

EXECUTIVE SUMMARY

PROBLEM STATEMENT: Pakistan railways in past few years have faced many accidents that resulted in precious life and infrastructure losses, consequently causing losses worth millions of rupees. The primary goal for this project is to suggest measures for safety against failures brought on by faults in the railway track in order to prevent accidents, injuries and other disastrous outcomes.

BACKGROUND INFORMATION: Accordingly this study was under taken to achieve the desired objectives i.e. surveys for identification of faults and track dimensions. Through physical survey Global Navigation Satellite System was used to input the precise locations of these faults and with the help of extracted data from Global Navigation Satellite System, a map on Geographic Information System was prepared. This also helped about locations of the railway boundaries and the encroached area. This study resulted in aerial view of the railway track using AutoCAD® software.

METHODOLOGY: The brief methodology was adopted, started with collection of data on existing track by surveying on targeted area and through the railway manual provided by Pakistan Railways, adequacy of existing track was checked and analyzed on the basis of axle load and rail's design life. With the help of the data provided and gathered, track was analyzed manually for load carrying capacity by using classic approach and by using KENTRACK® software, the new section was also proposed.

CONCLUSION: Through the study and research on the project it has been concluded that instead of using partially wooden and partially concrete sleepers, only pre-stressed concrete sleepers must be provided to increase the design life of rail section. Poor infrastructure due to lack of maintenance, growing share on road infrastructure than on railways are some of the major reasons why the railway of Pakistan have not been on track in the past few years.

RECOMMENDATIONS: The study recommended that Pakistan's railway authorities must lookout for maintenance of the tracks. Because maintenance is the key to keep the system functional. Usage of the new proposed section that gives better design life is recommended because it is more sustainable yet economical for the country. Track maintenance record and fault occurrence should be mapped in GIS environment so that the recurring defects can be analyzed for better approach in future.