

Release from Traffic Jam: No Vehicle has to stop for a second

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Abstract— Traffic Jam has reached to dangerous condition in many countries of the world. When one or more vehicles stop on road, traffic jam is created. There may be some minor causes of traffic jam. These are exceptional like road accident, sudden movement of laborers etc. These are negligible and not a regular phenomenon at all. The main cause of traffic jam is “danger cross”. Following things should be done to solve the problem Traffic Jam: i) Ordinary junction (Danger cross) should be ignored. For this roads like Figure-1 & 2 should be converted to figure-3 & 4 respectfully. ii) Wide U turn (Like fig-4) should be built at certain distance (1 km, ½ km or any other convenient distance) from the junction. If one vehicle wants to turn in right or backward direction, it must move through U turn. This U turn may also be built at certain distances in a long road which is divided by Road-Divider or Island. iii) When two runways (lane) coincide with each other, they will be near about parallel.

If the system is followed, no vehicle has to stop for a second because of Traffic Jam.

Index Terms— Traffic Jam, Release Traffic Jam, Traffic Jam solution, Traffic Jam solve, Traffic congestion, Remedy traffic jam, Remedy Traffic congestion, Road jam, Vehicle jam, Car jam.

1 INTRODUCTION

HERE is nothing to say again about Traffic Jam. Millions of people are losing their valuable time because of Traffic Jam. More times of fuel are burning everyday than need. Carbon and other harmful elements are being produced by burning of over fuel. They are polluting the Environment. Whole the country is being affected. Ambulance, Fire service car or any other vehicle engaged in emergency work is not free from Traffic Jam. Isn't there any way to save ourselves from this problem? Yes, there's.

2 CAUSES OF TRAFFIC JAM

When one or more vehicles stop on road, traffic jam is created. There may be some minor causes of traffic jam. These are exceptional like road accident, sudden movement of laborers etc. These are negligible and not a regular phenomenon at all. The main cause of traffic jam is “danger cross”.

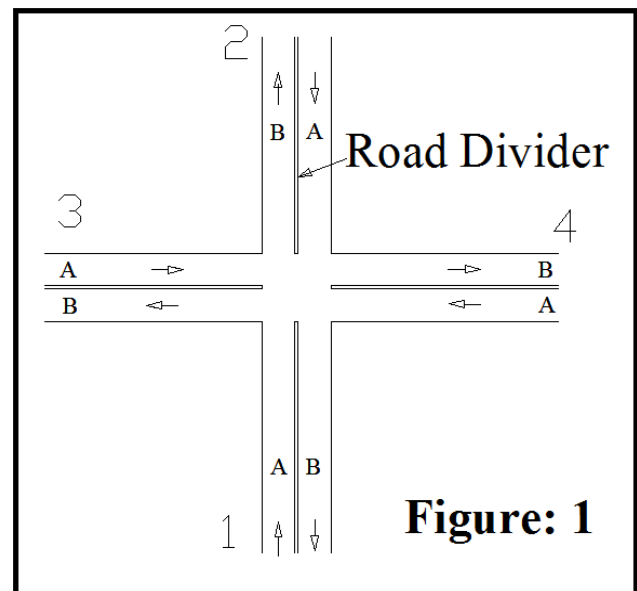
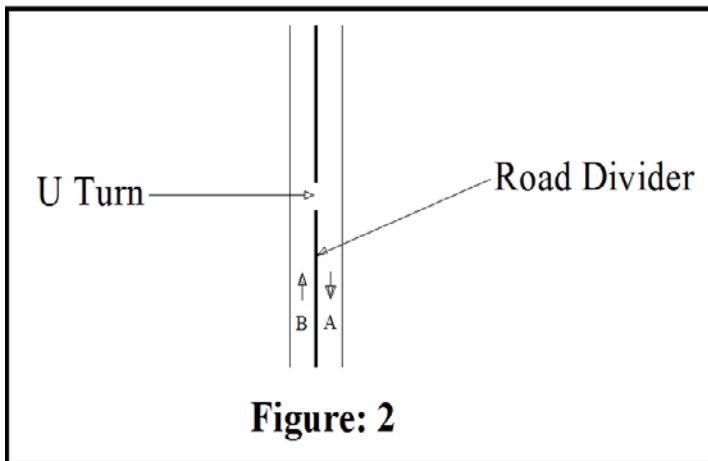


Figure: 1

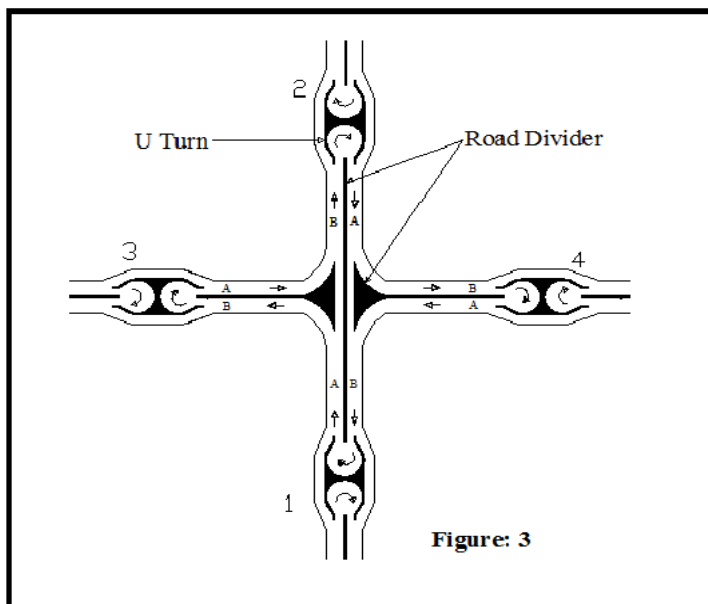
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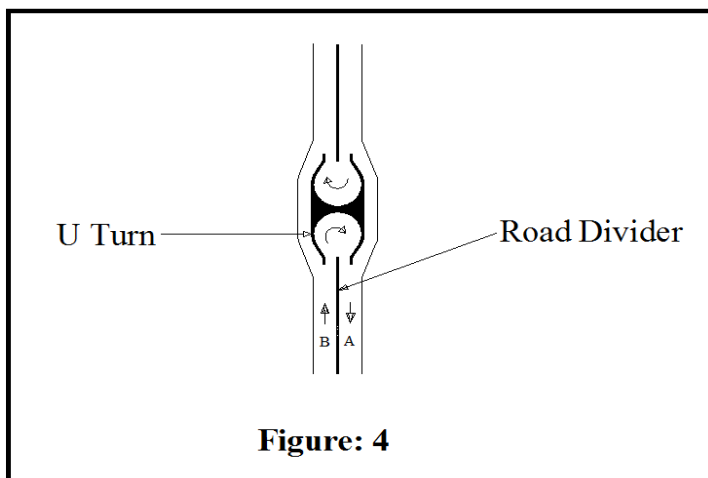
3 WHAT IS DANGER CROSS?

Danger cross is such a junction or cross point where a collision may occur between two or more vehicles if they move simultaneously. This danger cross is seen in ordinary road junction and in ordinary U turn.

In the ordinary junction system some vehicles are stopped to keep some other vehicles in running and Traffic Jam is created. As an example we consider the figure-1. Here road 1, 2, 3 and 4 have coincided in a point and created a junction. Each road is divided into two Lanes A and B. Vehicle enters the junction through lane A and leaves the junction through lane B. Total 8 nos of lane are here. Each lane may also be divided into one or more sub lane. When vehicle enters the junction from Lane A of road 1, then no vehicle can enter from road 2, 3 and 4. If enters, a confirm collision will occur. So, it is a danger cross. When vehicle enters the junction from road 2, then no vehicle can enter from road 1, 3, and 4. Similarly when vehicle enters the junction from road 3, then no vehicle can enter from road 1, 2, and 4. So, It is seen that if vehicle runs from one road, vehicles are stopped in three roads. i.e. if one time vehicle is in run, three times of vehicles are stopped. As a result, Traffic Jam increases by rotation. If the number of vehicles or the number of roads increases in the junction, traffic jam is also increased.



Another danger cross is seen in the ordinary U turn point. As an example, consider the figure-2. Here a road is divided into 2 lanes. Say, lane A and lane B. Vehicle moves towards a direction through lane A and moves towards opposite direction through lane B. Suppose, a vehicle is running in lane A. It wants to go in reverse direction or wants to go to lane B. For this it has to move very slowly through the cut portion of road-divider. During its turning if other vehicles running in lane B move straight forward, a collision will occur confirm. So, they have to stop and traffic jam is created. Similarly, when vehicles running in lane B want to change their lane through cut portion of divider, vehicles which were running in lane A cannot go straight forward. They have to stop fully. Thus, when more number of vehicle changes their moving direction or lane, intensity of traffic jam is increased seriously.



4 SOLUTION

Following things should be done to solve the problem Traffic Jam:

i) Ordinary junction (Danger cross) should be ignored. For this, roads like Figure-1 & 2 should be converted to figure-3 & 4 respectfully.

ii) Wide U turn (Like fig-4) should be built at certain distance (1 km, ½ km or any other convenient distance) from the junction. If one vehicle wants to turn in right or backward direction, it must move through U turn. This U turn may also be built at certain distances in a long road which is divided by Road-Divider or Island.

iii) When two runways (lane) coincide with each other, they will be near about parallel.

5 EXPLANATION

Suppose a vehicle X in Figure-3. It wants to move from 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 speed will not be affected by other one. Now the vehicle X will create speed variation with other vehicles running parallel to it. Suppose the speed of other vehicle is 18 ft/second (20 km/ hour). Now the vehicle X has to run in a speed higher or lower than the other vehicle. Say, its speed is 14 ft/second (16 km/ hour). Therefore, $18-14=4$ ft relative distance will be created in 1 second between vehicle X and the other vehicle. In 2 seconds relative distance will be $4 \times 2 = 8$ ft. In 3 seconds relative distance will be $4 \times 3 = 12$ ft. Similarly in 4,5,6,7,8,9,10,11 seconds relative distance will be 16,20,24,28,32,36,40 and 44 ft respectively. It is seen that 44 ft relative distance is created between the two vehicles within 11 seconds. If we deduct the body length of the other vehicle from this 44 ft, the remaining distance will be the free space in front of vehicle X. If the body length of the other vehicle is 20 ft, the free space in front of vehicle X will be $44-20=24$ ft. Vehicle X will be moving rightwards gradually through this 24 ft free space in running condition.

Vehicle will show its necessary signal during side change. Then it will enter to right side of road 2A through U turn. Then it will be moving leftwards gradually by showing proper signal and creating speed variation like previous. At last it will enter to lane 4B.

6 COMPARISON

In the ordinary system Fly over, Bypass, Road widening, Underpass, Tunnel, Metro rail, etc are used to overcome the Traffic Jam. Huge amount of fund, time and land are required for these. Consuming huge wealth how much output these systems can supply to us? Or can supply any output at all?

7 RELATIVE BENEFITS

If we are able to remove traffic jam, the following related benefits will be acquired:

7.1 Fuel will be saved

In the bigger cities of the country large volume of fuel is burning for vehicle running. This quantity is several times greater than the ideal need. If the Traffic Jam is minimized, vehicles will take less time to pass a distance and usage of fuel will be decreased to one third or less. This saved fuel can be used to fill up the other requirements of the country.

7.2 Pollution of the Environment will be decreased

Huge quantity of carbon and some other poisonous chemicals are being mixed with environment every day. These are produced by the combustion of fuel in the vehicles and pollute the environment. If the Traffic Jam is minimized, fuel combustion will also be minimized. Thus pollution of the air specially in the city area will be decreased.

7.3 Street accident will be decreased

Time is lost in traffic Jam. To recovery the lost time many drivers drive vehicles in over speed. By doing this, often drivers lose control on their vehicles. They fail to turn or stop the vehicles by decreasing speed in proper moment. As a result, accident is occurred. If Traffic Jam is minimized, street accident will be minimized.

7.4 Need not Signaling

In the present system, all vehicles can't move simultaneously through the danger cross. Here some vehicles are allowed to move and some are stopped. This is done by manual and mechanical signal. Electricity, money, equipments, manpower etc are required for this. But there is no danger cross in the new proposed system. Here no vehicle has to stop. So, it doesn't need any signaling in the road.

7.5 Journey will be comfortable

A number of passengers travel every day in a city area. There is a fixed number of vehicles in the city for carrying them. According to this a vehicle has to carry an average number of passengers every day. Because of traffic jam, number of trip decreases. So it has to carry additional number of passenger in each trip. An uncomfortable situation is developed. If traffic jam is minimized, number of trip will be increased and number of passenger per trip will be decreased. Thus journey will be comfortable.

7.6 Working Hour will be saved

Every man and machine have value of their working hours. This valuable working hour is being lost due to traffic jam. If the Traffic Jam is minimized, this highly valued working hour will be saved.

7.7 Medical service may be provided

It is very pathetic that Patients are to die in the ambulance, but it can't move because of traffic jam. Emergency car of fire service can't reach to spot during burning occurrence.

Many people have died in our industry specially in the garments by burn. If Traffic Jam is minimized, at least medical service may be provided.

7.8 Wealth will be saved

There are different types of industry in Bangladesh. Garments, Textile mills, Chemical industry, Petroleum refinery plants, Godown of corns etc are risky scope of firing and burning. Often burning occurs in the garments factory in our country. Many valuable garments, cloths, yarn and other materials are destroyed by this. At present vehicles of the fire service cannot reach to the points of accident in time. Materials of million dollar become ash in a moment by burning. If traffic jam is minimized, car of fire service can reach to the point earlier and volume of the destruction will be decreased. Thus wealth may be saved.

7.9 Prevention of warming

Global warming is a discussable issue now. It has a bad effect on climate. Climate is changing rapidly due to global warming. Additional heat is produced by burning of fuel in the vehicle and in the industry. Heat balance of the nature is disturbed by this. As a result, natural disorder is occurred. If traffic jam is minimized, a car has to stay less time on road. Fuel burning will be less and heat production will be decreased. Thus it may decrease the global warming.

7.10 Urbanization will be expanded

Large number of people lives in a city. Here scope of work, education, medical facilities etc. are available. People try to live in nearest distance from their work station. This type of tendency is seen in every one. Because if they live in far distance they will fail to reach their work station in time. Thus density of population increases in a certain area. If there is no traffic jam, people will have no claim to live in far distance. They can live in the adjacent districts and can attend to their work stations in time. Thus urbanization will be expanded.

7.11 Density of Population will be decreased

In city area people live near their work station because of traffic jam. As a result density of population increases in a certain area. If there is no traffic jam, people may live at far distance. Thus density of population will be decreased in a certain area.

8 CONCLUSION

My proposed system consumes a few wealth, but gives a traffic jam-free country. The danger cross problem made by existing railway may be solved by allowing overpass only in this portion. If the system is followed, I think that no vehicle has to stop for a second because of Traffic Jam.

REFERENCES

Self-research of Author.