Reasonable

**Cost-effectiveness:**
- Maximum 1,600 square feet of noise barrier or less per benefited residence

**Design goal**
- 7 decibels of noise reduction at 1 impacted receptor

**Viewpoints of the benefited receptors**
- Democratic vote of the benefited receptors
- 50% of the benefited respondents must favor construction
- Partial mitigation may occur as a result of the vote
Noise Barriers - Reasonable

Reasonableness = \( \frac{300 \times 12}{3} = \frac{3,600}{3} = 1,200 \text{ SF/BR} < 1,600 \text{ SF/BR} \)

• Therefore, meets reasonableness cost-effective criteria
Noise Barriers – Not Reasonable

Reasonableness = $\frac{300 \times 12}{2} = \frac{3,600}{2} = 1,800\ \text{SF/BR} > 1,600\ \text{SF/BR}$

- Therefore, does not meet reasonableness cost-effective criteria
Noise Barriers

Feasibility

• Does it work acoustically?
  • VDOT requires that 50% or more of the impacted receptors experience 5 dB(A) or more of noise reduction to be feasible;

AND

• Can it be constructed?
  • Factors related to design and construction include; safety, barrier height, topography, drainage, utilities, and maintenance of the abatement measure, maintenance access to adjacent properties, and general access to adjacent properties.