

ABSTRACT

Magadi Road is a class C58 road that links Ongata Rongai to Nairobi. Ongata Rongai is a big town whereby many people working in Nairobi live. Due to the increasing population in the area, many people use Magadi Road on a frequent basis hence generating high volumes of traffic on the road. The research study thus seeks to assess the causes of traffic congestion along Magadi Road (from Bomas to Ongata Rongai). The capacity and level of service of the road were to be analyzed to assess the capability of the road to handle the increasing traffic. Various traffic flow parameters were thus studied to determine the functionality of the road such as traffic volume, flow and vehicle speeds. This necessitated the need for data collection at various checkpoints along the road. The checkpoints identified for study were Multimedia, GEMS Cambridge and Brookhouse checkpoints. Traffic volume counts were conducted using the manual method while speed counts were conducted using the moving observer method. Hourly and sub-hourly volumes were thus able to be obtained. Peak volumes were able to be identified using the sub-hourly graphs with the peak periods of traffic, during different times of the day, noted. The directional distribution of traffic between the two lanes was established and the traffic composition of the traffic stream studied. Traffic bottlenecks causing localized disruption of flow were also studied with the places adversely affected noted. Recurrent traffic bottlenecks were observed to mostly occur at Brookhouse Area, Petrocity, Maasai Lodge, Maasai Mall, Tuskys Supermarket and Kware Market. The various causes of the traffic bottlenecks were identified with possible long-term and short-term remedies recommended. The main cause of traffic congestion along Magadi Road was found to be the inadequate capacity of the road stemming from the road being only a two-lane single carriageway. This was evident from the calculation of the level of service of the road which was analyzed and identified to be Level of Service E.