

The Dynamics of the Noise Problem

There are basically two types of noise problems. There is the specific, job related, occupational noise problem created by extremely loud machinery. Then there is the community noise problem where the combined effect of many individual noise sources creates an overall noise level that is unacceptable. In the following pages we will be addressing the community noise problem only.

The main contributors to a community noise problem are transportation sources such as highways, railroads and airports. These sources are the most pervasive and continuing of the noise sources within the community. Of course, at any given site, there may be other noise sources which add to the problem, sources such as jackhammers at a construction site. But in general, and for the purposes of this section, the main concern is with the transportation sources.

The dynamics of a noise problem are based on the relationship between the noise source, the person or place exposed to the noise (hereafter called the receiver) and the path the noise will travel from source to receiver.

The source generates a given amount of noise which travels along the path and arrives at the receiver. The amount of noise will be reduced to some extent as a result of how long that path is or whether there are any barriers along the path. The severity of the impact on the receiver is a function of what type of activity is taking place, whether it is indoors or outdoors, and what type of building it is in if the activity is indoors. Figure 3 contains some basic compatibility guidelines.

The impact of the noise can be altered or mitigated by changing the characteristics of any of the three elements: source, path or receiver. Later on we will look at the various mitigation measures that are possible. Our concern however will be primarily with the receiver and the path. Control of the sources themselves is the specific responsibility of agencies such as the Environmental Protection Agency (EPA) or the Federal Aviation Administration (FAA).

Figure 2
Dynamics of a Noise Problem

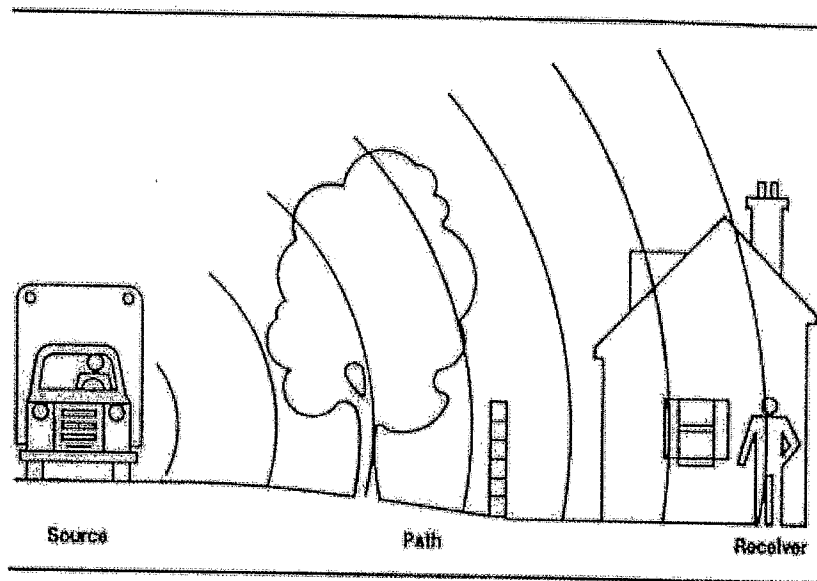


Figure 3
Land Use Compatibility Guidelines

LAND USE CATEGORY	LAND USE INTERPRETATION FOR NEF VALUE*			
	20	30	40	50
Residential — Single Family, Duplex, Mobile Homes				
Residential — Multiple Family, Dormitories, etc.				
Transient Lodging				
School Classrooms, Libraries, Churches				
Hospitals, Nursing Homes				
Auditoriums, Concert Halls, Music Shells				
Sports Arena, Outdoor Spectator Sports				
Playgrounds, Neighborhood Parks				
Golf Courses, Riding Stables, Water Rec., Cemeteries				
Office Buildings, Personal, Business and Professional				
Commercial — Retail, Movie Theaters, Restaurants				
Commercial — Wholesale, Some Retail, Ind., Mfg., Util.				
Manufacturing, Communication (Noise Sensitive)				
Livestock Farming, Animal Breeding				
Agriculture (except Livestock), Mining, Fishing				
Public Right-of-Way				
Extensive Natural Recreation Areas				

*Ldn = NEF Value + 35

Ldn VALUES

	Clearly Acceptable		Normally Unacceptable
	Normally Acceptable		Clearly Unacceptable