Delaware Department of Transportation

Noise Policy

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DelDOT

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Shanté Hastings, Director Transportation Solutions

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Date

Federal Highway Administrator
Doug Atkin, Division Administrator – Delaware Division

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POLICY IMPLEMENT

STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

P.I. Number D-03

Transportation Noise Policy

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Transportation Noise Policy

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I. INTRODUCTION

This document contains the Delaware Department of Transportation (DelDOT) noise policy on highway traffic noise and construction noise, and describes how DelDOT will implement the requirements of the Federal Highway Administration (FHWA) Noise Standards outlined in 23 Code of Federal Regulations (CFR) Part 772 as they relate to federal-aid highway construction in Delaware. The policy was developed by DelDOT and reviewed and concurred with by the FHWA.

During the rapid expansion of the Interstate Highway System and other roadways in the 20th century, communities began to recognize that highway traffic noise and construction noise had become important environmental impacts. In the 1972 Federal-aid Highway Act, Congress required FHWA to develop a noise standard for new Federal-aid highway projects. While providing national criteria and requirements for all highway agencies, the FHWA Noise Standard gives highway agencies flexibility that reflects state-specific policies and objectives in approaching the problem of highway traffic and construction noise. This policy describes how highway traffic noise impacts are defined, how noise abatement is evaluated, and how noise abatement decisions are made.

In addition to defining traffic noise impacts, the FHWA Noise Standard requires that noise abatement measures be considered when traffic noise impacts are identified for Type I Federal projects. Noise abatement measures that are found to be feasible and reasonable must be constructed for such projects. Feasible and reasonable noise abatement measures are eligible for Federal-aid participation at the same ratio or percentage as other eligible project costs.

II. PURPOSE

This document describes DelDOT's program to implement the FHWA Noise Standards found at 23 CFR 772. They include traffic noise prediction requirements, noise analyses, noise abatement criteria, and requirements for informing local officials.

III. DEFINITIONS

Benefited Receptor – The recipient of an abatement measure that receives a noise reduction at or above 8 dB(A). A benefited receptor shall be classified as either an impacted receptor or a non-impacted receptor that receives an 8 dB(A) or greater reduction.

Common Noise Environment – A group of receptors within the same Activity Category in Table 1 (Appendix A) that are exposed to similar noise sources and levels; traffic volumes, traffic mix, and speed; and topographic features. Generally, common noise environments occur between two secondary noise sources, such as interchanges, intersections, or cross-roads.

Date of Public Knowledge – The date of approval of the NEPA Environmental Document; Categorical Exclusion (CE), Finding of No Significant Impact (FONSI), or Record of Decision (ROD), as defined in 23 CFR Part 771.

Design Year – The future year used to estimate the probable traffic volumes for which a roadway is designed. For new construction and major reconstruction, this will normally be 20 years in the future.

Existing Noise Levels – The worst noise hour resulting from the combination of natural and mechanical sources and human activity usually present in a particular area.

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

Impacted Receptor – The recipient that has a noise traffic impact in accordance with the Noise Abatement Criteria as set out in Table 1 (Appendix A), or experiences a substantial increase noise impact.

Leq – The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same period, with Leq(h) being the hourly value of Leq.

Multifamily Dwelling – A residential structure containing more than one residence. Each residence in a multifamily dwelling shall be counted as one receptor when determining impacted and benefited receptors.

Noise Barrier – A physical obstruction or any other thing 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 Reduction Design Goal – The desired noise reduction of 9 dB(A) difference between future build noise levels without abatement and with abatement.

Permitted – A definite commitment to develop land with an approved specific design of land use activities as evidenced by the issuance of a building permit.

Privacy Fence – A barrier whose purpose is to serve as a visual screen, typically 6 to 12 feet in height, and normally made of wood or vinyl.

Property Owner – An individual or group of individuals that holds a title, deed, or other legal documentation of ownership of a property or residence.

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), for any of the land uses listed in Table 1 (Appendix A).

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

Statement of Likelihood – A statement provided in the NEPA environmental clearance document based on the feasibility and reasonableness analysis completed at the time the document is being approved.

Substantial Noise Increase – An increase in noise level of 12 dB(A) in the design year over the existing noise level.

Traffic Noise Impacts – Design year build condition noise levels that approach within 1 dB(A) or exceed the Noise Abatement Criteria (NAC) listed in Table 1 (Appendix A) for the future build condition; or design year build condition noise levels that create a defined substantial noise increase over existing noise levels.

Type I Project – A Federal-aid project for:

(1) The construction of a highway on new location; or,

(2) The physical alteration of an existing highway where there is either:

(i) A substantial horizontal alteration; being a project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or,

(ii) A substantial vertical alteration; being a project that removes shielding therefore exposing the line of sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,

(3) The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a High Occupancy Vehicle (HOV) lane, High Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,

(4) The addition of an auxiliary lane, except for when the auxiliary lane functions as a turn lane; or,

(5) The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,

(6) Restriping existing pavement for the purpose of adding a through-traffic lane or auxiliary lane; or,

(7) The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

(8) 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.

Type II Project – A project for noise abatement on an existing highway. DelDOT does not have a Type II program.

Type III Project – A federal-aid roadway project that does not meet the classification of a Type I or Type II project. Type III projects do not require a noise analysis.

IV. APPLICABILITY

This policy applies to all Type I Federal-aid highway projects in the State of Delaware; that is, any projects that receive Federal-aid funds or are otherwise subject to FHWA approval. They include Federal-aid projects that are administered by Local Public Agencies, as well as DelDOT. The requirements of this policy apply uniformly and consistently to all Type I Federal-aid projects throughout the State. This policy does not include the construction of Type II projects.

Due to the long lead time that is usually necessary to complete a traffic noise study, one of the first issues that should be addressed in project scoping is whether or not the project qualifies as a Type I project. If there are any questions about whether a particular project is subject to this policy or the FHWA Noise Standard, the appropriate DelDOT contact would be the DelDOT Director of Transportation Solutions or the Division of Transportation Solutions Chief of Environmental and Administrative Support.

V. TRAFFIC NOISE PREDICTION

DelDOT will utilize the latest approved version of FHWA Traffic Noise Model (TNM) as the method to predict future noise levels. If appropriate, DelDOT could also utilize any other model determined by the FHWA to be consistent with the methodology of the FHWA TNM.

In preparing a noise impact study, DelDOT will predict and evaluate future noise levels for all of the various build alternatives that are under consideration, and that are defined as reasonable, in the NEPA environmental document. In performing the TNM analysis, DelDOT will utilize the average pavement type unless an alternative pavement type is approved for use by FHWA. Additionally, DelDOT will not utilize presentation of noise contour lines in preparing the study of traffic noise impacts.

In predicting noise levels and assessing noise impacts, traffic characteristics (seasonal volume, vehicle mix, etc.) that would yield the worst traffic noise impact for the design year shall be used.

VI. ANALYSIS OF TRAFFIC NOISE IMPACTS

For projects that involve expansion of existing highways, DelDOT will determine existing noise levels by development of a model and validation of the model through representative field measurements. For new alignment projects, DelDOT will take measurements at representative locations to determine existing noise levels. Additionally, for new alignment projects, appropriate and representative existing noise measurements will be taken for each alignment that has been selected for detailed study in the NEPA document. Representative noise measurements locations will be selected based on an analysis of the quantity and disbursement of the various noise sensitive receptors and land uses as described in Table 1 (Appendix A). DelDOT will assure that the noise monitoring equipment will meet all of the requirements of the American National Standard Specifications for Sound Level Meters, ANSI S 1.4-1983 (R1991), Type I or Type II, and also meet all requirements as may be defined by the FHWA. Measurements will be taken consistent with the methodologies provided in *Noise Measurement Handbook, FHWA-HEP-18-065*

For projects with any unusual or extraordinary circumstances (such as a broad corridor study), DelDOT will consult with the FHWA and other participating agencies as to the most appropriate methodology for noise impact analysis.

The process for traffic noise analysis will first require that plans and maps of the project area be obtained and all potentially noise impacted areas and activities will be identified. The project limits will be defined in order to determine the traffic noise impacts for the design year, for each of the build alternatives that have been designated for detailed study.

Measurements of noise levels will be established using the appropriate ANSI Type I or Type II integrating sound level meter. Validation of predicted noise levels is required to the greatest extent practicable, and will be obtained by comparing predicted and measured noise levels. Computer modeling will be considered accurate if computed levels are within 3 dB(A) of the field recordation. Noise levels will be measured for a period of time (ranging from a minimum

of thirty minutes to twenty-four hours) to obtain a representative sample of ambient noise. Classification counts (cars, medium trucks, and heavy trucks) and vehicular speeds will be documented in the field.

In performing traffic noise analysis, DelDOT has established that the "approach level" for noise abatement criteria will be considered to be 1 dB(A) less than the criteria level for Activity Categories as set out in the Noise Abatement Criteria Table 1 (Appendix A).

In performing traffic noise analysis, DelDOT has established that a "substantial noise increase" for noise abatement criteria will be 12 dB(A) over existing noise levels; with this criterion being independent of the absolute noise level.

A traffic noise analysis will be completed for each category of land use as set out and described in the Noise Abatement Criteria Table 1 (Appendix A), as discussed below;

Activity Category A –

This activity category includes the exterior impact criteria for lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where preservation of those qualities is essential for the area to continue to serve its intended purpose. In situations where DelDOT believes that such a defined activity will sustain a project noise impact, a justification request will be submitted on a case-by-case basis to the local FHWA Division Office.

Activity Category B –

This activity category includes the exterior impact criteria for single family and multifamily residential land uses. Exterior noise single point measurements will be taken, and modeling will be performed, in areas of frequent human use which are closest to the roadway.

Activity Category C –

This activity category includes the exterior impact to a wide variety land use facility, as generally described in Table 1 (Appendix A). As with residential land uses, exterior noise measurements will typically be taken, and modeling performed, as close to the roadway as practical. If the circumstances of the activity dictate that some other location is preferable for noise impact measurements, DelDOT will submit a request for concurrence on a case-by-case basis to the local FHWA Division Office.

Activity Category D –

This activity category applies to interior noise impacts on those land uses that are generally described in Activity Category C, and which also have interior uses. The application of this type

of noise impact analysis will only be conducted after exhausting all outdoor analysis options. DelDOT will only utilize Activity Category D in situations where no exterior activities will be affected by traffic noise, or where exterior activities are so far removed from the traffic noise as to be unaffected. Noise monitoring devices under this category, will be placed in representative locations that are the most sensitive for the activity purpose. Since noise impact analysis under this category will typically involve unusual situations, DelDOT will request concurrence on a case-by-case basis from the local FHWA Division Office.

Activity Category E –

This activity category applies to exterior locations for developed activities that are generally less sensitive to highway noise, such as; hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in Activity Categories A-D, or F. As with residential land uses, noise monitoring or modeling will occur as close to the roadway as practical.

Activity Category F –

This activity category applies to land uses that are not generally sensitive to highway noise, such as described in NAC Table 1 (Appendix A). Any land use that falls into this category will be deemed to have no need for noise abatement analysis.

Activity Category G –

This activity category applies to all lands that are undeveloped and also do not have any development plans which have been issued a bona-fide building permit by the effective date of public knowledge for the project. Although noise impact mitigation will not be considered for these lands, representative modeled noise levels will be reported in order that local planning officials will be aware of future roadway noise impacts if, and when, they consider permitting future development. The representative noise modeled results will be of an accuracy to allow local planning officials to envision the extent of the noise impacts, by describing the modeled sites in distance relation to the proposed edge of the roadway traveled way.

If undeveloped land has been issued a bona-fide building permit by the date of public knowledge for the project, then the land will be assigned to the appropriate developed land Activity Category. In this situation, the land will be treated and analyzed in the same manner as developed lands in that Category.

VII. ANALYSIS OF NOISE ABATEMENT MEASURES

Whenever traffic noise impacts are identified, DelDOT will consider and evaluate noise abatement for feasibility and reasonableness. This analysis of potential noise abatement measures will consider the overall social, economic, and environmental effects of roadway noise. In its analysis, DelDOT will give primary consideration to exterior areas where frequent human use occurs. In addition to consideration of noise barriers, DelDOT may also consider other noise abatement measures such as: traffic management measures, alteration of roadway horizontal and vertical alignments, or acquisition of real property for buffer zones. In evaluating noise barrier placement, consideration will be given to a reasonable variety of noise barrier dimensions, to determine what height and width of barrier provides the greatest overall value, in both economic and social terms.

Placement of vegetation screens or privacy fences may be considered as an aesthetic type of mitigation factor but will not be considered as noise reduction barrier. In discussions with project impacted property owners, DelDOT officials will explain the opportunity to place vegetation screens or privacy fences, which may be more aesthetically appealing than a noise barrier. It will always be pointed out that such vegetation or fences are not designed to reduce roadway noise and do not qualify as a noise abatement measure under this policy. Property owner sentiment will be obtained during project development process through various public involvement opportunities (public workshop, individual meetings with property owners, community meetings, etc.). Property owner sentiment will be documented through property owner surveys (Appendix B) and always considered in noise abatement measure determination if the noise abatement is feasible, meets the noise reduction design goals, and the cost effectiveness evaluation.

Use of experimental quieter pavements will not be considered as a noise abatement measure unless prior approval is received from the FHWA.

VIII. FEASIBILITY

In making a determination on feasibility of placement of noise barriers, the entire project will be analyzed for an appropriate breakdown of individual and separate common noise environments. This may result in the feasibility being treated on a total project basis for compact projects, or the project may be broken down into several separate individual common noise environments. In general, each common noise environment, neighborhood, or cluster of close geographic land uses within a project will be evaluated on an individual basis, in terms of feasibility of providing a noise barrier.

To determine feasibility of highway traffic noise abatement, the following two conditions shall be considered:

1. For each common noise environment, neighborhood, or defined cluster of land uses, noise abatement will be considered effective for an impacted receptor if it can achieve at least a 5 dB(A) highway traffic noise reduction. DelDOT requires that 75 percent or more of impacted receptors experience a 5 dB(A) or more reduction in highway traffic noise through noise abatement measures.

2. In considering noise barrier design, DelDOT will take into account a variety of factors that may limit the ability to achieve substantial noise reduction. These factors include but are not limited to the following: safety conditions, barrier height, access requirements for driveways and entrances, maintenance requirements, topography, drainage, utilities, and other noise sources in the area. Design engineers will always consider the various site design requirements as set out in the AASHTO guide "*A Policy on Geometric Design of Highways and Streets*", often and commonly referred to as the "Green Book".

IX. REASONABLENESS

DelDOT will evaluate three factors or "tests", when determining whether a noise mitigation measure meets the definition of being reasonable under this policy. Each of the following three tests must be individually met, in order for the construction of a noise barrier to be considered a reasonable expenditure of public funds;

1. Noise Reduction Design Goals

   In order for any noise barrier construction to be considered reasonable under this policy, the barrier must provide at least a 9 dB(A) reduction in noise to at least 25 percent of the impacted receptors. Therefore, if at least 25 percent of the impacted receptors will receive a noise reduction of at least 9 dB(A), this will constitute a benefit that meets one of this noise policy's three reasonability tests.

2. Cost Effectiveness

   In determining whether or not the actual cost of the proposed noise barrier meets the "reasonableness" test for being cost-effective, DelDOT will consider the size in terms of square footage of the barrier that will achieve effective noise abatement. This will typically involve calculating the length times the height of the proposed noise barrier. Often times various lengths and heights of barrier will achieve differing results of noise abatement, which will have to be compared and evaluated against one another.

Additionally, different noise barrier material components should be considered, taking into account the cost, effectiveness, and appearance of the various barrier materials. Depending upon the circumstances of the individual situation, more than one noise barrier configuration may be considered and evaluated for cost-effectiveness. In such circumstances, all relevant analysis of noise wall options will be presented in the noise study report.

For each relevant noise wall configuration that meets the "noise reduction design goal" as stated in test number 1 (one) above, a cost-effective calculation will be made. The calculation will consider the number of benefited receptors, and divide that number into the total cost of the proposed noise barrier.

The cost of proposed noise barrier will be based on the most current and available construction cost figures. DelDOT has determined that the most common noise barrier installation type is comprised of precast concrete panels. Based on historical regional pricing data (Pennsylvania, New Jersey, and Maryland) for precast concrete noise barriers, DelDOT will use a baseline unit cost of $53/SF to be applied to the area of the length and height of the proposed barrier. For instances requiring additional safety measures due to the proposed noise barrier location interfering with clear zones or safety areas, these costs may be included in the analysis of cost reasonableness. For atypical installations which, due to site conditions or project needs, require a different noise barrier material, configuration type, or design, engineering justification shall be included in the noise report outlining the breakdown of costs associated with an alternative noise barrier type. If the cost of the barrier, including any additional right-of-way and utility costs required for construction of the barrier, is calculated to be less than $30,000 per impacted and benefited receptor, then the cost of the noise barrier will be considered to meet the cost reasonableness test. If more than one wall configuration will meet the cost reasonableness test, then each option will be considered and DelDOT will select the one option that appears to be in the best public interest.

Third party funding is not allowed if the noise abatement measure would require the additional funding from the third party to be considered feasible and/or reasonable. Third party funding is acceptable to make functional enhancements, such as absorptive treatment and access doors or aesthetic enhancements, to a noise abatement measure already determined feasible and reasonable.

The cost reasonableness test and baseline unit cost for noise barrier will be reevaluated for inflation, average installation costs, installation types, and other factors, at an interval not to exceed five years.

3. Viewpoints of Property Owners and Residents

DelDOT will consider the viewpoints of the property owners and residents that are either impacted or non-impacted "benefited receptors" (those receptors that will receive a reduction of at least 9 dB(A)) of the proposed noise barrier. The viewpoints of the "benefitted receptors" are quite important as some property owners may perceive that the characteristics of their property may be altered by the placement of the proposed noise abatement. In soliciting receptor opinions regarding the placement of noise barriers, DelDOT will attempt to describe the nature and extent of the barrier, in order that the individuals may best visualize how the barrier will appear to them, once constructed. Depending on the individual circumstance, DelDOT may also include an option for consideration of a vegetation/privacy fence placement, however they are not designed for noise reduction and may provide little to no reduction in noise levels.

In soliciting the viewpoints of identified "benefitted receptors", DelDOT will attempt to contact the owners (and residents, if separate) of each of the properties by mail. The mail package will contain information to allow the owner/resident to be able to develop an informed viewpoint regarding the potential construction of the noise barrier. The mail package will also request a response regarding the desirability of having the noise barrier constructed. A copy of the package will be delivered to any appropriate local government official and to any appropriate community group for informational purposes. The package will provide contact information for DelDOT representatives who can discuss noise barrier issues. A sample transmittal letter and survey are attached as Appendix B.

In order to assure that the viewpoints of the "benefitted receptors" are considered, DelDOT will compute the total number of owners and residents in the "benefitted receptor" category, and will not make a decision on reasonableness unless more than 50 percent of the total have replied in some manner. If a reply rate of more than 50 percent is not initially achieved, additional public involvement efforts will be implemented until a greater than 50 percent response rate is achieved. In considering the receptor viewpoint, only an explicit "no" to noise barrier construction will be considered as opposing the construction of a noise barrier. If more than 50 percent of the total number of responding "benefitting receptors" oppose the construction of the noise barrier, then construction of the barrier will not be considered reasonable. Both property owners and dwellers get a vote. In the case of a residential unit, property owners will receive one vote per unit owned and an additional vote if they reside in the unit, and tenants will receive one vote for the benefited unit they occupy.

The views and opinions of groups and individuals other than "benefitted receptors" will be documented as to opinions on noise barrier construction; however, such opinions will not have an effect on the determination of reasonableness within this policy.

All survey information shall be retained in the project file.

X. DATA COLLECTION

In accordance with 772.13(f), DelDOT will maintain an inventory of all constructed noise barrier abatement measures, which include the following;

1. Type of individual noise abatement structure (earth berm, precast concrete, cast in place concrete, block, brick, metal, wood, fiberglass, combination, transparent plastic, opaque plastic, or other).
2. Height and length of the structure
3. Average insertion loss/noise reduction as reported by the model in the noise analysis
4. Noise Abatement Criteria (NAC) category(s) protected
5. Foundation – ground mounted or on structure
6. Location of the noise barrier structure (County, Route, and Milepost)
7. Year of construction
8. Project Type – typically Type I
9. Features – such as absorptive, reflective, surface texture, etc.
10. Cost – in terms of overall cost and unit cost per square foot

XI. NOISE CONSIDERATION IN NEPA DOCUMENTATION & PROJECT DEVELOPMENT

Before a NEPA environmental document for any Type I project can be approved, DelDOT will identify any noise abatement measures which are feasible and reasonable, and which are likely to be included in the project. Those noise impacts for which no noise abatement measures are feasible and reasonable will also be identified.

Any noise study referenced or contained in the NEPA environmental document that identifies noise impacts, along with feasible and reasonable alternatives, shall be completed to the extent that design information on the alternative(s) under study is available at that point in time. The NEPA document will contain a statement of likelihood, stating that feasibility and reasonableness determinations are

subject to change due to alterations in project design after approval of the environmental document. This statement of likelihood will include the preliminary location and physical description of noise abatement measures determined feasible and reasonable in the preliminary analysis. The statement will also indicate that final determination of abatement measures will occur during the project's final design and the public involvement processes.

For projects that are being undertaken in a design-build format, the preliminary technical noise study will document all considered and proposed noise abatement measures for inclusion in the NEPA document. Final design of design-build noise abatement measures will be based on the preliminary noise abatement design developed in the technical noise analysis. Noise abatement measures will be considered, developed, and constructed in accordance with this Noise Policy, and in conformance with the provisions of federal regulations at 40 CFR1506.5(c) and 23 CFR 636.109.

XII. FEDERAL PARTICIPATION IN NOISE MITIGATION

In accordance with the provisions in federal regulations as set out at 23 CFR Part 772, federal funds will participate in Type I projects when; (1) traffic noise impacts have been identified, and (2) when abatement measures have been determined to be feasible and reasonable in accordance with the provision of this Noise Policy.

DelDOT will proceed with project development with the understanding that the FHWA will not approve the project plans, specifications, and estimates unless appropriate noise impact analysis has been performed, along with incorporation of feasible and reasonable noise abatement. The FHWA, upon approval of this noise policy, has agreed to allow participation of federal funds in all noise abatement
measures that are deemed to be feasible and reasonable within the definition of this Noise Policy pursuant to 772.15(a).

The costs of noise abatement measures will be eligible for Federal-aid participation in the same pro rata share as that for the system on which the project is located. Any of the following measures may be considered to be an eligible item of cost;

1. Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way.

2. Traffic management measures including, but not limited to traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations.

3. Alteration of horizontal or vertical alignments.

4. Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise.

5. Noise insulation of Activity Category D land use facilities listed in Table 1 (Appendix A). (Post-installation maintenance and operational costs for noise insulation would not be eligible for federal-aid funding participation).

XIII. INFORMATION FOR LOCAL OFFICIALS

For all Type I projects, if at the time that the noise study is being prepared there are properties adjacent to the project that are defined as undeveloped, estimates will be made to demonstrate the projected noise levels at various distances from the edge of the nearest travel lane. Based on these estimates, the noise study will describe those land areas that are projected to fall within the various noise levels for all property use activities as described in Table 1 (Appendix A). This information will be provided to local planning officials so that they may utilize this data in approving future property development. The intent of this exercise is to provide the local officials adequate information to hopefully minimize future traffic noise impacts on currently undeveloped lands.

In conjunction with this noise study effort on Type I projects, DelDOT Project Development staff will make arrangements to meet with appropriate local officials to explain the meaning of the noise impact
study, and to explain the DelDOT philosophy on noise compatible planning concepts. Additionally, the DelDOT staff will explain the difference between Type I and Type II projects, and that DelDOT has no Type II program, so that there is no misunderstanding as to DelDOT's future obligations related to noise impacts on currently undeveloped land.

DelDOT staff will notify planning officials in each County of the revised noise policy and offer to present a summary of the DelDOT noise policy at an appropriate venue. Additionally, DelDOT will contact each of the Metropolitan Planning Organizations (MPO's) and make them aware of the availability of DelDOT staff to discuss noise issues at any of their meetings, as appropriate. County and MPO officials will also be advised that the DelDOT Noise Policy is posted on the DelDOT website.

XIV. CONSTRUCTION NOISE

During the various activities in the project development process, including the NEPA process, the project managers will consider all activities that occur on property adjacent to the project. If any of

the activities would fit into Activity Category A in Table 1 (Appendix A), then special noise considerations will be given to all project construction actions. In those circumstances, project managers will meet with representatives of the impacted property and discuss ways in which noise impacts may be mitigated. These actions may include items such as construction time restrictions, temporary noise mitigation features, noise dampening equipment, etc.

In accordance with existing fiscal year Bond Bill epilogue language, or as may be superseded by future updates to the Delaware Code, if road construction activities are being considered for time periods past 9:00 PM, or before 7:00 AM in areas immediately adjacent to a residential neighborhood, then DelDOT representatives will first insure that residents of the neighborhood are notified in a timely manner of the DOT's desire to undertake such work. DelDOT will explain the benefits and costs of the extended work hour activity, along with an explanation of how the extended work activity will be implemented. The explanation will include a description of the proposed work to be conducted, and the proposed use of any equipment that may cause noise, vibration, or odor disruptions to the neighborhood, and an estimate of the time required to complete the project. A sample letter and survey are attached as Appendix C. DelDOT may proceed with its extended hours of work if it does not receive a significant number of objections from the notified residents. Additionally, and pursuant to the provisions of the Delaware Code, DelDOT will offer temporary relocation to any residents who request such relocation.

DelDOT may proceed with its extended hours of work so long as jack hammering or other high noise activities do not impose an excessive nuisance to residents within the designated work zone.

Regardless of the time that construction is underway, if DelDOT determines that the project construction noise will exceed any applicable noise ordinances of the appropriate jurisdiction, DelDOT will ensure that it seeks and receives a waiver from that jurisdiction before commencing work.

XV. EFFECTIVE DATE

This Policy shall become effective 30 days after signature by the Secretary, or if applicable upon compliance with the regulatory process required by the Administrative Procedures Act (29 Del.C. Ch.101.)

APPENDIX A

TABLE 1 TO PART 772-NOISE ABATEMENT CRITERIA

[Hourly A-Weighted Sound Level decibels (dB(A))]

Activity Category	Activity Leq(h)[1]	Evaluation Location	Activity Description
A.....	57	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[2]..... ..	67	Exterior.....	Residential.
C[2]	67	Exterior.....	Active sport 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)
D	52	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,
E[2]	72	Exterior.....	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or
F	....	....	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment,
G	....	....	Undeveloped lands that are not permitted.

[1]The Leq(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

[2]Includes undeveloped lands permitted for this activity category.

APPENDIX B

Sample Viewpoints of Property Owners Letter and Survey

Dear Delaware Resident,

The Delaware Department of Transportation (DelDOT) plans to construct a project to _____ (describe project) at _____ (describe project location; intersection of SR X and SR Y). A noise study has determined that your property or residence qualifies for noise abatement under DelDOT's Transportation Noise Policy. In accordance with that policy, DelDOT is surveying residents and property owners potentially benefited by the proposed noise abatement measure as a result of increased traffic noise associated with the project. This survey provides the opportunity to give your view point on whether or not a noise barrier should be constructed adjacent to the roadway. Your input, along with responses from others impacted in your community, will help DelDOT determine if there is a consensus for construction of noise abatement barriers. Community consensus is one of several criteria used to determine whether or not a noise barrier is a reasonable expenditure of public funds.

_____ (Name of roadway) is projected to have a _____decibel increase in noise on your property once constructed. A noise barrier_____(describe material and structure type: concrete wall, earth berm, etc.), extending _____ (length) feet long, and measuring _____(height) feet tall, and _____(width) feet wide, would provide the benefit of a _____decibel level reduction in projected highway noise. This noise barrier would be a permanent structure maintained by DelDOT.

As an alternative to the proposed noise barrier, DelDOT may provide a vegetation barrier or privacy fence. However, a vegetative barrier/privacy fence is not designed for noise reduction and may provide little to no reduction in noise levels.

Please fill out the attached survey form with your preferences, and return in the self-addressed, stamped envelope provided by _____ (date).

For more information on the DelDOT Highway Noise Abatement Program, see: https://www.deldot.gov/Programs/highway_noise/index.shtml

If you have any additional questions or would like more information, please feel free to contact _____(Name) at _____(Phone Number and email address). Your participation is greatly appreciated.

Sincerely,

_____

DelDOT Project Manager

DELAWARE DEPARTMENT OF TRANSPORTATION – NOISE BARRIER SURVEY

Noise Barrier Survey for _____ (name of community)
along _____(name of roadway)

Project Name _____
Contract No. _____

Project Description: (provide brief description)

Noise Barrier Proposal:
The proposed noise barrier will be located along _____ (describe roadway).
The noise barrier will consist of _____(describe proposed barrier).
The noise barrier will result in a _____decibel decrease in projected traffic noise along your property, from the forecasted _____decibels down to _____decibels.

Q. Would you support the proposed noise barrier along the roadway adjacent to your residence/property?

Yes _____ No _____

If you are opposed to the noise barrier, please explain why.

_____
_____
_____
_____
_____
_____
_____

Name _____
Address _____
Phone Number _____

Your comments and opinions are very important. All information you provide on this form will be carefully reviewed by the Delaware Department of Transportation. Under state law, this survey form is public domain, and if requested, a copy of it must be provided to the public or media. Thank you for your participation and contributions to this important transportation project in Delaware.

PLEASE REMEMBER, ALL SURVEYS NOT RETURNED BY _____
(prescribed date)
WILL NOT BE INCLUDED IN THE TALLY TO DETERMINE COMMUNITY CONSENSUS FOR A NOISE BARRIER.

APPENDIX C

Sample Extended Work Hours Letter and Survey

Dear Delaware Resident,

Delaware Department of Transportation (DelDOT) procedures require that potentially impacted residents have the opportunity to comment whenever DelDOT is contemplating extended time construction work along their street or roadway. Residents immediately adjacent to the proposed work area can inform DelDOT whether or not they believe it would be beneficial to have extended time work performed.

You are receiving this letter and attached survey because _____ (PROJECT) has been selected as a situation that would benefit from construction activities being performed with extended hours between _____ (AM/PM) and _____ (AM/PM). The work is scheduled to begin around _____ (ESTIMATED DATE OF NIGHT WORK), and the construction should last about _____ (DURATION OF NIGHT WORK IN NUMBER OF DAYS, WEEKS, ETC.). DelDOT is proposing this extended work time construction activity for several reasons, including shorter overall construction duration and less impact to the traveling public. Historic data indicates that there is typically a 50% increase in project duration when work is performed during restricted daytime versus extended hours, due to less available hours to perform the work during the day. For example, a project that would normally take about four weeks to complete with extended time work operations, would take about six weeks to complete if limited to work during the typical daytime hours only.

The work on this project will vary and proceed in an orderly manner. The nature of road construction is that it is a moving operation, and the construction activity will not be in front of any one home for the entire duration of the project.

Attached you will find a survey regarding extended time work in your area. DelDOT asks that you please take the time to complete the survey. You may return the survey either by mail, fax, or e-mail to the number or address as set out on the survey form. ANY SURVEY NOT RETURNED BY _____(DATE) WILL BE CONSIDERED AN ACCEPTANCE OF DELDOT'S PERFERRED WORK HOURS OF _____ (AM/PM) TO _____ (AM/PM).

If you have any additional questions or would like more information, please feel free to contact _____ (NAME) at _____ (PHONE NUMBER AND EMAIL ADDRESS).

Thank you in advance for your participation,

_____

DelDOT Project Manager

DELAWARE DEPARTMENT OF TRANSPORTATION – EXTENDED TIME CONSTRUCTION SURVEY

Contract Number:

Project Description:

Project Duration:

1. If constructed utilizing extended hours, the work at this location is expected to take approximately _____ (DURATION TIME) calendar days. This timeframe is dependent upon weather conditions to some extent.

2. If constructed during restricted daytime hours only, the work at this location is expected to take approximately _____ (DURATION TIME) calendar days, also being dependent on weather conditions.

If working extended hours would mean that the construction project would be completed in a shorter amount of time with less traffic impacts, would you prefer extended hour work to occur on this project?

YES_____ NO _____

Comments:

Name:

Address:

Phone Number:

Your Comments and opinions are very important. All information you provide on this form will be carefully reviewed by DelDOT. Under State law this survey form is public domain, and if requested, a copy must be provided to the public or media. Thank you for your participation and contributions to this important transportation project. PLEASE REMEMBER THAT ALL SURVEYS NOT RETURNED BY _____ (DATE) WILL BE CONSIDERED AN ACCEPTANCE OF DELDOT'S PREFERRED WORK HOURS OF _____ AM to _____ PM.

FAX to:

E-Mail to:

Mail to: Delaware Department of Transportation, PO Box 778, Dover, DE 19903-07