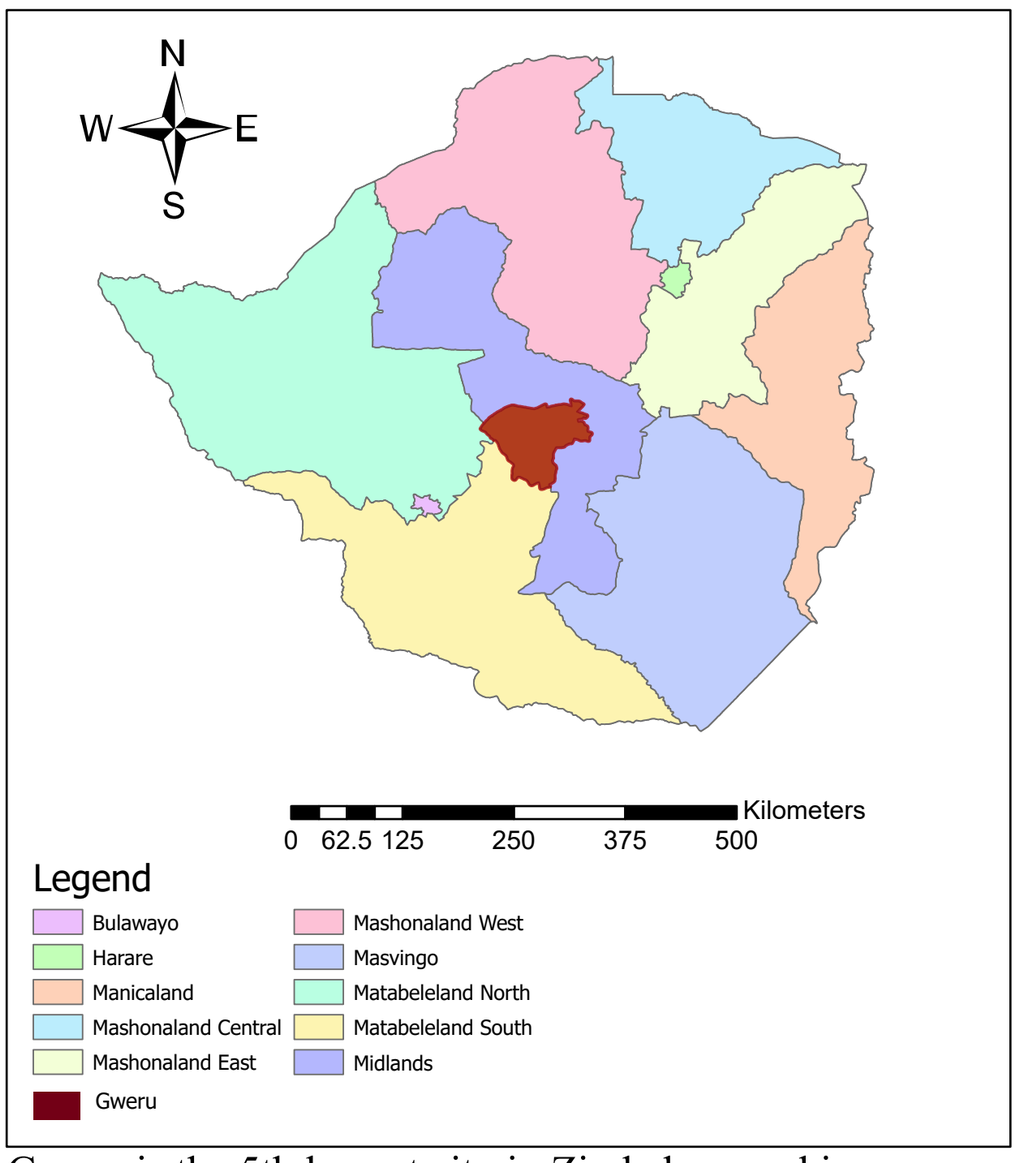
ANALYZING THE PERMEASBILITY OF GWERU TOWN : A FOCUS ON THE TRANSPORTATION NETWORKS
CASE STUDY : GWERU TOWN, ZIMBABWE

1.0 INTRODUCTION

The permeability of a city plays a crucial role for emergency preparedness and response. During emergencies or natural disasters, quick and efficient movement of emergency services and evacuation of residents is of utmost importance. Understanding the permeability of the transport network helps identify potential evacuation routes and plan for emergency response infrastructure and services. This poster presents an analysis of the transportation networks within Gweru.

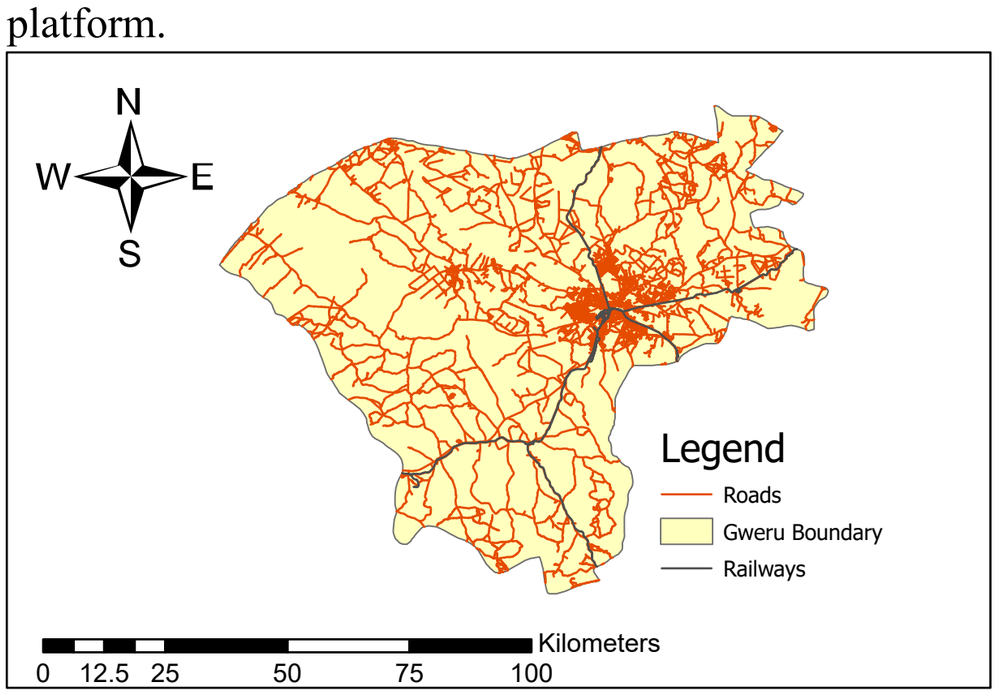
2.0 STUDY AREA



Gweru is the 5th largest city in Zimbabwe and is situated in Midlands Province to the central of Zimbabwe. The study area was victim to floods during the first month of the year 2021 where incessant rains affected a number of the study area's low lying suburbs. This resulted in extensive damage to furniture, destroyed homes, making some Zimbabweans homeless and loss of lives for some of the residents.

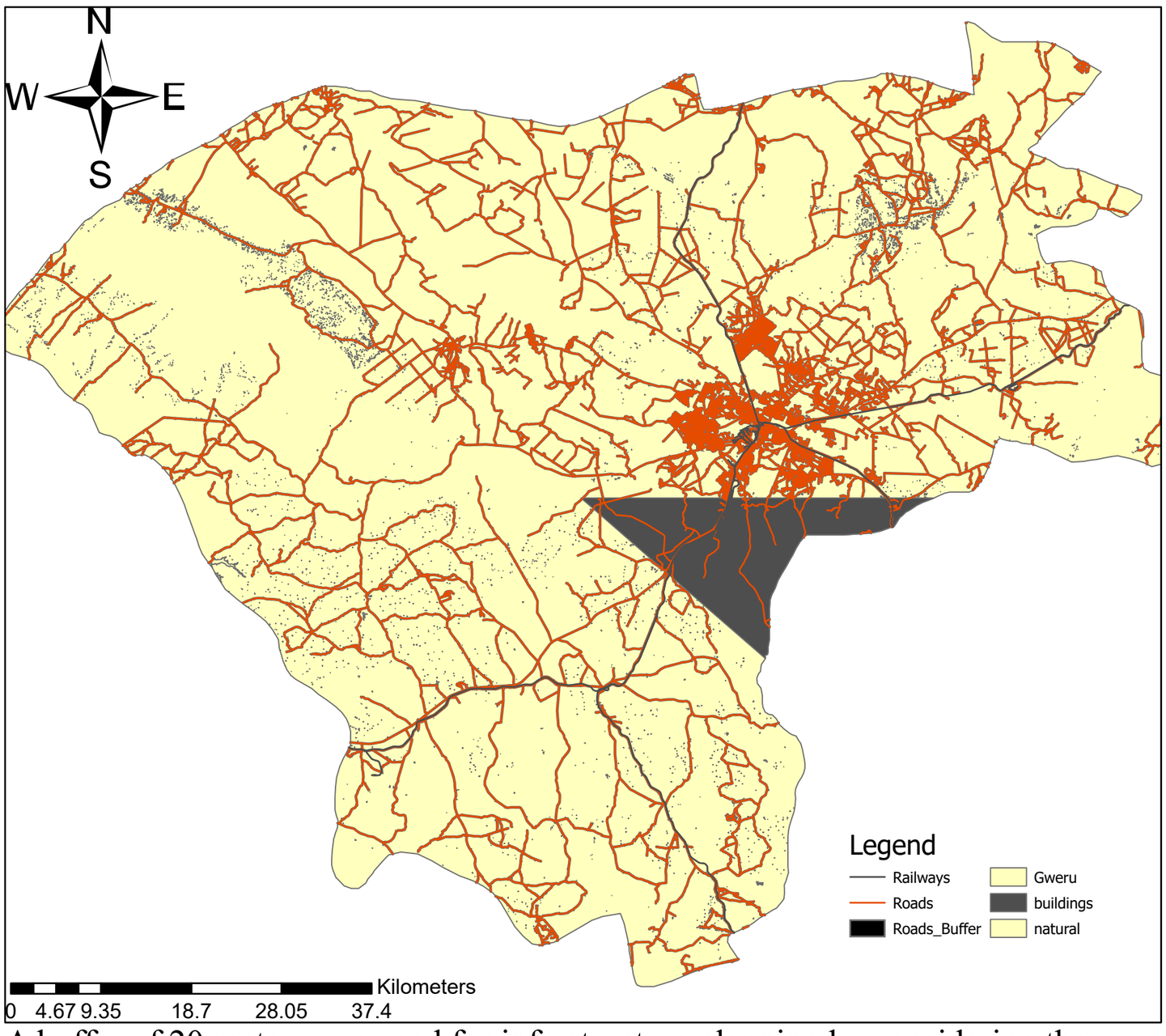
3.0 STUDY FOCUS

The study focused on the transportation networks and at analyzing the permeability of Gweru City. To conduct this analysis spatial data sources were utilized including road network data. Data was obtained from reliable sources namely Google Earth and integrated into a GIS platform.



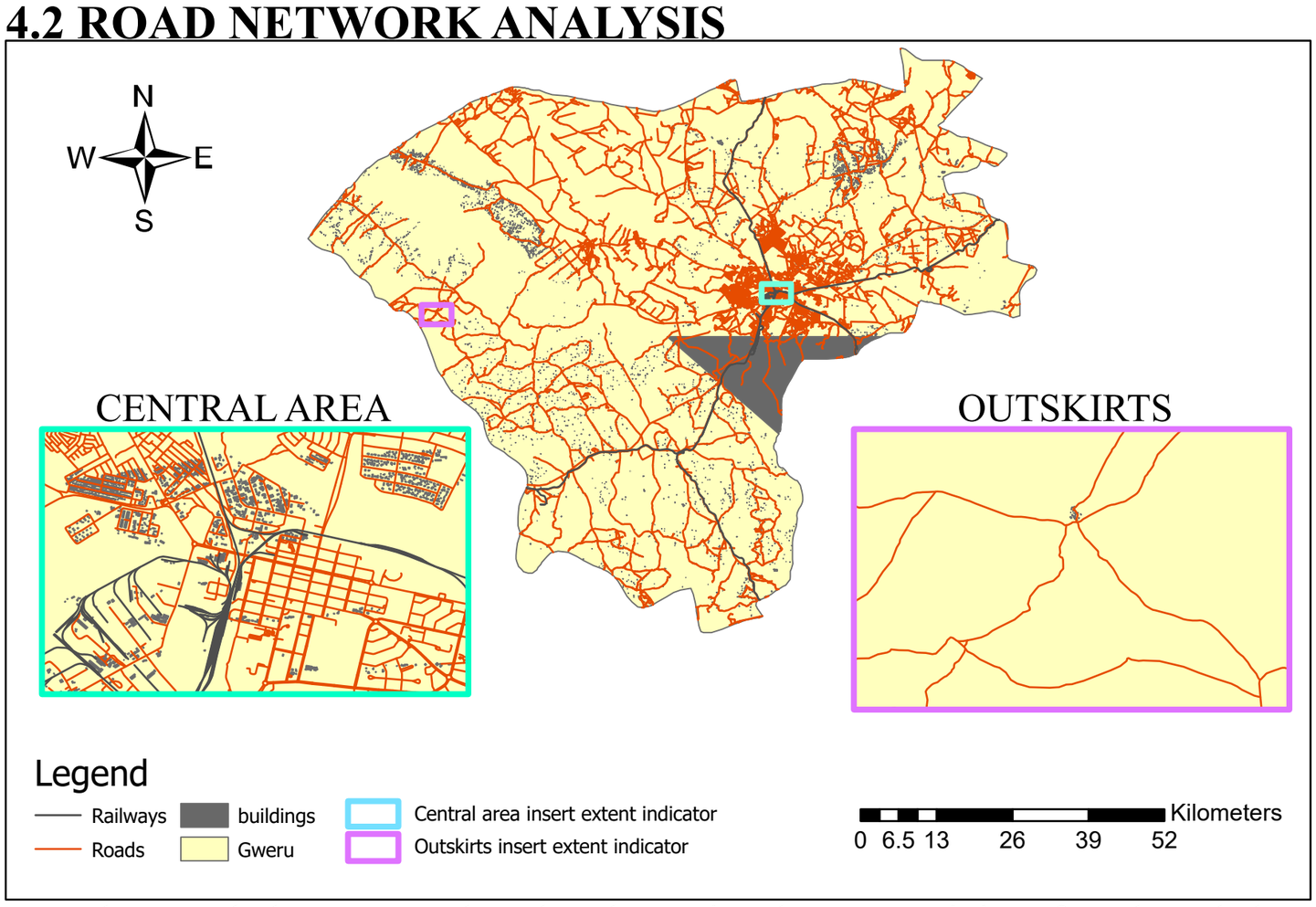
4.0 STUDY OUTCOME

4.1 ROAD NETWORK BUFFER



A buffer of 20 meters was used for infrastructure planning by considering the spatial requirements of roads. By creating buffers around existing roads, it was possible to identify potential areas for road expansion. The study found that most of the roads have potential for road expansion particularly in the outskirts.

4.2 ROAD NETWORK ANALYSIS



The road network data was analyzed to determine the connectivity of roads and also to determine the density of roads within Gweru. The more the connectivity and density, the more the permeability of Gweru. The analysis revealed that the road network density is higher in the central areas of Gweru town compared to the outskirts, this indicates better connectivity in the central region of Gweru. This indicated the need for responsible authority to increase road network density in the outskirts

5.0 CONCLUSION

By analyzing the transportation networks of Gweru, this provided insights into the permeability challenges faced by residents. The findings and recommendations can guide urban planners and local authorities in making informed decisions to enhance the transportation infrastructure and improve overall permeability within Gweru.