

Noise Abatement

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Purpose

To establish the policy and procedure for conducting traffic noise studies, implementing noise abatement measures and coordinating with local municipalities and the public to verify that feasible and reasonable mitigation is incorporated into projects to minimize noise impacts and protect the public health and welfare.

Policy

The Utah Department of Transportation (Department) recognizes a commitment to minimize noise impacts generated by highway traffic that may adversely impact human activity and the quality of life of residents located in the vicinity of heavily traveled roads. The Department will install noise abatement measures according to the "Procedures" section of this Policy. This Policy was developed by the Department and reviewed and concurred with by the Federal Highway Administration (FHWA). The highway traffic noise prediction requirements, noise analysis, and noise abatement criteria in this Policy are consistent with federal regulation *23 CFR §772 - Procedures for Abatement of Highway Traffic Noise and Construction Noise* and *Utah Administrative Code R930-3 Highway Noise Abatement*.

Definitions

Abatement

A reduction in noise level resulting from implementation of a mitigation measure.

Approach Criteria

1 decibel (dBA) lower than the appropriate Federal Highway Administration (FHWA) noise abatement criteria.

Benefited Receptor

A noise sensitive receptor that receives a noise reduction of at least 5 dBA. The number of benefited receptors will be used in determining if a noise abatement measure has a reasonable cost.

CFR

The Code of Federal Regulations.

Date of Public Knowledge

The date of approval of the environmental document (e.g. Categorical Exclusion (CE), the Finding of No Significant Impact (FONSI), the Record of Decision (ROD), or Re-Evaluations for any environmental document as defined in 23 CFR §771; or State Environmental Study).

Decibel (dB)

A unit for measuring sound levels derived from the difference between sound pressure levels.

Decibel, A-weighted Scale (dBA)

Sound levels are measured using a statistically weighted scale (dB). The A-weighted scale most closely represents the range of human hearing; highway sound levels are described using the A-weighted scale (dBA).

Design Year

The future year used to estimate the predicted traffic volume for which a highway is designed.

Design Noise Level

The worst hour traffic noise level likely to occur throughout the life of the project. Level of Service (LOS) C traffic volumes will be used to calculate design noise levels unless the Director of Environmental Services approves the use of another LOS for a specific project.

Existing Noise Levels

The worst hourly noise level currently occurring from natural and mechanical sources and human activity in the project area generally occurring before or after the peak traffic periods.

Feasibility

The combination of acoustical and engineering factors considered in the evaluation of a noise abatement measure.

Front-Row Receptor

A noise-sensitive receptor whose property abuts the transportation facility.

FHWA

Federal Highway Administration

Impacted Receptor

A receptor that has or is predicted to have noise levels greater than or equal to the the Department noise abatement criteria threshold for the appropriate category, or which is predicted to receive a substantial noise increase, defined as 10 dBA or more over *existing noise levels*.

Leq

The equivalent (energy average) steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during that time period.

Leq(h)

The hourly value of Leq.

Level Of Service (LOS)

The relationship between traffic volume and traffic speed.

Multifamily Residence

A residential structure containing more than one residence by address. Each residence in a multifamily dwelling is counted as one receptor when determining impacted and benefited receptors.

Municipality

A city, town, county, etc., having its own incorporated government for local affairs.

Noise Abatement Criteria (NAC)

Criteria established by FHWA based on land use type that defines when noise impacts occur as defined in 23 CFR §772.

Noise Barrier

A physical obstruction that is constructed between the highway noise source and the noise sensitive receptor(s) that lowers the noise level, including stand-alone noise walls, noise berms (earth or other material), and combination berm/wall systems.

Noise Sensitive Receptor

Any property where frequent exterior human use occurs and where a lowered noise level would be of benefit. For Activity Category D, in situations where there are no exterior activities to be affected by the traffic noise, the interior of the building will be used to identify a noise-sensitive receptor.

Permitted

A commitment to develop land evidenced by a formal building permit issued to a developer by the local agency of authority prior to the date of public knowledge.

Property Owner

The current owner of record at the appropriate County Recorder's Office.

Reasonableness

The combination of social, economic, and environmental factors considered in the evaluation of a noise abatement measure.

Receptor

A discrete or representative location of a noise sensitive area(s).

Receiver

A noise modeling site that may represent one or more receptors.

Residence

A single family residence or each dwelling unit in a multifamily dwelling.

Sensitive Land Uses

Lands defined as NAC activity categories A, B, C, D or E in Table 1.

Substantial noise increase

An increase in noise levels of 10 dBA in the predicted noise level over the existing noise level.

Statewide Transportation Improvement Program (STIP)

A multi-year plan of highway and transit projects for the State of Utah. The STIP is the Department's official work plan for developing projects from design through construction.

Substantial Horizontal Alteration

A project that halves the distance between the traffic noise source and the closest receptor, compared between the existing condition and the future build condition.

Substantial Vertical Alteration

A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source by either altering the vertical alignment of the highway or by altering the topography between the highway and the receptor.

Tenant

A person or entity that rents real property from the property owner.

Type I Project

A project in conjunction with new highway construction or existing highway construction that alters the horizontal or vertical alignment or increases the number of through-traffic lanes, as defined below in Background Section A.1.

Type II Project

A project commonly referred to as a "retrofit" project to provide noise abatement along an existing highway.

Type III Project

A project that is not classified as either a Type I or Type II project.

Department Noise Abatement Criteria (NAC)

The noise decibel (dBA) value reflecting the approach criteria of 1 dBA below the NAC values listed in 23 CFR §772 for each land use category.

Background

A. Applicability

1. Type I Project - Noise abatement will be considered for all Type I Projects where noise impacts are identified. A Type I Project is one that includes any of the following:
 - a. The construction of a highway on new location; or a substantial horizontal alteration or substantial vertical alteration of an existing highway; or,
 - b. The addition of a through traffic lane, the addition of a through traffic lane that functions as a High Occupancy Vehicle (HOV) lane, High Occupancy/Toll (HOT) lane, bus lane or climbing lane; or,
 - c. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
 - d. The addition or relocation of interchange lanes or ramps added to a

- e. quadrant to complete a partial interchange; or,
 - e. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or,
 - f. The addition of a new or substantial alteration of a weigh station, rest stop, ride share lot or toll plaza.
 - g. If a project is determined to be a Type I Project under this definition, then the entire project area as defined in the environmental document is a Type I Project.
2. Type II Project - A project referred to as a “retrofit” project to provide noise abatement along an existing highway. The Department does not implement Type II projects consistent with 23 CFR §772.
 3. Type III Project – A Type III project is one that does not meet the classification of a Type I or Type II project. Type III projects do not require a noise analysis therefore the Department does not implement noise abatement on Type III projects consistent with 23 CFR §772.

B. Analysis of Traffic Noise Impacts

1. Noise impact and abatement analyses will include lands within Land Use Activity Categories A, B, C, D and E (Table 1) only when development exists or has been permitted. A development will be defined as being permitted when a formal building permit has been issued prior to the date the final environmental decision document is approved.
2. Noise Receptor Locations
Noise receptor locations are normally restricted to exterior areas of frequent human use. Interior locations included in Activity Category D are only used when there are no outside activities, such as in churches, hospitals, or libraries. Noise receptor locations, typically, are chosen at areas between the right-of-way line and buildings where frequent human activity occurs, such as a patio, pool, or play area in the yard of a home. The selection of the area of frequent human activity will be made in coordination with the Director of Environmental Services.
3. The traffic noise analysis will include the following:
 - a. Identification of existing activities, developed lands, and undeveloped lands for which development is permitted. (See Section B.1)
 - b. Determination of existing worst case noise levels. Design noise levels are calculated using the posted speed limit and the Level of Service (LOS) identified in the traffic analysis to determine average worst hourly traffic noise unless the Director of Environmental Services approves the use of another LOS for any specific project.
 - c. Determination of future worst case noise levels. Design noise levels are calculated using the design speed for future year and Level of Service (LOS) C traffic volumes to determine average worst hourly traffic noise unless the Director of Environmental Services approves the use of another LOS for any specific project.
 - d. Determination of traffic noise impacts.

Table 1
Noise Abatement Criteria (NAC)
[Hourly A- Weighted Sound Level decibels (dB(A))]

| Activity Category | FHWA Criteria Leq(h) | Department Criteria ¹ Leq(h) | Evaluation Location | Activity Description |
|-------------------|----------------------|---|---------------------|---|
| A | 57 | 56 | Exterior | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. |
| B | 67 | 66 | Exterior | Residential |
| C | 67 | 66 | Exterior | Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings. |
| D | 52 | 51 | Interior | Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios. |
| E | 72 | 71 | Exterior | Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F. |
| F | - | - | | Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing |
| G | - | - | | Undeveloped lands that are not permitted. |

1. Hourly A-weighted sound level in decibels reflecting a 1 dBA “approach” value below 23 CFR 772 values

4. Primary consideration will be given to exterior areas where frequent human use occurs, in determining noise impacts. The interior of facilities may be evaluated if, following analysis of any outdoor activity areas, it is determined that exterior abatement measures are not reasonable or feasible or that such sites are far from or physically shielded from traffic noise impacts for Activity Category D.
5. The Department considers a traffic noise impact to occur when either of the following situations is expected at a sensitive land use:
 - a. The future worst case noise level is equal to or greater than the Department Noise Abatement Criteria (NAC) in Table 1 for each corresponding land use category, or;
 - b. The future worst case noise level is greater than or equal to an increase of 10 dBA over the existing noise level. This impact criterion takes effect regardless of existing noise levels.

Table 2
Sound Level Change vs. Relative Loudness

| Sound Level Change | Relative Loudness |
|--------------------|----------------------------|
| 1 dBA | No perceptible change |
| 3 dBA | Barely perceptible change |
| 5 dBA | Readily perceptible change |
| 10 dBA increase | Perceived as twice as loud |

6. Activity Categories F and G include lands that are not sensitive to traffic noise. There are no impact criteria for these land use types therefore noise abatement is not required. However, for Activity Category G, an estimate of the distance to the approach criteria must be provided to local governments. This may be accomplished by including a table or a figure displaying contours that show future noise levels. The distance from the edge of the roadway pavement to the where the worst hour $L_{eq}(h)$ levels of 66 dBA and 71 dBA occur must be shown.

C. Analysis of Noise Abatement

The noise analysis will identify traffic noise impacts at sensitive receptors, which will then be considered for noise abatement. The overall goal of abatement is to obtain substantial noise reductions, which may or may not result in noise levels below NAC levels. The two relevant criteria to consider when identifying and evaluating noise abatement measures for mitigation are (1) feasibility and (2) reasonableness. Noise abatement will be provided only if it is determined to be both feasible and reasonable.

1. Feasibility

The feasibility factors outlined below must collectively be achieved for a noise abatement measure to be considered “feasible.” Failure to meet these factors will result in the noise abatement measure being deemed not feasible and therefore not included in the proposed project. It is important to note that even if all feasibility factors are achieved, noise abatement must still meet all reasonableness factors in order to be included in the project.

- a. Engineering Considerations – Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, barrier height, topography, drainage, utilities, maintenance access and maintenance of the abatement measure must be taken into account as part of establishing feasibility. Noise abatement measures are not intended to serve as privacy fences or safety barriers. Abatement measures installed on structures will not exceed 10-feet in height measured from the top of deck or roadway to the top of the noise wall. Noise walls will not be installed on structures that require retrofitting to accommodate the noise abatement measure. Noise abatement measures will be considered if the project meets the criteria established in this policy if structure replacement is included as part of the project. Abatement measures shall be consistent with general American Association of State Highway and Transportation Officials (AASHTO) design principles.
- b. Safety on Urban Non-Access Controlled Roadways - To avoid a damaged barrier from becoming a safety hazard, in the event of a failure, barrier height shall be no greater than the distance from the back of curb to the face of proposed barrier .
- c. Acoustic Feasibility - Noise abatement must be considered acoustically feasible. This is defined as achieving at least a 5 dBA highway traffic noise reduction for at least 50% of front-row receptors.

When noise abatement is determined feasible, the Department will determine if it is reasonable by thoroughly considering the range of criteria described below and a decision on mitigation will be documented in the project file. The decision to recommend or not recommend noise abatement will normally be the responsibility of the Director of Environmental Services or designee in accordance with this policy.

2. Reasonableness

The reasonableness factors outlined below must collectively be achieved for a noise abatement measure to be considered “reasonable.” Failure to achieve any of these factors will result in the noise abatement measure being deemed not reasonable and therefore not included in the project.

- a. Noise Reduction Design Goal – The Department defines the noise reduction design goal as a minimum noise reduction from proposed abatement measures to be 7 dBA or greater for at least 35% of front-row receptors. In accordance with 23 CFR §772, no abatement measure shall be deemed reasonable if the noise reduction design goal cannot be achieved.
- b. Cost Effectiveness – The cost of noise abatement measures must be deemed reasonable in order to be included in the project. Allowable noise abatement costs are based on a fixed unit cost of \$20 per square foot, multiplied by the height and length of the barrier, plus the cost of additional right-of-way, utility relocations, and any other items associated with the abatement measure that is

critical to safety or otherwise only necessary to accommodate the barrier. The fixed unit cost is based on the historical average cost of noise barriers installed on Department projects and is reviewed at regular intervals, not to exceed five years.

The cost effectiveness of abatement is determined by analyzing the cost of a barrier that would provide a noise reduction of 5 dBA or more for a receptor. A reasonable cost is considered to be a maximum of \$30,000 per benefited receptor (Activity Category B) or \$360 per linear foot for Activity Categories A,C,D or E. When a proposed barrier benefits multiple Activity Categories, the reasonable cost per benefited receptor will be combined. If the anticipated cost of the noise abatement measure is less than the allowable cost, then the abatement is deemed reasonable.

- c. Viewpoints of Property Owners and Tenants - Viewpoints of property owners and tenants must be solicited to determine if noise abatement is desired.
- 1) Balloting – As part of the final design phase of projects, the Department needs to establish whether property owners and tenants are in favor of noise abatement measures. This process involves sending ballots to the following groups so they can indicate their preference for or against noise abatement measures:
 - a) All benefited receptors (property owners and tenants). A benefited receptor is one that would receive a reduction of 5 dBA or more as a result of noise abatement.
 - b) Receptors whose property abuts any portion of the proposed noise barrier that are not, by definition, benefited by the barrier, will be balloted.

The number of votes is established as follows:

- Owner occupied residences: The owner will have 1 vote.
- Rental homes, multi-family residences and apartments: The owner will have 1 vote per unit and the tenant will have 1 vote for the unit.
- Day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures: The owner will have 1 vote.
- Commercial/industrial businesses: The owner will have 1 vote per unit and, if applicable, the tenant will have 1 vote for the unit.
- Mobile home parks: The mobile home owner will have 1 vote. The lot owner, if different than the home owner, will have 1 vote.

The votes of each parcel will be weighted as one ballot during the ballot assessment process using the procedures described in Section C(2)(c)(2).

- c) Properties owned by the Department – It is the policy of the Department to abstain from voting as a receptor and these votes will not be calculated in the denominator of total votes described in the Section C(2)(c)(2).
- 2) Assessing Ballots - When the votes are counted, property owners' votes will receive a multiplier factor of 5 compared to tenants factor of 1. Any votes of tenants from that property will be calculated as 20% of a vote if the owner votes to abstain.

At least 75% of the total number of mailed ballots must be returned to adequately assess if noise abatement is desired. A noise barrier will only be recommended if 75% of ballots returned favor noise abatement. The denominator used to calculate this percentage will equal the total number of ballots returned. Noise abatement will be deemed not reasonable if fewer than 75% of ballots are returned.

Ballots sent by U.S. Mail are deemed by the Department as “due diligence” in notifying the affected property owners and tenants of possible noise abatement measures in their area. Ballots will be sent by U.S. Mail to each property owner of record and each tenant. Each ballot will include a deadline for return to the Department. A second ballot with a new deadline will be sent by Registered Mail for ballots sent but not returned by the deadline.

If the voting process results in a decision to not construct a noise barrier, the area will not be reconsidered for noise abatement until a future Type I transportation project exists.

Results of the Balloting will be mailed to all property owners and tenants whose votes were solicited during the balloting process.

d. Noise Abatement Measures

- 1) The following abatement measures may be considered including a cost/benefit analyses to compare alternatives if a noise impact is identified:
 - a) Noise walls, noise berms (earthen or other material), and combination berm/wall systems. The type of noise abatement selected for the project will be determined in final design. A concrete noise wall is the Department's preferred noise barrier type.
 - b) Noise insulation of Activity Category D land use facilities will be considered as a noise abatement measure when determined reasonable and feasible in

accordance with 23 CFR §772.

Instances may arise in which Department right-of-way is not the most prudent location for noise abatement measures, yet such measures can be feasible and reasonable, if built on adjacent property or adjacent public right-of-way. The following applies in these cases:

- 1) The Department's cost is limited to the fixed unit cost for abatement on Department right-of-way.
 - 2) Adjacent property owners must allow access and easements as necessary to construct and maintain noise abatement measure(s).
 - 3) Maintenance of noise abatement measures and associated landscaping on the side facing the highway will normally be the Department's responsibility. The opposite face will be maintained by the Department as well, unless maintenance responsibilities are assigned to other parties.
- 2) The Department will own and maintain all noise abatement measures for Department facilities. The local government will own and maintain all noise abatement measures for local government facilities.
 - 3) Noise abatement measures analyzed and deemed feasible and reasonable in the environmental study phase are still subject to final design and balloting. This is included in the environmental document as the Statement of Likelihood. The final decision to construct the proposed noise barrier will not be made until completion of the project design and refined utility relocation and right-of-way costs are available. Reasonableness will be revisited using refined costs prior to balloting.
 - 4) **Relocation of Existing Noise Barriers**

There may be circumstances when existing noise barriers must be relocated or replaced due to conflicts with new construction projects, and where the barriers do not meet the Noise Abatement Criteria in this Policy after performing a Noise Abatement Analysis according to paragraph C of the Background of this Policy. Existing barriers will be relocated or replaced in these cases with an "in-kind" barrier so long as the replacement barrier does not:

 - reduce roadway safety
 - preclude or conflict with planned roadway projects included on either the State Transportation Improvement Plan, or Phase I of the Long Range Plan, or both
 - require acquisition of additional right-of-way
 - conflict with utilities, or
 - result in unreasonable costs to the Department according to this Policy.

An "in-kind" barrier is defined as the height of the

existing barrier and is not based upon top-of-barrier elevation or acoustic reasonableness.

- 5) **Construction of Noise Barriers Outside of Right-of-Way**
If a noise abatement measure is to be built on adjacent property or adjacent public right-of-way, the Department's cost is limited to normal cost for abatement on Department right-of-way. Unless the adjacent property owners grant access and easements as necessary in order to construct and maintain the barrier, the Department shall not construct a noise barrier.
- 6) **Local Municipality Cost Participation**
A third party, such as a local municipality, may contribute funds to make functional or aesthetic enhancements to a noise abatement feature in instances where noise abatement has already been deemed feasible and reasonable.
- 7) **Information for Local Officials**
The Department will inform local officials of noise compatible planning concepts and an estimate of future noise levels on undeveloped lands or properties within the project limits for Type I Projects. See also B.5.
- 8) **Projects Funded from Other Sources**
The Department may construct and maintain noise abatement measures along state highway right-of-way in cases where citizens, adjacent property owners, developers, or local municipalities provide the cost for the noise abatement; and the abatement meets the other feasible and reasonable criteria. The Department will design, build, and maintain the abatement measure, and the local municipality acting for and on behalf of other groups will pay the Department for all preliminary engineering, construction and maintenance costs.
- 9) **Traffic Noise Prediction**
Only the current FHWA-approved Traffic Noise Model (TNM) is to be used for any traffic noise analysis unless otherwise agreed upon in advance by the Department and FHWA.

D. Removal or Alteration of Constructed Noise Barriers

The following provides clarification on the Department's policy regarding changes to constructed noise barriers where a request is made by an applicant to the Department to alter or remove an existing noise barrier after project construction begins or after construction is complete.

The Department will consider requests for removal of all or part of a noise barrier located in locations where the land use activity category is B, C, D or E. This applies to barriers that are constructed or are part of projects that are currently in construction. Under either scenario it is assumed that the noise barrier was constructed based on it meeting the requirements of the Department's noise policy at the time of construction.

1. Procedure

The removal request will follow this procedure:

- a. A new noise analysis must be performed at the applicant's expense by a Department pre-qualified noise consultant. The applicant will submit two copies of the noise analysis to the Department's Director of Environmental Services and the Department's Noise Policy Administrator for review and approval. The approval of the noise analysis will be contingent on if the noise analysis was done correctly based on applicable FHWA and Department noise policies, rules and statutes.
- b. Upon approval of the noise analysis by the Department's Director of Environmental Services and the Department's Noise Policy Administrator, the applicant will provide to all affected receptors: (a) a copy of the noise analysis, (b) a description and map showing the noise barrier removal that is being proposed, and (c) a Department approved noise ballot that asks the affected receptor whether they are in favor or not in favor of the proposed noise barrier removal. The applicant must provide a minimum of 30 days for the affected receptors to respond.
- c. The applicant must have approval from all of the affected receptors (as identified in the noise analysis and as defined in this policy) and provide the completed noise ballots to the Department. If the applicant is unable to obtain approval for the proposed noise barrier removal from all affected receptors, the Department will not allow the noise barrier to be removed. If the applicant does obtain approval from all affected receptors, the Department will allow the applicant to proceed with the proposed noise barrier removal.
- d. All noise barrier removal costs (whether partial or complete) will be at the applicant's expense. Abandoned concrete posts and foundations must be excavated to 1 foot below the ground elevation, backfilled with clean soil, and seeded.
- e. An encroachment permit must be obtained from the appropriate Department Region Office to perform the above work in the Department right-of-way. The permit will establish any additional provisions required to accommodate removal of other structures, installation of guard rail and maintenance of traffic among other project specific issues.
- f. When construction is completed the applicant will provide as-built drawings to the Department. The barrier will undergo inspection by the Department Region District Engineer or designee and deficiencies will be corrected at the applicant's expense. Ownership of any remaining barrier remains with the Department when the project is approved by the Department Region District Engineer.

Procedures

Noise Abatement

Responsibility: Environmental Services

Actions

1. Determine if this is a Type I Project.
2. Disclose in the environmental document, ending the process with this step if it is not a Type I Project.
3. Determine types and numbers of sensitive land use activities (receptors) that might be impacted.
4. Disclose in the environmental document, ending the process with this step if none.
5. Measure or calculate existing noise levels.
6. Calculate future worst case noise levels using the posted or planned speed limit and LOS C traffic volumes, unless the Director of Environmental Services approves the use of another level of service, to determine average worst hourly traffic noise.
 - a. 23 CFR §772 does not require an analysis of the no build scenario, but it may be valuable if the existing noise levels are greater than the future worst case levels.
7. Compare design noise abatement criterion levels and existing noise levels.
8. Identify impacted receptors.
9. Summarize findings for the environmental document, ending the process with this step if no impacts.
10. Apply a value of \$30,000 per residence (dwelling unit) to determine if noise abatement is cost effective for Activity Category B land uses (residential areas).
11. Use a fixed unit cost of \$20.00 per square foot to calculate the cost of noise abatement barriers.
12. Apply a value of \$360.00 per linear foot to determine if noise abatement is cost effective for Activity Category A, C, D, and E land uses.
13. Consider general abatement strategies, consistent with Department Policy, for all impacted receptors, for each alternative.
14. Prepare preliminary noise study as outlined in the Department's Environmental Process Manual of Instruction (MOI) and direct its review.
15. Submit noise study to the Director of Environmental Services or designee

for approval.

16. Include summary of the noise study in the environmental document in accordance with the requirements of 23 CFR 772.13(g).

Responsibility: Project Manager

17. Direct the local municipality involvement process, providing information where noise abatement is likely and where it is not likely.
18. Inform local officials about noise compatible planning concepts and provide an estimate of future noise levels on undeveloped lands or properties within the project limits by sending a copy of the Noise Study to the planning division of the appropriate local government(s).

Responsibility: Project Manager and Region Communications Manager

19. Conduct the balloting process – This task should take place during the final design phase of the project. The procedure to determine those in favor of noise abatement will be as follows:
 - a. Use a standard form posted on the Department's web site that includes, at a minimum, the Department official logo, the project name, project location, the project sponsor, the Consultant's name, a brief explanation of the purpose of the balloting, and boxes to indicate a preference for, or against the abatement. Refer to the Noise Barrier Ballot at the end of this Policy.
 - b. Include a place for written comments on the ballot.
 - c. Include the deadline for votes to be received by the Department or Consultant in order to be counted.
 - d. Include a self-addressed stamped envelope for returning the ballot.
 - e. Make a reasonable effort to send ballots to the correct address of benefited receptors as defined in this Policy.
 - f. Make a reasonable effort prior to balloting by telephone, mailer, or in person to explain the process and to determine any special needs of those voting.
 - g. Allow only benefited receptors and receptors that border and/or are directly adjacent to the end of a proposed noise barrier to cast a ballot.
 - h. Coordinate with the Noise Policy Administrator to develop a project-specific voting strategy for balloting situations not described in this Policy.
 - i. Place all ballot results in the project files when the ballots for noise abatement are returned.

Responsibility: Department Director of Environmental Services and/or Noise Policy Administrator

20. Review and approve noise study.

Responsibility: Project Manager

21. Incorporate the noise study findings into the Project Design Criteria (PDC).
22. Submit the PDC to the Region Preconstruction Engineer for approval.
23. Incorporate approved abatement measures into design plans and specifications



Utah Department of Transportation Noise Barrier Ballot

Project Name: _____

Project Location: _____

Project Sponsor(s): _____

Project Contact: _____ Telephone: _____

Ballot Purpose

Your residence/property has been identified as potentially having highway noise impacts due to the proposed project. As part of the noise study for this project, we would like to get your opinion on whether you would be in favor of noise barriers being constructed to reduce expected noise levels.

Your input, along with other information including; the amount of noise reduction achieved, engineering considerations, cost and views will be considered together, to come to a decision on whether or not to construct noise abatement measures. Please check the appropriate line, include any comments you may have and return this ballot in the self-addressed stamped envelope.

Please note that at least 75% of ballots sent, must be completed and returned for UDOT to assess if the property owners and tenants desire noise barriers. Your ballot needs to be received by _____ in order to be counted. Thank you for your participation!

- I **support** a noise barrier.
- I **do not support** a noise barrier.
- I **choose to abstain from voting, and wish not to be counted in the analysis.**

Comments:

Name: _____

Address: _____

Signature: _____ Date: _____