

Kamrul's L Yard System: A Quick Solution of Traffic Congestion

Kamrul Hasan

Abstract— L yard is a system through which vehicles change their direction of movement. Through it the vehicles turn to opposite direction. L yard is built on roads. Following are the fundamental properties of L yards: i) L yard must have no barrier between straight running vehicles and turning vehicles in the entrance side. It must have one or more barriers between straight running vehicles and turned vehicles in the exit side. ii) The space between the circular path travelled by vehicles during turning and its centre will be free from any obstacle. iii) Shape of the L yard may be of any type shown in figure 1 and 2 or a minor changed keeping its fundamental properties unchanged. Besides road in the L yard portion may be wider than other portion or not. If it is wider, extra widening will take place in one or both sides of the road. Following things should be done to solve the problem of Traffic Congestion: i) Island or median or road divider should be continued in one direction in the junction. ii) When two runways (lane) coincide with each other, they will be near about parallel instead of right angle. iii) Any type of L yard should be built at certain distance (1 km, ½ km or any other convenient distance) from the junction. This L yard may also be built at certain distances in a long road. Intersection system like figure 3 should be replaced by figure 4. Traffic congestion may be removed easily by implementing the proposed system.

Index Terms— Kamrul's L Yard System, L Yard, Moderate L Yard, Super L Yard, Quick Solution of Traffic Congestion, Remedy of Traffic Jam, Solve Vehicle Jam, Urban Road Congestion problem, How can Traffic Congestion Solve, Car jam solve, How can free road.

1 INTRODUCTION

TRAFFIC Congestion is a great problem at present days.

Different types of systems are taken for removal of traffic Congestion like Fly over, Bypass, Road widening, Underpass, Tunnel, Metro rail, Elevated Express, U Loop etc. Huge amount of fund, time and land are required for these. Consuming huge wealth these systems cannot supply a rational output at all. In some cases these systems fail fully and increase Traffic congestion instead of decrease. I think that this system will be capable to remove the traffic congestion very quickly and easily. I want to specify this research according to my name.

2 WHAT IS L YARD

L yard is a system through which vehicles change their direction of movement. Through it the vehicles turn to opposite direction. L yard is built on roads. Shape of the L yard has similarity to English Letter 'L'.

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3 FUNDAMENTAL PROPERTIES OF L YARDS

Following are the fundamental properties of L yards:

- i) L yard must have no barrier between straight running vehicles and turning vehicles in the entrance side. It must have one or more barriers between straight running vehicles and turned vehicles in the exit side.
- ii) The space between the circular path travelled by vehicles during turning and its centre will be free from any obstacle.
- iii) Shape of the L yard may be of any type shown in figures 1 and 2 or a minor changed keeping its fundamental properties unchanged.

Besides road in the L yard portion may be wider than other portion or not. If it is wider, extra widening will take place in one or both sides of the road.

4 CLASSIFICATION OF L YARDS

L yards may be classified in 2 groups according to their size. They are:

- a) Small L yard: Through a small L yard only small sized vehicles can pass.
- b) Big L yard: Through a big L yard all size of vehicles may pass.

L yards may also be classified in 3 groups according to the passing capacity of number of vehicles at a time through these. They are as follows:

4.1 Simple L Yard

Through these L yards normally one vehicle may pass at a time. Some typical figures of simple L yards are given below:



Figure 1a. Simple L Yard.

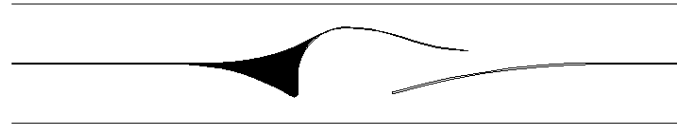


Figure 1f. Simple L Yard.



Figure 1b. Simple L Yard.



Figure 1g. Simple L Yard.



Figure 1c. Simple L Yard.

4.2 Moderate L Yard

All the vehicles coming from straight way can turn at a time through Moderate L yards. The minimum capacity of this L yard is to pass two vehicles at a time. Some typical figures of moderate L yards are given below:



Figure 2a. Moderate L Yard.



Figure 1d. Simple L Yard.



Figure 2b. Moderate L Yard.



Figure 1e. Simple L Yard.



Figure 2c. Moderate L Yard.



Figure 2d. Moderate L Yard.



Figure 2e. Moderate L Yard.

4.3 Super L Yard

Through this L yard such number of vehicles can pass at a time that is higher than the total number of vehicles coming to L yard at a time.

5 HOW TRAFFIC CONGESTION CREATES

Sometimes one or more vehicles stop on road. Other vehicles also stop successively beyond these vehicles. Thus the line of stopping vehicles increases and traffic congestion is created. There may remain many causes of creating traffic congestion. But the main cause of traffic congestion is ordinary road intersection. In the ordinary junction some vehicles are stopped to keep some other vehicles in running and Traffic Congestion is created. If all vehicles run at a time in their required direction through this junction, Collision must be occurred. In this sense this type of ordinary intersection is termed as "Danger Cross".

6 SOLUTION

Following things should be done to solve the problem of Traffic Congestion:

- i) Road Divider (Median or Island) should be continued in one direction in the junction.
- ii) When two runways (lane) coincide with each other, they will be near about parallel instead of right angle.
- iii) Any type of L yard should be built at certain distance (1 km, 1/2 km or any other convenient distance) from the junction. This L yard may also be built at certain distances in a long road. Intersection system like figure 3 should be replaced by figure 4.

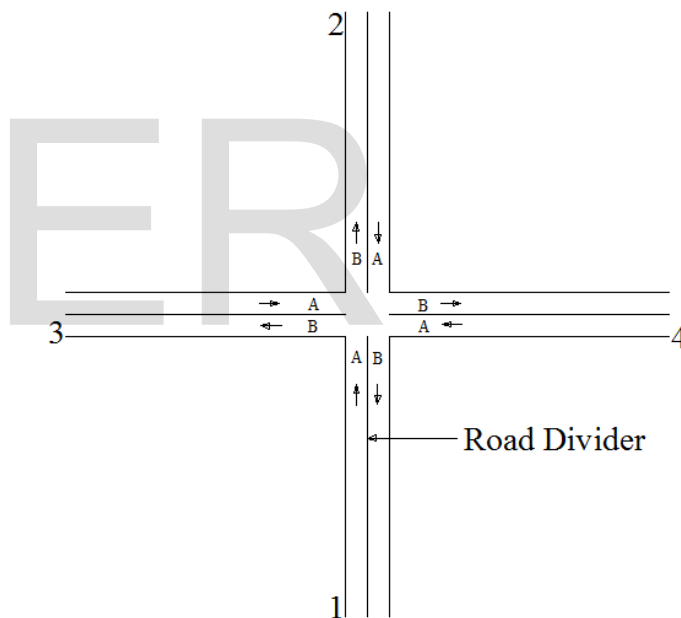


Figure 3. Ordinary Road Intersection.

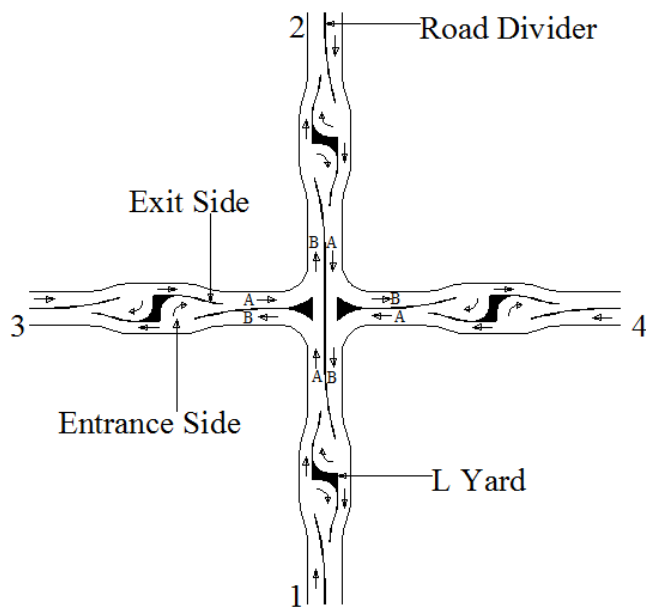


Figure 4. Modified Intersection.

7 EXPLANATION

Consider Figure 4. Here road 1, road 2, road 3 and road 4 have intersected in a junction. Each road is divided into lane A and B. Suppose a vehicle X in Figure 4. It wants to move from road 3A to 4B. For this the vehicle will enter firstly to 2B from 3A. Other vehicles will also come to 2B from lane 1A. Here the vehicles coming from 3A and 1A will coincide parallelly with each other. So, one's movement will not be affected by other one. Now the vehicle X will create speed variation with other vehicles running parallel to it. Its speed may either be increased or be decreased than the other vehicle. After travelling some distance in different speed a relative distance will be created between vehicle X and others. Then vehicle X will be moving rightwards gradually through this relative distance in running condition. Vehicle will show its necessary signal (indicator light) during side change. Then it will enter to right side of road 2A through L yard. Then it will be moving leftwards gradually by showing proper signal and creating speed variation like previous. At last it will enter into lane 4B.

8 BENEFITS OF L YARD SYSTEM

This system requires very low quantity of space for turning. In this system traffic congestion is removed very quickly and permanently. These are the main benefits of this system.

9 L YARD MANAGEMENT

Some road-junctions in very congested city are of short distances. For these junctions L yard may be built at 1.5 or 2 km interval on an average. Most of the roads in the city area are divided into several numbers of lanes. The left most one of these lanes may be used as slow or off lane for passenger's up-down. Other lanes may be used for running of vehicles. Guard Rail should be provided beside the footpath up to man-height in the L yard area. Guard Rail should also be provided in the Road-junction. Vehicle is permitted to stop anywhere in left lane except the Guard Rail portion. In the case of small L Yards a vertical barrier may be built over it for opposing the large vehicles to pass through it. This barrier must not be a single pipe or bar. The height difference between top and bottom of this barrier will be at least 1 meter.

10 CONCLUSION

Traffic congestion can be removed easily by implementing the proposed system. It is a very quick and sustainable system, but takes a few costs. So, this system should be followed for removal of Traffic congestion. Among the 3 types Moderate L Yard is more appropriate and suggestive. Super L Yard has super capability to remove Traffic Congestion. Developed countries where the traffic flow is heavy can use this system. Simple L yard has also capacity to remove traffic congestion. But it is less encouraged to use.

REFERENCES

- [1] K. Hasan, "Release from Traffic Jam: No Vehicle has to stop for a second," *International Journal of Scientific & Engineering Research*, Vol. 5, Issue 8, pp. 413-416, August-2014.
- [2] American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets 2001," Washington, DC.
- [3] Ives, H.C., *Highway Curves*, John Wiley and Sons, Inc., New York.