495 ExpressLanes
NORTHERN EXTENSION

VDOT
Virginia Department of Transportation

NOISE ANALYSIS PROCESS

NEPA AND PRELIMINARY DESIGN

Identify noise receptors

- Identify Common Noise Environments (CNE) (typically within 500 feet of the highway)
- Identify noise sensitive receptors within each CNE (such as residences, parks and schools)

Perform noise measurements at representative receptors along the corridor

Perform noise modeling

- Develop noise models of existing and future roadway conditions using computer modeling (incorporates roadway design, traffic volumes and speed, receptors, topography, and ground type)
- Validate model with noise measurements data
- Compute existing, no-build and build design-year sound level

Identify impacts (is noise mitigation warranted?)

- Approach or exceed Federal Highway Administration (FHWA) noise abatement criteria (e.g., 67 dB(A) for residences, parks, or schools) or
- 10 decibel increase above existing noise levels

Design and assess mitigation (typically noise walls)

Is the wall feasible?

- Does it work acoustically (do 50% or more of the impacted receptors receive a 5 dB(A) or more noise reduction?
- Can it be constructed (e.g. are there safety, drainage, utilities, maintenance, or other issues)?

Is the wall reasonable?

- Approach or exceed Federal Highway Administration (FHWA) noise abatement criteria (e.g., 67 dB(A) for residences, parks, or schools) or
- 10 decibel increase above existing noise

Present noise study results and preliminary noise wall locations at public hearing(s)

FINAL DESIGN

Finalize noise barrier designs once the project has received design approval

Obtain VDOT Chief Engineer approval

Obtain FHWA concurrence

Solicit public input from benefited property owners and renters (voting process)

Incorporate approved noise wall(s) into the final road design construction plans