

ABSTRACT

Potholes are considered as depression on a road surface. Potholes are formed due to various factors some of the major factors that contribute to the formation of the potholes are fatigue or cyclic loading of traffic, poor Asphalt mix, puddling of water on the surface due to poor drainage, and weakened subgrade due to penetration of groundwater. Potholes result in the combustion of more fuel due to traffic congestion. This goes all the way to loss of foreign exchange i.e. the more fuel we consume the more we will import with the foreign exchange (dollars) that we do not have much due to the loans of IMF that is why they are considered as a hindrance in countries economic growth.

This final year project is an experimental study that investigates and identifies different materials other than asphalt and bitumen for repairing potholes. For this purpose, we have repaired the potholes on the city's thoroughfares with four different mixes of surfacing materials. The first mix comprises bitumen and asphalt with aggregate. This is the control mix that will be used as a baseline for the comparison with the other mixes. The second mix is comprised of ordinary Portland cement (OPC) with aggregate. The third mix is comprised of OPC with aggregate along with CaCl_2 as an admixture. The fourth and last mix is comprised of OPC with aggregate along with washing soda (Na_2CO_3) as an admixture. All the mixes were tested for performances in a controlled environment of lab. Compression test have been performed on all four mixes of materials. Their compressive strengths were also compared with the control mix to achieve the result.

Also, the method by which all potholes are repaired is the throw and go method. This method is selected because this method is quick and easy and do not hinder the traffic flow during the repair activity since all the repair work was conducted on an operational road with significant traffic flow, time is the most important factor hence this method is used. In this method, the mix is dumped into depression of the pothole and compaction is

done. The primary compaction is done with portable semi-automated compactor and the secondary compactions is done by the vehicular traffic itself.

Based on the results, several recommendations are made in order to use substitute material for patching a pothole other than a conventional mix of asphalt and bitumen.