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RESEARCH ARTICLE

ANALYSIS OF TRAFFIC NOISE DURING DAY HOURS

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ABSTRACT

Environmental noise is an undesirable by product of industrialization and urbanization. Although it is not noticeable, this unwanted or excessive sound makes a significant damage to human beings and has a hazardous impact on our environment. The noise sources we interact daily, perhaps the most fast-growing and difficult to avoid noise source is the noise emanating from transportation. Highway traffic noise is the major contributor of transportation noise. To measure the impact of noise, nowadays mostly used tool is drawing contour over a map. The objective of this work is to draw the noise profile of Rohtak on different hours of the day (morning, noon & evening). Most of the sound pressure level at different site was within permissible limit. The noise level during evening time was more than morning and noon. This is because of high volume of traffic is experienced in the evening.

1.) INTRODUCTION

Sound is the vibration in the air that reaches our ear. Where noise is unwanted or excessive sound. In developing country like INDIA experience several environmental problems. These environmental problems include air, water, and noise pollution. Out of three, noise pollution is one of a major concern for people residing in urban areas. The factor contributing high noise levels are increase in population and increase in the traffic volume. Traffic noise emerges as a new headache for people residing near highways. Studies have shown that some of the most pervasive sources of noise in our environment today are those associated with transportation. Traffic noise tends to be a dominant noise source in our urban as well as rural environment.

The Noise Control Act of 1972 gives the Federal Environmental Protection Agency (EPA) the authority to establish noise regulations to control major sources of noise, including transportation vehicles and construction equipment. In addition, this legislation requires EPA to issue noise emission standards for motor vehicles used in Interstate commerce (vehicles used to transport commodities across State boundaries) and requires the FHWA Office of Motor Carrier Safety (OMCS) to enforce these noise emission standards.

Rohtak district is one of the 21 districts of Haryana state in Northern India. It is located in the southeast of Haryana and northwest of Delhi, bounded by Jind and Sonipat districts to the north, Jhajjar and Sonipat districts to the east, and Hissar, Sirsa, and Bhiwani districts to the west. Rohtak city is the district headquarters.

A large volume of traffic is experienced by the city because of its importance and road network. So this will give rise to a high traffic noise, which need to be take care of. Illustrations of the instruments used during noise readings and the specific measuring points are also provided.

2.) METHODOLOGY

2.1) MEASURING INSTRUMENT

Sound level meter NL-42:

Noise measurements were performed using an integrated Average Sound Level Meter NL-42 which are designed for sound level measurements according to the IEC standard. It support

diffuse sound field measurements and also meets standard requirements when the supplied windscreen is mounted.

Specifications:

NL-42 IEC 61672-1:2002 Class

Main processing (Main channel)

Instantaneous sound pressure level- L_p

Equivalent continuous sound pressure level Leq

Sound exposure level - LE

Maximum sound pressure level – L_{max}

Minimum sound pressure level – L_{min}

2.2 STUDY AREA:

Rohtak is well connected by Rail and Road network to neighboring cities and states and it is located on the N.H. -10, which is just 70 km away from National Capital, Delhi. NH 71 A is also its lifeline and forms one of the main commercial roads of India on which thousands of heavy vehicles and cars ply daily. The study area is given in Table 1.1

Table 1.1 Name Of Locations

Serial Number	Place	Serial Number	Place
1	Jhajjar Chungi	11	Power House
2	Railway Station	12	MDU Campus
3	Quila Road	13	Delhi By-Pass
4	Shori Market	14	Shiela By-Pass
5	Old Bus stand	15	New Bus Stand
6	Gohana Stand	16	Sukhpura Chowk
7	Palika Bazar	17	Jind By-Pass
8	ITI Road	18	Hisar By-Pass
9	Double Park	19	Huda Complex
10	Medical Mor	20	SkyTech Mall

2.3 DATA COLLECTION

- (1) The noise at the specified location are noted for a duration of fifteen minutes.
- (2) In the specified locations sound level was taken either at the separator or on bank of the road.
- (3) The sound pressure level at a specified location was noted for 3 times during the day (e.g morning, noon, evening).
- (4) Frequency type C is chosen in the sound level meter.

The following measurement was carried out:

C-weighted peak sound level - LCpeak

C-weighted equivalent continuous sound level -LCEq

C-weighted minimum sound level- LCmin

3.) RESULT AND OBSERVATION

3.1) DATA COLLECTED

Serial Number	Place	SOUND LEVEL METER READING(in dB)		
		MORNING	NOON	EVENING
1	Jhajjar Chungi	75	70	80
2	Railway Station	95	90	97
3	Quila Road	74	69	92
4	Shori Market	78	71	86
5	Old Bus Stand	90	85	99
6	Gohana Stand	87	72	91
7	Palika Bazar	77	71	86
8	ITI Road	70	64	75
9	Double Park	75	68	88
10	Medical Mor	82	72	78

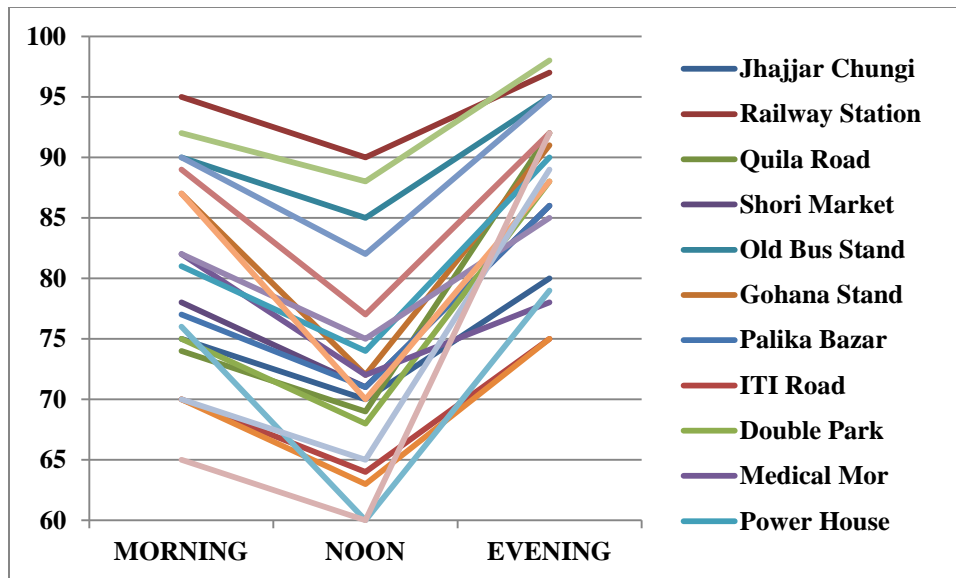


Figure 3.1: Noise During Various Hours of the Day

4.) CONCLUSION

1. Most of the sound pressure level at different site was within permissible limit.
2. Near railway system and Old Bus Stand the measured sound pressure level is same as the permissible limit, so special provision should be taken for attenuation of noise.
3. The noise level during evening time was more than morning and noon. This is because of high volume of traffic is experienced in the evening.

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