



# Highway Traffic Noise Analysis Presentation Interstate 95 S.R. 0095, Section GIR South of Vine Interchange to South of Allegheny Avenue Interchange

## General Information Meetings June 8, 2011 and June 15, 2011





# Format of this Meeting

PRESENTATION – 6:30 pm to 7:00 pm

- Welcome and Project Overview
  - Elaine Elbich, PennDOT
- Summary of Noise Analyses
  - Harvey Knauer, Environmental Acoustics, Inc.
  - Purpose
    - \* Provide an overview and summary of noise analyses
    - \* Provide opportunity for general questions



## Format of this Meeting (cont.)

OPEN HOUSE – 7:00 pm to 8:30 pm

- Provide opportunity for more specific questions
- One on One format



# I-95 GIR Project Limits

- ◆ South of Vine Interchange to South of Allegheny Avenue Interchange



# I-95 Girard Section Sustainable Action Committee Community Workshop

- Design coordination & outreach
- Incorporate waterfront & community plan projects



# History of I-95 Section GIR Noise Analyses



- ◆ Preliminary Engineering Noise Analyses Report dated November 2003 based on noise measurements and analyses conducted from 2001 through 2003
- ◆ Final Design Noise Analyses conducted in 2010 and 2011





# I-95 Section GIR Noise Analyses Process

- ◆ Identify Noise Study Areas (NSAs)
- ◆ Select measurement and analysis sites (receptors, i.e. residences, schools, etc.)
- ◆ Conduct noise measurements to:
  - Verify previous measurements
  - Validate noise model
  - Establish noisiest hour



# I-95 Section GIR

## Noise Analyses Process (cont.)

- ◆ Use FHWA Traffic Noise Model (TNM) to:
  - Predict worst-case existing noise levels
  - Predict future build / no-build worst-case noise levels
  
- ◆ Consider Noise Generated By:
  - Traffic on I-95 Roadways, including Ramps
  - Traffic on Local Roadways
  - Noise radiated and/or reflected by structures





# I-95 Section GIR

## Noise Analyses Process (cont.)

- ◆ Identify receptors that are predicted to be impacted based on:
  - Approaching or exceeding Noise Abatement Criteria (NAC) levels
  - Substantial increase over existing noise levels



# I-95 Section GIR

## Noise Analyses Process (cont.)

- ◆ Determine if consideration of noise abatement is:
  - Warranted (if impacted receptors)
  - Feasible ( $\geq 5$  dBA reduction for majority of impacted receptors and engineering/safety factors)
  - Reasonable (cost  $\leq$  \$50,000 per benefited receptor and other noise reduction goals)



# I-95 Section GIR

## Noise Analyses Process (cont.)

- ◆ Evaluate noise barrier options considering:
  - Ability to block lines-of-sight (i.e. views from residence to trucks)
  - Structural limitations
  - Noise abatement goals
  - Barrier cost-effectiveness
  - Barrier reflection issues



# Factors Involved in Determining Feasibility and Reasonableness of Noise Abatement

For Residential Areas, consideration of noise abatement is warranted if EITHER of the following criteria are met for $L_{eq}(h)$ :	Value <sup>2</sup>	Reference Location in PennDOT Publication No. 24
Absolute Noise Level Approaches or Exceeds	67 dBA <sup>3</sup>	Pages 28 and 29
Some factors considered in evaluating the feasibility and reasonableness of noise barriers include:		
Range of Noise Reduction (Insertion Loss) for Majority of Impacted Residences	7 to 10 dBA	Page 36
Reduce Noise Levels to	Low 60 dBA range or existing levels, if possible	Pages 36 and 37
Minimum Noise Reduction for Barrier to be Considered Feasible <sup>4</sup>	5 dBA for majority of impacted receptors	Page 30
Minimum Noise Reduction for a Barrier to be Considered Reasonable	3 dBA for impacted receptor unit	Page 32
	5 dBA for non-impacted receptor unit	Pages 32 and 33
Some factors considered in evaluating cost-effectiveness of noise barriers include:		
Maximum Barrier Cost per Benefited Residential Dwelling Unit	\$50,000	Page 31
Cost per Square Foot of Barrier Used in Calculations	\$25.00	Page 31



# I-95 Section GIR

## Noise Analyses Process (cont.)

- ◆ Select recommended barriers and develop smooth profiles for tops of barriers
  
- ◆ In upcoming community-specific meetings, obtain public input related to:
  - Views and opinions
  - Desires for a barrier
  - Texture and color of community side of barriers



# Results of I-95 Section GIR Noise Analyses

- ◆ Consideration of noise abatement was warranted in all Noise Study Areas (NSAs)
- ◆ Noise abatement was determined to be feasible for all areas except west of Vine Interchange and along Delaware Avenue
- ◆ Noise abatement was determined to be reasonable for all feasible barriers

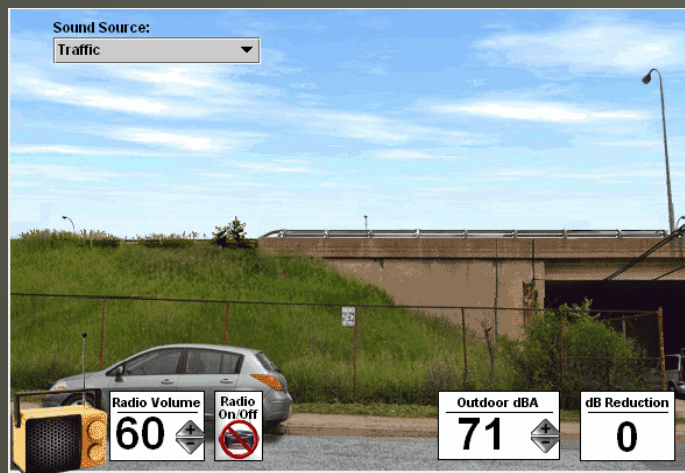


# Results of I-95 Section GIR Noise Analyses (cont.)

- ◆ Over 19,000 feet of noise barriers are recommended
- ◆ Barriers range in height from 12 to 18 feet
- ◆ Average barrier height = 14 feet
- ◆ Average noise reduction = 6 dBA

# What Happens at Each Community-Specific Meeting?

- ◆ Focus on noise related to specific sites within community
- ◆ Explain and demonstrate acoustic concepts using Interactive Sound Information System (ISIS)







# What Happens at Each Community-Specific Meeting? (cont.)

- ◆ Obtain input specific to the community
- ◆ Noise Barrier Survey Forms provided and voting process initiated to determine:
  - Desire for a barrier
  - Texture and color of community side of barrier



# What's Happens After Each Community-Specific Meeting?

- ◆ Completed Noise Barrier Survey Forms due back to PennDOT within four (4) weeks of Community-Specific Meeting
- ◆ PennDOT review of voting results from owners and decision regarding:
  - Whether to build barrier
  - Texture and color of community side of barrier
- ◆ Publish Final Report
- ◆ Incorporate recommended barriers in final construction plans



# General Questions?

- ◆ Please present specific questions to representatives during the Open House.
- ◆ Please fill out a "Comment Sheet" available in the Open House area at this meeting.
- ◆ Please refer to PennDOT Brochure "*Making Sound Decisions About Highway Noise Abatement*" available at this meeting.
- ◆ Please visit the I-95 Project Website at:  
<http://www.95revive.com>



THANK YOU !