FHWA New Noise Regulations

NOISE POLICY REWRITE
NEW NOISE REGULATIONS & GUIDANCE

- July 13, 2010, FHWA published new noise regulations (23 CFR 772)
  - Effective July 13, 2011
- States required to rewrite noise policies to be consistent with new regulations
  - Draft policy due to FHWA in Jan. 2011
WORK IN PROGRESS!

Submitted to FHWA for review and approval on xxxxx

Effective date is July 13, 2011

Final approved version will be posted on DOTD’s web site
MAJOR CHANGES

- Added definitions
- Expanded list of Type I projects
- Priority System required for Type II
- Added Activity Categories
- Changed requirement for acoustical Feasibility
- Changed requirement for Reasonablenessness
  - Optional factors for Reasonablenessness
  - Requires Design Goal for Reasonablenessness
- Requires Inventory of Noise Barriers
- Allows cost averaging
DEFINITIONS

Noteworthy are:

- Benefited Receptor – range 5 dBA - Design Goal
- Noise Reduction Design Goal – range 7-10 dBA
- Substantial Noise Increase – highway traffic noise impact range 5 – 15 dBA
TYPE I PROJECTS

- Highway on new location
- Physical alteration where there is
  - Substantial Horizontal Alteration (halving distance)
  - Substantial Vertical Alteration (exposing line-of-sight)
- Addition of through travel lanes (includes HOV, HOT, Bus lane, truck climbing lane)
TYPE I PROJECTS

- Auxiliary lanes, except for turn lanes
- Addition or relocation of interchange lanes or ramps added to complete existing partial interchange
- Restriping to add through-traffic lane or auxiliary lane
- New or substantial alteration of weigh station, rest stop, ride-share lot or toll plaza
  - (need clarification on how to model this from FHWA)
TYPE I PROJECT

- If a project is Type I then the entire project area as defined in NEPA document is Type I project
  - Example, reconstructing the interstate for miles with interchange work included. If the interchange work is Type I the entire project which includes the reconstruction becomes Type I.
TYPE II PROJECTS

- Noise abatement on existing highway within restrictions
- Optional Program
  - Develop priority system to rank projects
  - Priority system must be approved by FHWA
  - Priority system reevaluated at least every 5 years
  - Required to have statewide outreach program
ACTIVITY CATEGORIES

- Now have Categories A-G
  - Lists many different land uses
  - Separated residences into its own category
  - Divided other categories to account for exterior and interior requirements
  - Listed land uses where noise level not an issue
  - Requires investigation of whether undeveloped land has permitted uses
FEASIBILITY

- Acoustical feasibility: achieve at least 5 dBA reduction at impacted receivers
  - States define the number and basis and FHWA approves
- Other engineering factors:
  - Safety, barrier height, topography, drainage, utilities, access (for maintenance and to properties)
**Reasonableness**

- Minimum 3 Requirements
  - 1. Cost effective
  - 2. Achieve Design Goal
  - 3. Acceptance by benefited receptors

- Other Optional Factors:
  - Require approval from FHWA
  - Date of development, time receivers have been exposed to noise impacts, exposure to higher absolute noise levels, change b/w existing and future build conditions, % of mixed development, use of noise compatible planning by local gov.
  - No single optional factor can be used to determine reasonableness
ABATEMENT MEASURE REPORTING

- Inventory of all constructed noise abatement measures
  - Type
  - Cost (overall and unit cost per sq ft)
  - Average height
  - Length
  - Area
  - Location (State, Parish, City, Route)
  - Year of Construction
  - Average Insertion loss reported by Model
  - NAC categories protected
  - Materials (precast concrete, berm, block, cast in place concrete, brick, metal, wood, fiberglass, combination, plastic (transparent, opaque, other)
  - Features (absorptive, reflective, surface texture)
  - Foundation (ground mounted or on structure)
  - Project type (Type I or II, local or state funded, tollway/turnpike funded, other, unknown)
COST AVERAGING

- Option to Cost Average Noise Abatement among benefited receptors within common noise environment
  - No single common noise environment exceeds 2 times the cost reasonableness criteria and
  - Collectively all common noise environments being averaged do not exceed cost reasonableness criteria
MISCELLANEOUS ITEMS

- Third Party Funding restrictions
  - Limited to aesthetic improvements or functional enhancements on a barrier already determined to be reasonable and feasible
- Specifically addresses design build projects
  - DB must base design of barrier on preliminary design developed in noise study
DECISION POINTS

- Applicability
- Definitions
- Feasibility
- Reasonableness
- Miscellaneous Provisions
APPLICABILITY

Decisions:
- No Type II program
- Language to address earmarked barriers
- Clarifies that the policy does not prohibit security or visual barriers
- Applies to state funded new controlled access facilities
DEFINITIONS

- Define “approach” for impact purposes
  - FHWA requires at least 1 dBA less than FHWA NAC
  - Our current policy defined approach as 1 dBA less than FHWA NAC
  - Value for approach remains the same, 1 dBA, in new policy

- Define “substantial increase” for impact purposes
  - FHWA requires a number in range of 5-15 dBA
  - Our current policy used 10 dBA
  - The definition remains the same, 10 dBA, in new policy
Define Benefited Receptor

- FHWA requires a value in the range of 5 dBA – Design Goal
- Our current policy defined it as a 5 dBA reduction
- The new policy will keep the 5 dBA definition
A COUSTICAL FEASIBILITY

- New Requirements
  + Achieve 5 dBA reductions at impacted receptors
  + States define the number and basis, FHWA approves
- Current Policy
  + Achieve at least 8 dBA reduction at one receptor
- Draft Policy
  + Requires all but end receptors in front row to achieve a 5 dBA reduction
Worksheet for Acoustical Feasibility of the modeled barrier

<table>
<thead>
<tr>
<th>Feasibility Worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project</strong></td>
</tr>
<tr>
<td>ID number</td>
</tr>
<tr>
<td>Route Location</td>
</tr>
<tr>
<td><strong>Barrier</strong></td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Length (feet)</td>
</tr>
<tr>
<td>Height (feet)</td>
</tr>
<tr>
<td><strong>How many receptors immediately adjacent to barrier?</strong></td>
</tr>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Notes:</td>
</tr>
<tr>
<td><strong>How many receptors immediately adjacent to barrier achieve at least a 5dBA reduction in noise?</strong></td>
</tr>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Notes:</td>
</tr>
<tr>
<td><strong>Where are the receptors located that do not achieve at least 5dBA reduction?</strong></td>
</tr>
<tr>
<td>Explain:</td>
</tr>
<tr>
<td><strong>Based on the above, is the barrier feasible?</strong></td>
</tr>
<tr>
<td>Circle Yes or No</td>
</tr>
<tr>
<td>Notes:</td>
</tr>
</tbody>
</table>
REASONABLENESS

Cost Effectiveness (criterion 1)
- New Requirement
  - States determine value, FHWA approves
  - May include actual cost/sq ft, max sq ft/benefited receptor, cost/benefited receptor, or cost/benefited receptor/dBA reduction
  - Re-analyze intervals not to exceed 5 years
- Current Policy
  - $25,000/benefited receptor
- Draft Policy
  - ?????????/benefited receptor
REASONABLENESS

- Design Goal (criterion 2)
  - Requirement
    - State defines number of benefited receptors that achieve a value between 7 and 10 dBA, FHWA approves
  - Current Policy
    - Not a requirement, we optimized the barrier height based on cost and effectiveness & acoustical feasibility
  - Draft Policy
    - Uses our previous acoustical feasibility requirement of achieving an 8 dBA reduction at one receptor
REASONABLENESS

- Viewpoint of Benefited Receptors (criterion 3)
  - New Requirements
    - Solicit viewpoints of all benefited receptors
    - States define number of responses needed and basis, FHWA approves
  - Current Policy
    - Handled through normal public involvement process
Criterion 3 continued... Draft states that:

- Solicit input during NEPA in normal manner to determine if benefitted receptors desire barriers
  - Public Meetings and Hearings
  - Statement of Likelihood in NEPA document
- If likely barriers change during design, re-solicit views of benefitting receptors
  - If majority response are positive then meet criterion 3
    - 50% or more
Viewpoint continued...

- To ascertain desires,
  - Meetings (public, neighborhood, group, etc.)
  - Surveys (in person, phone, letter, electronic, etc.)

- Contact Information
  - tax assessor’s rolls
  - neighborhood associations
  - local government databases
  - Internet sources
  - Other reliable sources

- Non-responsive = Not interested
### Reasonableness During NEPA

<table>
<thead>
<tr>
<th>Reasonableness Worksheet</th>
<th><strong>DURING NEPA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project</strong></td>
<td>ID number</td>
</tr>
<tr>
<td><strong>Barrier</strong></td>
<td>Length</td>
</tr>
<tr>
<td><strong>Criterion 1: Cost</strong></td>
<td>Total Square Feet</td>
</tr>
<tr>
<td><strong>Criterion 2: Design Goal</strong></td>
<td>At least an 8dBA reduction at 1 Receptor?</td>
</tr>
<tr>
<td><strong>Criterion 3: Desires of Benefited Receptors</strong></td>
<td>Event(s) and date(s):</td>
</tr>
<tr>
<td>Public Involvement events showing Likely barrier</td>
<td>Circle: Positive or Negative</td>
</tr>
<tr>
<td>Majority of Benefited Receptors’ viewpoint of barrier</td>
<td></td>
</tr>
<tr>
<td>Reasonableness criteria met?</td>
<td>Criterion 1 (yes or no)</td>
</tr>
</tbody>
</table>

### Reasonableness During Design

<table>
<thead>
<tr>
<th>Reasonableness Worksheet</th>
<th><strong>DURING DESIGN</strong></th>
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<tbody>
<tr>
<td><strong>Project</strong></td>
<td>ID number</td>
</tr>
<tr>
<td><strong>Barrier</strong></td>
<td>Length</td>
</tr>
<tr>
<td><strong>Criterion 1: Cost</strong></td>
<td>Total Square Feet of Barrier</td>
</tr>
<tr>
<td><strong>Criterion 2: Design Goal</strong></td>
<td>At least an 8dBA reduction at 1 receptor?</td>
</tr>
<tr>
<td><strong>Criterion 3: Desires of Benefited Receptors</strong></td>
<td>Queried benefitted receptors?</td>
</tr>
<tr>
<td>How and when were benefitted receptors queried?</td>
<td>Method(s) and date(s):</td>
</tr>
<tr>
<td>Responses Received:</td>
<td>Total number</td>
</tr>
<tr>
<td>Reasonableness criteria met?</td>
<td>Criterion 1 (yes or no)</td>
</tr>
</tbody>
</table>
Optional Reasonableness Factors

- **Current Policy**
  - Had 11 reasonableness factors

- **Draft Policy**
  - List the optional factors
  - Date of Development cannot be used until we have statewide notification
Cost Averaging Noise Abatement
  - Current Policy - Nothing mentioned
  - Draft Policy
    - Allows for Cost Averaging
DECISION POINT

- Abatement – Buffer Zones
  + Current Policy - not included
  + Draft Policy – May be included???
- Mounting Barrier on Bridges
  + Draft Policy
    - Limited to 10 feet, but allows exceptions
      - Exceptions must take into account the extra work and cost associated with mounting extra load onto bridge