Vibration

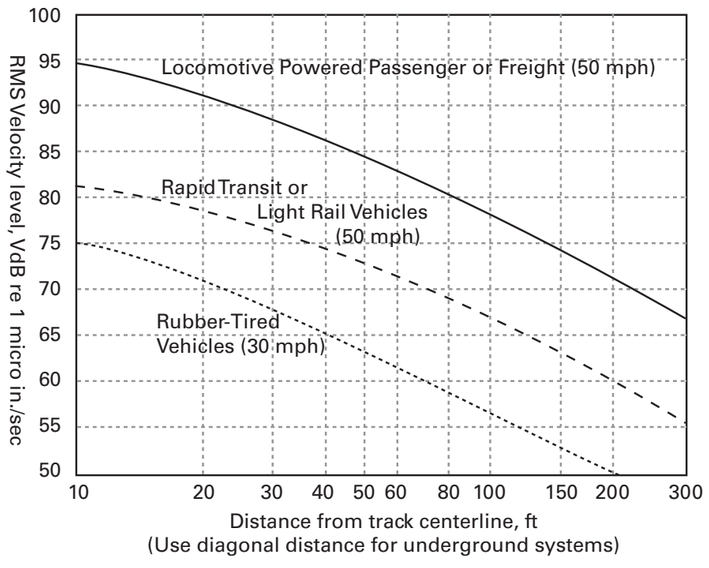
DEIS
(Draft Environmental Impact Statement)

Ground-Borne Vibration Impact Criteria for General Assessment

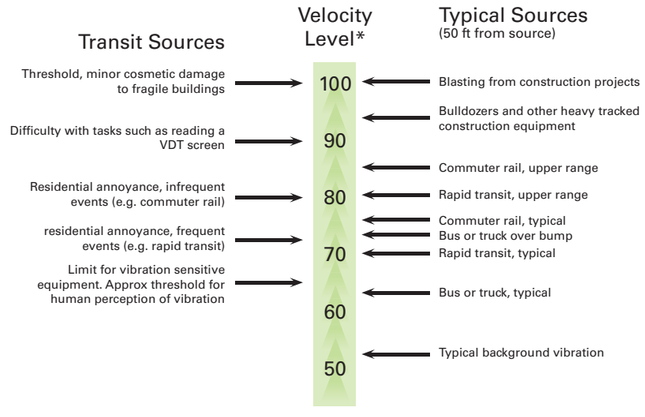
	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)			Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)		
Land Use Category	**Frequent Events[1]**	**Occasional Events[2]**	**Infrequent Events[3]**	**Frequent Events[1]**	**Occasional Events[2]**	**Infrequent Events[3]**
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[4,5]	65 VdB[4,5]	65 VdB[4,5]	N/A[4,5]	N/A[4,5]	N/A[4,5]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: FTA, "Transit Noise and Vibration Impact Assessment" (May 2006) (FTA-VA-90-1103-06), page 8-3. Notes:
1 "Frequent Events" is defines as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2 "Occasional Events" is defines as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
3 "Infrequent Events" is defined as fewer than 30 vibration events per day. This category includes most commuter rail branch lines.
4 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of HVAC systems and stiffened floors.
5 Vibration-sensitive equipment is generally not sensitive to ground-borne noise.

Generalized Ground Surface Vibration Curves

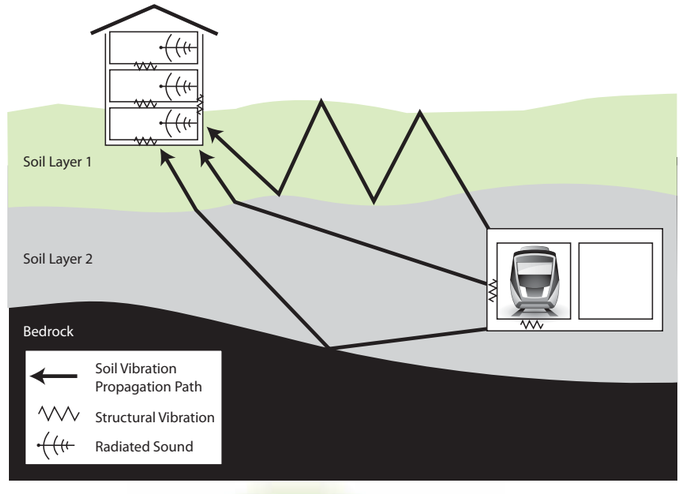


Typical Levels of Ground-Borne Vibration



*RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second

Propagation of Ground-Borne Vibration into Buildings



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