TRAFFIC ENGINEERING AND ROAD SAFETY

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Pearson

Traffic Engineering and Road Safety

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in the chapter 18. Further to this chapter, Five Pillars of road safety is demonstrated in the chapter 19. As subject of road safety requires engineering and non-engineering approaches by studying socio-economic fabric of the society, an attempt has been initiated in the chapter 20 to work with the use of "Artificial Intelligence on Road Safety."

Traffic and Noise cannot be separated against each other and continues to draw attention to the traffic engineer, the chapter 21 presents Traffic Noise dealing with the definition, concepts, standards etc. along with various case studies with traffic noise prediction models. Along with this, air polluted due effect of increased traffic that cannot be ignored causing not only harming human health but also responsible for deteriorating environment is also being addressed in the chapter 22. Traffic safety and efficiency during the night time is of paramount importance which has been dealt at great length in Chapter 23 on Street Lighting that includes from the fundamental concepts, to the types of lighting and design consideration for various types road network and intersections.

Currently, traffic engineers are increasingly confronted with the challenges to demonstrate the details of Traffic Impact Assessment during the time of transport proposal being finalized. The preparation of Traffic Impact Statement in the developed countries has been a mandatory. Therefore, the chapter 24 outlines the procedure to carry out TIS along with citing a project including the various parameters used for evaluation for the impact of traffic assessment.

Finally, the book is conclusive with the applications of statistics in Traffic Engineering and Road Safety where a great deal of statistics is often applied in order to make any traffic engineering more scientific and rational. The Chapter 25 discusses the applications of statistics supported with various techniques and methods in a summarized form.

Traffic Engineering and Road Safety Science are the evolving process always exploring the possibilities towards perfection and optimal way of enhancing the efficiency and safety of traffic operation towards exceling sustainable society . From the perspective of the safe and efficient transport network, this book has been designed to address most of the challenging problems of road transportation. Keeping this view, there are a number of chapters written to accomplish the tasks of meeting the challenges of road transport system. While addressing the various issues and problems of traffic and road safety. here's a lowdown of some professionals as mentioned below who lent their support and cooperation by contributing the five chapters.

i. Dr. Arpita Saha, Assistant Professor, VNIT, Nagpur: Chapter on Traffic Signal and Delays at Intersection
ii. Dr. Neelima Chakraborty, Principal Scientist, CRRI, New Delhi: Chapter on Traffic Psychology
iii. Dr. Akhilesh Srivastav, Former GM, NHAI: Chapter on Use of Artificial Intelligence in Road Safety
iv. Prof. Aqeel Ahmed, Director & Head, Civil Engineering Department, Integral University, Lucknow: Chapter on Traffic Noise
v. Dr. S. Velumurgan, Chief Principal Scientist, CRRI, New Delhi: Chapter on Street Lighting

CHAPTER 22

Traffic Noise and Its Impact

22.1 INTRODUCTION

Noise is defined as unwanted or excessive sound, which is an undesirable by-product of our modern way of life. It can be annoying, can interfere with sleep, work or recreation and in extremes, it may cause physical and psychological damage. While noise emanates from many different sources, transportation noise is perhaps the most pervasive and difficult source to avoid in society today.

Urbanization is increasing at a very fast rate in our country. Road length and its conditions are also improving which is encouraging traffic day by day. This has led to traffic congestion on roads and noise pollution. The transportation sector is one of the major contributors to noise in an urban area, accounting for as much as 55% of the total noise on arterials (*Bhattacharya C.C. (2002)*). Road traffic noise is the most irritating pollution which has a major concern on communities living in the vicinity of highway corridors. Several 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.

In older days, vehicular growth was a blessing, but nowadays, it is destroying the environment. Its effect can be seen not only in India but also all over the world. Various countries have evolved norms for traffic noise; very few efforts have been made in this field in India.

22.1.1 Comparison of Noise Standards for Various Categories of Zones in India (MoEF Notification)

The noise standards adopted by the Government of India are in tune with the norms suggested by World Health Organization (WHO). Noise norms with respect to various categories of areas/zones as per *Ministry of Environment and Forest (MoEF) Notification (2000)* are presented in **Table 22.1.**