Self Cleaning and Maintaining Of Roads

Tej Shah¹ Snehal Afiniwala²

¹,²Sigma Institute of Technology & Enng. Polytechnic, Vadodara, India

Abstract— Nowadays, it should be necessary to cleaning and maintaining the roads by advanced techniques. By the self-cleaning process of the roads, it makes roads clean automatically and becomes economically also. This technique maintaining the road pavements also. In future, lots of highways will be constructing in India. In India temperature changes rapidly which causes cracks to roads leading to failure of road. These problems are solved out by following system. Accidents were mainly occurring on the roads, due to slippery or all that. By that many people get died or injured badly. By this maintenance of lower part of vehicle was also reduced with the reduced maintenance of road. It becomes economically as instead of paying to sweepers and road cleaning machineries, it will be cleaned automatically.

Keywords: Automatic Cleaning, Round Studs, Economical Cleaning, Reduces Maintenance of Roads and Vehicles

I. INTRODUCTION

In India there are many highways, the state roads and district roads are made a good appearance of nation. But by the wastage materials on road: It getting down the appearance of it. Which was spoiled the beauty of highways. These was not only effects bad to human health but also affects the environment. Sometimes, accidents were occurring due to this type of roads as by slippery surface or else. In India temperature varies with the different time span and it affects the road pavements: High temperature causes the cracks in roads. The vehicular maintenance was also increased due to vehicle drives on dirty road surface.

II. OBJECTIVES

1) To decrease the dust nuisance from the road surface.
2) To maintain clean roads, free from wastages material.
3) To increase the durability of roads.
4) To reduced the maintenance of roads.
5) To reduced the maintenance of vehicles.
6) To clean the roads economically by self – cleaning instead of sweepers and road cleaning machines.
7) To cleaning the roads automatically.
8) To maintain beauty of roads and highways.
9) To decrease the death – rate by minimizing the road accidents.
10) To reduced the development of cracks on the roads due to temperature changing.

III. PROBLEMATIC AREAS

1) Accidents due to slip of vehicle by dust on road.
2) Failure of the roads due to temperature changing.
3) Maintenance of the roads.
4) Vehicular maintenance due to dusty roads.
5) Non-economic cleaning of roads by sweepers and road cleaning machines.
6) Roads remains dirty.

IV. METHODOLOGY

In advance cleaning and treatment of road pavement, First of all we collect the rain water in underground water collecting tank. So that the rain water which was only runoff and flows in the drainage was used in a proper work.

A main pipe set along the camber of the road which was directly connected to a underground water storage tank. Then connect the sub-main pipes to all studs with main pipe. A high intensity water pressure release by the pressure with the radium plates all sides which wash the road with water pressure and makes road clean.

Water flows from the studs it drain off to the drainage and collected into the filter chamber which is use after the filter process. In filter chamber we use the natural filter, which consists of coarse aggregates and fine aggregates. Then we reuse the filtered clean water.

V. PROCESS LAYOUT

Fig. 1: Raining On the Road

Fig. 2: Water Collecting In Underground Tank

Fig. 3: Water Goes To Studs from Tank
VI. DESIGN OF ROUND STUD

- It is round in shape.
- It has slope.
- It has upper diameter small and lower diameter large.
- It has 6 nozzles.
- In its thickness, nozzles fixed in lower part and radium is upper part.

VII. ADVANTAGES

- Cleaning of the road makes automatically.
- It becomes costly at a construction but as a time goes on it becomes economical cleaning gradually.
- Temperature of the road is maintained.
- Cracks on the roads are avoided.
- Life of the road can be increased.
- It reduce the average rate of accidents by road wastage.
- Maintenance of the road was reduced.
- It reduce the vehicle maintenance by remove the dust and junk which affect the lower part of vehicles.
- Dust from the road is cleaned.
- Aesthetic of the road is increased.
- Remove the toxic and waste material from roads.
- It also helps in MAKE INDIA CLEAN and be part of SWACHA BHARAT ABHIYAN.
- It is a green project.

VIII. DISADVANTAGES

- Construction cost of road is increased.
- There may be danger if the heavy vehicles more than maximum design load are passed over it.
- Periodically maintenance must be required.

IX. CONCLUSION

The above paper gives the solutions for the problems of road cleaning, road accidents. It reduced maintainance for roads as well as for vehicles. This advanced cleaning technique makes economical.

REFERENCES