

## PREFACE

To fix the traffic problems in the western part of Pune and ease the congestion at several busy intersections, including Chandani Chowk at NH 4B and NDA Pashan Road and Nal Stop (Abhinav Chowk) at Poud Road and Law College Road. Near Bal Bharati and Symbiosis on Senapati Bapat Road, the Pune Municipal Corporation has suggested building a road tunnel to connect Poud Road and Vital chowk, as well as enhancing other nearby links. The slope forces drivers to take a lengthy diversion in order to reach their destinations. A new road link must be developed, with the construction of a tunnel being given priority, in order to avoid such hill blockage along the proposed corridor and to enhance industries, educational institutions, and Mumbai-bound Road uses. For this various analysis are done like Geotech analysis were based on the borehole samples and the road connecting Pashan Panchawati and Kothrud is proposed to have a tunnel built along it. The decision was made to conduct a geotechnical investigation as part of the overall scope to determine the foundation design criteria.

Drones can capture a wide range of data, including high-resolution aerial imagery, Ortho mosaics (georeferenced aerial maps), 3D models, thermal imagery, LiDAR (Light Detection and Ranging) data, and multispectral or hyperspectral imagery. The specific sensors and cameras used depend on the purpose of the survey. With the help of the point cloud data the DTM and DSM is generated and also with the help of DTM contour map is generated for further analysing. To capture the traffic likely to use the new corridor, classified turning movement counts and origin-destination (OD) surveys were carried out at eight locations. The eight locations include Pune University intersection, S.B Road intersection, Vitthal Tukaram Bhosale chowk (vetal baba chowk), Nal-stop (including SNDDT), Vanaz Intersection (kinara Hotel interaction), Chandani Chowk (Kothrud arm), Pashan Chowk, Kinara Hotel. The traffic volume surveys were conducted. Peak hour traffic volumes for each junction were obtained from the survey data. Apart from that different parameters are taken for geospatial analysis like rainfall data which is generated with the help of google earth engine. The Chirps data is used for the year 2022 , the Slope data is generated with the help of ArcGis pro using SRTM 30m DEM data, the random forest algorithm is used for LULC map generation with the help of the google earth engine, soil map is taken from the from the NBSS&LUP (National Bureau of soil survey and land use planning, with the help of RUSLE model the soil loss map is generated and lastly the drainage density map is generated with the help of ArcGis pro using SRTM 30m DEM data. With the help of all the parameters the AHP model is generated for identifying the Actual site suitable for constructing a tunnel.