rt 405)	W LA	310
LA-10	R8.33/R8.67	E/B Cattaraugus Ave UC to Garth Ave UC	Palms	260
LA-405	44.24/44.74	N/B Parthenia St UC to Nordhoff St UC	Sepulveda	350
Ora-5	33.42/33.62	N/B Santiago Creek to O/R to W/B Rte 22	Santa Ana	60

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MAJOR-PROBLEM NOISE LOCATIONS
TRANSPORTATION DISTRICT 07 - LOS ANGELES

Route	P.M.	Dir, Location Description	City	Cost/ $1,000
LA-10	R4.89/R4.54	W/B Gateway Blvd UC to Bundy Dr UC	W LA	340
LA-5	32.91/32.38	S/B Lanark St UC to Hollywood Way UC	Sun Valley	500
LA-210	R3.28/R3.57	E/B Polk St UC to Astoria St POC	Sylmar	260
LA-101	14.34/14.01	N/B Van Noord Av to Longridge Ave	N Hollywood	280
LA-91	R12.59/R13.09	E/B Orange Ave UC to Cherry Ave UC	No Lng Bch	360
LA-134	1.55/1.82	E/B Clybourn Ave to Pass Ave OC	Burbank	360
LA-5	28.43/27.86	S/B Alameda Ave UC to Western Ave UC	Burbank	390
LA-101	3.82/4.40	N/B Silverlake Blvd UC to Vermont Ave OC	LA	540
LA-11	15.98/16.72	N/B Manchester Ave UC to 76th St UC	LA	520
LA-10	R9.34/R9.74	E/B Fairfax Ave UC to Hauser Blvd UC	LA	310
LA-170	R15.63/R15.37	S/B Chandler Blvd OH to Magnolia Blvd UC	No Holly	200
LA-101	21.76/21.25	S/B Wilbur Ave UC to Reseda Blvd UC	Tarzana	380
LA-10	R5.76(Rte 10)/ 29.85(Rte 405)	W/B Military Ave UC to Exposition Blvd (Rte 405)	W LA	450
LA-101	12.85/13.27	N/B Laurel Cyn Blvd UC to Tujunga Wash	No Holly	220

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MAJOR - PROBLEM NOISE LOCATIONS
TRANSPORTATION DISTRICT 07 - LOS ANGELES

Route	P.M.	Dir. Location Description	City	Cost $1,000
LA-405	17.56/16.88	S/B Hawthorne Blvd to Redondo Bch Blvd	Lawndale	490
LA-7	23.46/24.22	N/B Olympic Blvd UC to Humphreys Ave OC	East LA	590
LA-101	S 0.20/S 0.62	N/B Sixth St OC to Fourth St OC LA-101 Spur	LA	450
Ora-22	8.25/8.82	E/B Pearce St POC to Garden Grove Blvd UC	Grdn Grv	300
LA-10	21.66/22.31	E/B 0.2 mi W Warwick Rd to Fremont Ave UC	Alhambra	690
LA-101	5.17/4.85	S/B Kingsley Ave PUC to Melrose Ave UC	Hollywood	190
LA-101	4.40/4.85	N/B Vermont Ave OC to Melrose Ave OC	LA	360
LA-101	6.65/7.06	N/B Bronson Ave OC to Argyle-Franklin Ave UC	Hollywood	420
LA-5	21.97/22.26	N/B Riverside Dr UC to Newell St UC	Silverlake	270
LA-11	24.563/24.676	N/B No Hill St O/R to 0.1 mi No of Hill St	LA	160
LA-10	R9.77/R10.12	E/B Hauser Blvd UC to Redondo Blvd UC	LA	290
LA-91	18.64/18.09	W/B Norwalk Blvd UC to Pioneer Blvd UC	Artesia	460
LA-405	26.49/26.96	N/B Ballona Creek to Braddock Dr UC	Culver City	350
LA-91	15.61/15.10	W/B Bellflower Blvd UC-Clark Ave UC	Bellflower	170
LA-5	7.83/8.29	N/B Lemoran Ave POC to Lakewood Blvd Sep	Downey	540

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MAJOR - PROBLEM NOISE LOCATIONS
TRANSPORTATION DISTRICT 07 - LOS ANGELES

Route	P.M.	Dir. Location Description	City	Cost $1,000
Ora-22	R2.45/R1.93	W/B 0.2 mi W Knott Ave to Springdale Ave OC	Grdn Grv	360
LA-7	17.34/16.79	S/B LA River to 0.2 mi So Imperial Hwy	Lynwood	670
LA-605	5.81/6.32	N/B Alondra Blvd to Fairton St	Norwalk	380
LA-5	19.21/19.43	N/B Main St UC to Mozart St POC	Lncln Hts	180
LA-134	0.86/0.51	W/B Cahuenga Blvd UC to Lankershim Blvd UC	No Holly	260
LA-10	R11.03/R10.75	W/B West Blvd OC to Harcourt Ave UC	LA	310
LA-101	13.88/13.19	S/B Coldwater Cyn Av to 0.2 mi E Whittsett Ave	Studio City	440
LA-11	20.46/20.36	S/B 30th Street OC to 0.1 mi So of 30th Street	LA	70
LA-10	3.74/4.24	E/B Stewart St UC to Centinela Ave	Santa Monica	530
			TOTAL -	$24,900

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 08 SAN BERNARDINO

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	SBd-10	22.0/22.4 L	Rancho Avenue to 5th St.	Colton	80	21	210,000
2	Riv-194	44.0 R	0± Mi. Nly. Columbia Ave.	Riverside	76	3	,000
3	Riv-91	16 R	Indiana Ave/Gilberto	Riverside	76	3	50,000
4	Riv-194	44.2 R	At Milton Street	Riverside	76	3	70,000
5	Riv -10	8 L	Maple to Chestnut	Beaumont	75	7	70,000
6	SBd -194	7.2/7.9 R	Spruce St. to 11th St.	San Bernardino	75	15	300,000
7	SBd -30	24 R	Pershing St. to Sierra Wy.	San Bernardino	74	6	90,000
8	SBd -10	26.3 L	Ely Tippecanoe St.	Loma Linda	73	9	70,000
9	Riv-91	21 L	Mulberry to First St.	Riverside	72	33	220,000
10	Riv-91	16.7/17.6 R	Madison to Mary St.	Riverside	72	44	470,000
						TOTAL	1,600,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 09 Bishop

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Ker-14	2.5/3.6	0.5 Mi Sly to 0.6 Mi Nly Rosamond Blvd.	Rosamond	78	83	220,000
2	Ker-58	140.0	Vicinity Borax Rd.	Boron	75	30	70,000
3							
4							
5							
6							
7							
8							
9							
0							
						TOTAL	$290,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 10 Stockton

PRIORITY	CO. - RTE.	P.M.	(L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	Sol-80	2.9	L	Georgia Street to Madigan Street	Vallejo			$ 70,000
2	Mer-99	23.5	R	Nly Atwater Overhead	Atwater			80,000
3	Sta-99	16.2	R	Washington Street to Jefferson Street	Modesto			30,000
4	Sol-80	3.5	L	Arkansas Street to Fleming Street	Vallejo			140,000
5	Sta-99	16.2	L	Locust St. to MID Canal	Modesto			120,000
6	Sol-80	2.1	R	Denton St. to Rte. 780	Vallejo			70,000
7	SJ-99	18.0	R	Gurnsey Avenue to Drake Avenue	Stockton			40,000
8	SJ-99	29.5	L	Woodrow Street to Hale Road	Lodi			200,000
9	SJ-99	18.1	L	Charter Way to Main St.	Stockton			50,000
10	SJ-99	18.0	L	Gurnsey Avenue to Charter Way	Stockton			40,000

PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 10 Stockton

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
11	SJ-99	24.0 R	Sly Morada Lane	Stockton			$ 60,000
12	Scl-80	2.3 L & R	Rte. 680 to Benicia Rd.	Vallejo			80,000
13	SJ-99	1.0 R	Main St. OC to Pedestrian OC	Ripon			150,000
14	Sta-99	12.2 R	Nly Whitmore Avenue	Modesto			100,000
15	SJ-5	26.5/29.6R&L	Stockton Channel to Calaveras River	Stockton			2,200,000
						TOTAL	$3,430,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 11 San Diego

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
1	SD-8	9.4/9.6 L	Penn Avenue to Lake Murray Boulevard	La Mesa	83	15	$ 90,000
2	SD-5	13.8/14.4	Evans to Commercial Street	San Diego	80	85	190,000
3	SD-5	6.2/6.5 R	Moss to Naples St.	Chula Vista	79	23	110,000
4	SD-5	3.7/3.9 R	At Coronado Avenue	San Diego	79	15	110,000
5	SD-94	9.3/10.3 L	Grove Street to Quarry Avenue	La Mesa	79	5	60,000
6	SD-94	4.6/4.9 L	47th to 49th Street	San Diego	76	26	130,000
7	SD-163	2.3/2.6 L	Brooks Street to University Avenue	San Diego	76	18	130,000
8	SD-5	16.9/17.1	Hawthorn to State Street	San Diego	75	24	70,000
9	SD-94	1.6/2.4 L	27th to 28th Streets	San Diego	75	8	40,000
10	SD-94	2.4/2.6 R	30th to 31st Streets	San Diego	75	10	50,000

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PROBLEM NOISE LOCATIONS

TRANSPORTATION DISTRICT 11 San Diego

PRIORITY	CO. - RTE.	P.M. (L) (R)	DESCRIPTION	CITY	SOUND LEVEL L 10	NO. UNITS AFFECTED	BARRIER COSTS
11	SD-94	2.4/2.5 L	At 30th Street	San Diego	75	5	$ 30,000
12	SD-5	50.4/50.6 L	Knowles Avenue to Buena Vista Avenue	Carlsbad	75	10	90,000
13	SD-94	8.3/8.6 L	Vista Avenue to Harris Street	La Mesa	75	14	120,000
14	SD-5	2.3/2.5	Sly Dairy Mart Road	San Diego	73	30	70,000
15	SD-805	21.1/21.4 L	Othello Ped. OC to Balboa OC	San Diego	73	25	150,000
16	SD-94	7.8/8.0 L	69th Street to Paula Street	La Mesa	73	15	110,000
						TOTAL	$1,550,000

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