ROAD SAFETY USING ROLLING BARRIER SYSTEM

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Abstract

In India, the transportation system is expanded fleetly. In India, the Government and Ministry of Road Transport and Highway is looking for the rearmost ways for the safety of the roads and to reduce the accidents. Rolling Barriers consists of nonstop pipe with urethane rings constructed by the Korean company. The study of Rolling Barriers is carried out to estimate the effectiveness of RB (Rolling Barrier) and to understand the characteristics of crash bumper and to estimate the needed strength of Barriers. In lakhs accidents are recorded in India, leading1.5 lakhs deaths. The Rolling Barriers are veritably useful to reduce the accidents in future. These Barriers are used in twisted roads, hilly areas, on roadways etc. The total study of Rolling Barriers Systems is developed in this design

Keywords: -*Rolling Barrier, KSI global, Highway Safety, Accidents, Government.*

1. INRODUCTION:

Trace safety refers to the styles and measures used to help road druggies from being killed or seriously injured road accident are one of the leading causes of death. Accident occurs due not following business rules indecorous road construction, clash of vehicles, driving beyond speed limit similar accidents beget unforeseen death or injuries Currently transportation sector in India enhancing the services fleetly. Every time roughly1.5 lakhs peoples dies due to road accidents. Moment, India is one of the loftiest countries which growing fleetly by road networks, transportation systems etc. But in road networks, the impact of road accidents on road safety is veritably major problem currently. Road accidents causes major injuries, damage to vehicles, loss of life of people etc. Road safety is veritably big issue at public position. Road accidents are increased by 10 in 2019 as compared to the 2018. To minimize the road accidents, Rolling Barrier System is recently conception constructed with structure consists of urethane rings by Korean company. These rolling Barriers are used in hilly areas, twisted roads etc. When the vehicles hit the Barriers, rolling Barriers reduce the speed of vehicles and help it from accident. Breakers absorb the shock energy, when vehicle collapse on Barriers and shock energy converted into rotational energy.

2. LITERATURE REVIVE:

1. **G.Udayakumar** In his research paper he suggested idea of flexible median separator with use of polymer material for reducing the threat position of accidents on the median separator on probing on the content he suggested a new flexible hedge he also used ANsyy engineering simulation software he suggested that the use

of PVC barrier rather of Rcc hedge he worked on parameter like inflexibility collision input reduction cost effective.

2. **Guido Bonin** has suggested the use of road safety Barriers in his paper he suggested the use of road safety Barriers with featherlight concrete rudiments, by replacing conventional concrete with short rudiments featherlight concrete in his paper he distributed types of accidents. He suggested that the rolling Barriers is only the result to reduce road accidents on the thruway
3. In his paper suggested the use of rolling Barriers rather of the conventional Barrierssystem.in the time 2015 there was2.5 increase in total road accidents and3.2 accidents on the trace, in this paper he estimated the property of rolling Barriers like crash bumper and correction of the vehicle running direction. The said in his paper that the new idea is replacing the conventional Barriers with rolling Barriers
4. In this paper the use of rolling barrier with Indian perspective has been bandied he said that in 2016 4, 80,652 accidents took place deaths caused he suggested that soon the developing countries like India need to not only grow in frugality but also concentrate on the life safety he suggested that RB will guard the life of humanity as the perpetration other countries like having from their result.

3. METHODOLOGY

- Collect information regarding barriers used on road
- Understanding specialized demand of barriers
- Familiar with rolling barrier, its operation, advantages and disadvantages
- Understanding design of the rolling barrier.
- Selection of Project Site and acquiring details regarding design point.
- Check of design point (NH trace)
- Designing the layout for Highway safety Rolling barrier using KSI Method
- Testing and costing of overall project
- Result
- Conclusion
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4.ROLLING BARRIER:

The conception of rolling Barriers is, a structure equipped with nonstop pipes covered with urethane rings. Its general point resembles an erected abacus. As the rolling Barriers activates the rolling disunion when vehicles hit the Barriers, the rolling Barriers reduces inflexibility of business accidents. There has a rolling box which is attested with steel frame. The rolling box can rotate when it'll hit by business. It’s made of special chemical emulsion like hard rubber which is able to absorb the impact of the vehicle. In concrete or steel barrier there target to save the life of the humans but the vehicle situation would be worst and string Barriers try to reduce the impact of the vehicles. Eventually these three types of Barriers fail to achieve its target and human lost his life

Fig: - Rolling barrier

4.1. SITE SELECTION:

NH 160 Road Survey of selection point is done by the data available by NH 160 depending on that base a small section of curve path is been named near "mhade wadgaon" selected as a design point for designing Rolling barrier having speed limit 60kmph. National Highway 160, generally relate as NH160 is a public trace in India. It's spur road of National Highway 60. NH-160 traverses the state of Maharashtra and Karnataka in India. North end of NH160 is thane and south end is Sankeshwar. Route followed by NH 160 is as follow. Thane-Nashik-Sinnar-Ahmednagar-Daund-Kurkunbh-Baramati-Phaltan-Dahiwadi-Mayani-Vita-Tasgaon-Miraj-Karnataka border. Length share by Maharashtra is440.20 KM and Karnataka is59.60 KM. total length of the NH 160 is 680KM.

Vehicle movement on the NH 160 were very high and frequently all sort of vehicles pass through so many accidents do occur. According to locals in last six there was three accidents occur which was major safety problem on NH160 the place is more curve therefore using roller barrier will reduce the accident rate.

4..2.DESIGN:

Design of the rolling barrier is handed by the South Korean company "KSI". In this design all confines are in mm. Then given the name of roller is A. The total periphery of the roller is 370m and the rounded stainless steels periphery is 246 mm. the distance between one post to another post below the soil is 1400 mm. A span's distance is 4200 mm. one barrier to another barrier center to center distance is 700 mm. the perpendicular distance from ground position (GL) to further is 1200 mm and the height of upper side is 1000 mm. There has inner post, sub post, w rail style steel frame, shock absorber barrier, post cap etc.

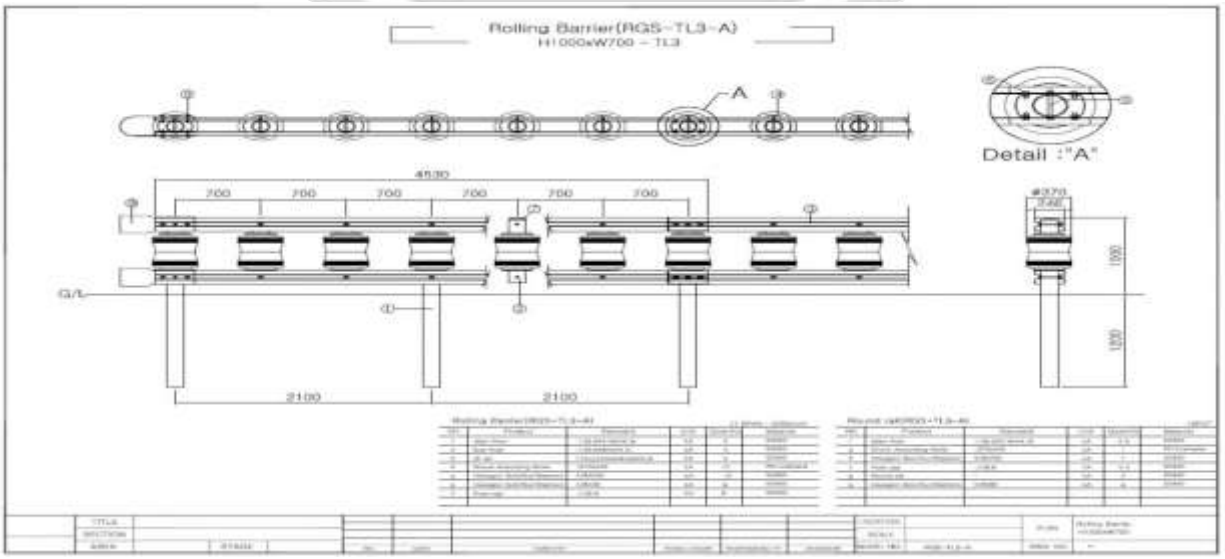

fig: - showing detail design of the rolling barrier as per KSI

Performance test has been carried out by KSI global to compare normal and RB to measure the degree of damage communicated to the barrier during a vehicle impact. of the crash test (test 1). It was observed that the conventional walls endured more damage in comparison to RB. In an analogous crash test (test 2) a comparison is done between passenger auto and heavy vehicle impact to RB, as shown in figure. It was seen that impact of passenger auto delivered no damage to the RB, while slight damage is recorded in case of heavy vehicle.

SB4 CRASH TEST

SB5 CRASH TEST

5. RESULTS

In the sphere of material advancements in the last many decades we've developed instigative materials in engineering wisdom. For accoutrements election or fabrication of RB and bring factors will play a significant role. **Materials**: While opting material for RB we need to see the properties needed in the installed component.one of the most important property in this regard is adaptability and shock absorbing capacity, as this is the primary point of the RB in absorbing the impact Energy communicated by the decelerating vehicle. Crash softening property plays an important part in fulfilling the main purpose of the RB. Another property which can add to the Functionality of the RB is thermal resistance, as large quantum of heat is generated during the impact event. Using accoutrements that are thermal insulators will insure the proper working of the RB. **Cost optimization**: Cost is another factor to decide the material of RB, as large number of breakers is to be installed at the side and the middle of the road. **Implementation of RB**, the effective perpetration of the RB will feed multiple objects as bandied over, still RB can be applied resourcefully at following sites National Roadways and major highways bear its competent use. Other accident-prone spots like in twisted road sections, U turns etc. Gradients and pitches in the civic or state or public road arteries Inclines in parking lots and garages.

6. CONCLUSION:

Accidents are the errors of humans while using motor vehicles and also nature creates problems like rain causing slippery roads. • Eventually life is more precious than vehicles but when it comes to rolling barrier system operation, it saves life and also prevents maximum damage to the vehicles. • Rolling barrier won't only reduce the impact of collision but also help in turning to the factual path, by converting impact energy into rotational energy.

7.REFERANCES

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