**[*Project Title*] *NADR***

**[*Graphic*]**

Noise Abatement Decision Report

 [Reference Noise Study Report, if applicable]

[general location information]

[general location information]

[general location information]

[district]-[county code]-[route]-[KP] ([PM])

[EA number]

**[*Month YEAR*]**

Noise Abatement Decision Report

[Discussion of Noise Study Report, if applicable]

[general location information]

[general location information]

[general location information]

[district]-[county code]-[route]-[KP] ([PM])

[EA number]

[Month YEAR]

Approved By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

 Senior Supervisor Engineer Name, Title

 Office Name

 District/Region Name

List of Abbreviated Terms

|  |  |
| --- | --- |
| [Abbreviation] | [*Spelled-out term*] [*You can add rows quickly by pressing tab at the end of the last row, using the ‘pencil’ function, or inserting rows. Type in acronyms as you use them, then sort them alphabetically. To sort, pull down the “Table” menu, select “Sort,” be sure it specifies ascending order, and click on “OK.”*] |
| Benefited receptor | A dwelling unit or other equivalent land use expected to receive a noise reduction of at least 5 dBA from the proposed abatement measure |
| Date of public knowledge | The date of approval of the project CE, FONSI, or ROD.  |
| dBA | A-weighted sound pressure level |
| ED | Environmental Document |
| FHWA | Federal Highway Administration |
| Leq | Equivalent sound level (energy averaged sound level) |
| Leq[h] | A-weighted, energy average sound level during a 1-hour period |
| NSR | Noise study report |
| NADR | Noise Abatement Decision Report |
| NAC | Noise abatement criteria |
| Noise reduction design goal | 7 dB of noise reduction at one or more benefited receptors.  |
| Reasonable allowance | A single dollar value—a reasonable allowance per benefited receptor |

1. Introduction

The Introduction describes noise abatement assessment requirements, the purpose of the Noise Abatement Decision Report, and a brief description of the project alternatives.

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the Caltrans Traffic Noise Analysis Protocol (Protocol). This report has been appoved by a Calfornia licensed professional civil engineer. The project level noise study report (NSR) (include citation here) prepared for this project is hereby incorporated by reference.

* 1. Noise Abatement Assessment Requirements

The following text describes noise abatement assessment requirements. This discussion may be included or deleted at the author’s discretion.

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772) and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project “approach or exceed” Noise Abatement Criteria (NAC) defined in 23 CFR 772 or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to “approach” the NAC when it is within 1 dB of the NAC. A substantial increase is defined as being a 12-dB increase above existing conditions.

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document (ED).

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft ED, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.*  Noise abatement is considered to be acoustically feasible if it is predicted to provide noise reduction of at least 5 dBA at an impacted receptor. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The overall reasonableness of noise abatement is determined by the following three factors:

* the viewpoints of benefited receptors,
* the cost of noise abatement, and
* the noise reduction design goal.

The preliminary reasonableness determination reported in this document is based on the noise reduction design goal and the cost of abatement. The viewpoints of benefited receptors are deterined by a survey that is normally conducted during the public review period for the project ED.

Caltrans’ noise reduction design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. The cost reasonableness of abatement is deterined by calculating a cost allowance that is considered to be a reasonable amount of money to spend on abatement. This *reasonble allowance* is then compared to the engineer’s cost estimate for the abatement. If the engineer’s cost estimate is less than the allowance and the abatement will provide at least 7 dB of noise reduction at one or more benefited receptors, then the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance or if the design goal cannot be achieved, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors, the design goal, and the relationship between noise abatement allowances and the engineer’s cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft ED is published. The final overall reasonableness decision will take this information into account, along with the results of the survey of benefited receptors conducted during the environmental review process.

At the end of the public review process for the ED, the final noise abatement decision is made and is indicated in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed.

* 1. Purpose of the Noise Abatement Decision Report

The purpose of the NADR is to:

* summarize the conclusions of the NSR relating to acoustical feasibility, the design goal, and the reasonable allowances for abatement evaluated,
* present the engineer’s cost estimate for evaluated abatement,
* present the engineer’s evaluation of nonacoustical feasibility issues,
* present the preliminary noise abatement decision, and
* present preliminary information on secondary effects of abatement (impacts on cultural resources, scenic views, hazardous materials, biology, etc.).

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under the California Environmental Quality Act (CEQA).

1.3. Project Description

Provide a summary description of the proposed project alternatives evaluated in the NSR.

[Begin typing here]

1.4. Affected Land Uses

Identify general land uses in the project area, including existing uses and undeveloped land that is permitted for development. Development proposed on undeveloped land is considered permitted on the date of issuance of a building permit by the local jurisdiction or by the appropriate governing entity. Identify noise sensitive land uses; i.e., those uses where there is frequent human use that would benefit from a lowered noise level. This information should come from and be consistent with the NSR.

[Begin typing here]

1. Results of the Noise Study Report

The NSR for this project was prepared by \_\_\_[author]\_\_\_\_ on \_\_\_[date]\_\_\_\_ and approved by \_\_\_\_ [Office Chief]\_\_\_\_\_\_\_ on \_\_\_\_\_[date]\_\_\_\_\_.

Provide a summary of key information presented in the NSR. This should include:

* identification of locations where noise impacts are predicted to occur;
* identification of locations for which noise abatement was evaluated;
* a description of evaluated noise abatement, including the type (wall or berm), location, and length of barriers; and
* a table summarizing acoustical feasibility (i.e., noise reduction of at least 5 dB), number of benefited receptors, achievement of the design goal, and reasonable allowances (see Table 1 for example).

[Begin typing here]

Table 1. Summary of Barrier Evaluation from Noise Study Report

| Barrier | Location | Station | Height(feet) | Acoustically Feasible? | Number of Benefited Residences | Design Goal Achieved? | Reasonable Allowance per Residence | Total Reasonable Allowance |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NB1 | ROW | Sta. 23+91 to 26+72 | 10 | No | 0 | No | $0 | $0 |
|  |  |  | 12 | Yes | 3 | No | $55,000 | $160,000 |
|  |  |  | 14 | Yes | 3 | Yes | $55,000 | $160,000 |
|  |  |  | 16 | Yes | 5 | Yes | $55,000 | $275,000 |
| NB2 | EP | Sta. 34+97 to 38+72 | 10 | Yes | 12 | No | $55,000 | $660,000 |
|  |  |  | 12 | Yes | 25 | Yes | $55,000 | $1,375,000 |
|  |  |  | 14 | Yes | 26 | Yes | $55,000 | $1,430,000 |
|  |  |  | 16 | Yes | 28 | Yes | $55,000 | $1,540,000 |
| NB3 | ROW | Sta. 26+6to 29+92 | 10 | Yes | 8\* | Yes | $55,000 | $440,000 |
|  |  |  | 12 | Yes | 8\* | Yes | $55,000 | $440,000 |
|  |  |  | 14 | Yes | 8\* | Yes | $55,000 | $440,000 |
|  |  |  | 16 | Yes | 8\* | Yes | $55,000 | $440,000 |

ROW = right-of-way line

EP = edge of pavement

\* Barrier at park based on 800 feet of highway frontage.

1. Preliminary Noise Abatement Decision

3.1. Summary of Key Information

Provide a summary of key information to be used in making the preliminary noise abatement decision. This information should include:

* an indication of acoustical feasibility,
* achievement of design goal,
* number of benefited residences,
* the total reasonableness allowance and engineer’s cost estimate for the abatement,
* the total reasonableness allowance and engineer’s cost estimate for each barrier and barrier height evaluated (if a barrier is evaluated), and
* a comparison of cost versus allowance.

A summary table (see Table 2 for example) may be used.

The engineer’s cost estimate should include costs required to construct the abatement. The cost calculations of the noise abatement measure must include all items appropriate and necessary for the construction of the noise abatement measure. Examples of cost items that should be included in estimating the construction cost of a noise abatement measure are traffic control, drainage modification, retaining walls, landscaping for graffiti abatement, and right-of-way costs. Only those costs directly related to the construction of the noise abatement should be included in the noise abatement construction estimate.

If visual mitigation requirements include the use of a transparent noise barrier or visual aesthetic treatments, the additional cost shall not be included in the abatement construction cost estimate for the purpose of determining reasonableness. If a retaining wall is a project feature for reasons other than constructing a noise barrier, the cost of the retaining wall is not included in the abatement construction cost estimate. If site conditions require a retaining wall or modification of a planned retaining wall for the proposed noise barrier foundation, the cost of the retaining wall or related modifications is included in the construction cost estimate. To determine whether a cost is attributable to a noise abatement measure, it must be determined whether the cost would be necessary if no noise abatement measures were constructed. For example, only the portion of the traffic control, landscape, or retaining wall cost that is added because a noise abatement measure is being constructed should be attributed to the cost of the abatement. The cost of implementing an absorptive surface on a noise barrier that is triggered by either of the conditions described under Reflected Noise in the Protocol shall not be included in the cost of the abatement.

Wall construction cost should be based on masonry construction, in accordance with Caltrans’ standard specifications. If the construction cost is higher than the allowance, alternative construction methods should be evaluated and discussed.

Table 2. Summary of Abatement Key Information

| Barrier | Height(feet) | Acoustically Feasible? | Number of Benefited Residences | Design Goal Achieved? | Total Reasonable Allowance | Estimated Construction Cost | Cost Less than Allowance? |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NB1 | 10 | No | 0 | No | NA | NA | NA |
|  | 12 | Yes | 3 | No | $160,000 | $132,000 | Yes |
|  | 14 | Yes | 3 | Yes | $160,000 | $196,000 | No |
|  | 16 | Yes | 5 | Yes | $275,000 | $280,000 | Yes |
| NB2 | 10 | Yes | 12 | No | $660,000 | $500,000 | Yes |
|  | 12 | Yes | 25 | Yes | $1,375,000 | $660,000 | Yes |
|  | 14 | Yes | 26 | Yes | $1,430,000 | $980,000 | Yes |
|  | 16 | Yes | 28 | Yes | $1,540,000 | $1,400,000 | Yes |
| NB3 | 10 | Yes | 8\* | Yes | $440,000 | $200,000 | Yes |
|  | 12 | Yes | 8\* | Yes | $440,000 | $200,000 | Yes |
|  | 14 | Yes | 8\* | Yes | $440,000 | $200,000 | Yes |
|  | 16 | Yes | 8\* | Yes | $440,000 | $200,000 | Yes |

\* Barrier at park based on 800 feet of highway frontage.

[Begin typing here]

3.2. Nonacoustical Factors Relating to Feasibility

Present the engineer’s evaluation of nonacoustical factors relating to the feasibility of noise abatement. These factors could include:

* geometric standards, such as minimum sight distances;
* safety;
* maintenance;
* security;
* geotechnical considerations; and
* utility relocations.

[Begin typing here]

3.3. Preliminary Recommendation and Decision

Present the preliminary noise abatement decision.

There may be situations where several forms of abatement are feasible and have costs that are less than the allowance. For example, in the case of a barrier, different barrier heights could be feasible and have costs that are less than the allowance. In these cases, a recommendation must be made and, in the case of a barrier, a barrier height must be selected. This decision should be made by the Project Design Team. In the case of a barrier, several factors can be considered in making this recommendation:

* line-of-sight break between a receptor and an 11.5-foot-high truck stack (per Chapter 1100 of the Highway Design Manual),
* number of benefited receptors,
* cost per benefited receptor
* degree of noise reduction (a barrier that provides only 1 dB of improved noise reduction over a lower barrier and costs substantially more may not be favored over the lower barrier)
* 15-year minimum life cycle

Provide a summary discussion of each barrier and identify the recommended barrier and barrier height. Explain why the barrier height was selected. *This is the preliminary noise abatement decision.*

[Begin typing here]

Explain that this decision is the *preliminary* noise abatement decision and is subject to change. (Use the following text for this explanation.)

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

The preliminary noise abatement decision presented here will be included in the draft environmental document (ED), which will be circulated for public review.

4. Secondary Effects of Abatement

The noise abatement recommended in the preliminary noise abatement decision may have the potential to result in secondary effects on cultural resources, scenic views, hazardous materials, biology, or other resources. Present a brief discussion of the potential secondary effects associated with the recommended abatement. Base this discussion on the best information available from technical specialists at the time the NADR is prepared.

[Begin typing here]

5. References

Books, Journal Articles, Reports: [Author(s). YEAR. Title. Publisher/Source. Volume:Page begin–Page end].

Correspondance: [Author(s). Date. Subject. Agency/Company. Pp. (pages)].

Phone conversation: [Contact Name. Date. Subject. Agency/Company. Phone Number. Result/Action].

Email: [Contact Name. Date. Subject. Agency/Company. Email address. Result/Action].

1. [Appendix Title]

Present appendices in the order they are mentioned in the text.

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1. [Appendix Title]

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