IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

TRAFFIC ISLAND AND DEVELOPMENT

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ABSTRACT

These can also be regarded as physical barriers of various shapes for channelling the traffic flow and reducing the number of conflict points. In other cases, these can be painted markings just like other road markings. Their proper placement is of great importance and is a must know for a traffic engineers and urban planners as it plays an important role in transport planning. A traffic island which is much longer in length is called as traffic median. The examples include roundabout, triangular traffic islands or other shape solving the required purpose. These serve an additional purpose of providing the stopping space/refuge to pedestrians, space for signage, place for fixing traffic signals and traffic light, vegetation, hawkers/vendors, space for traffic signals and sometimes of fountains or statues. They are significant as they allow easy movement of vehicles along with providing space for proper queuing of vehicles. They act as lungs for intersections as due to large number of direction change resulting in increased pressure on vehicle's part intersections are more polluted in comparison to other part of road. So, a traffic island with vegetation over it reduces the carbon footprint for that intersection. A traffic median can be a few meters long and go up to other use of traffic islands include slowing down the vehicles especially at the pedestrian crossings. The use of physical barriers along with the painted or rubber markings/ surface of the road is much more effective when used in combination. Few hundreds of meters.

Since traffic island is a common name given to various road structure and markings, these can be grouped based on the use, location, size, construction type and material etc.

INTRODUCTION

A traffic island is a solid or painted object in a road that channels traffic. It can also be a narrow strip of island between roads that intersect at an acute angle. If the island uses road markings only, without raised curbs or other physical obstructions, it is called a painted island or (especially in the UK) ghost island. Traffic islands can be used to reduce the speed of cars driving through or to provide a central refuge to pedestrians crossing the road.

When traffic islands are longer, they are instead called traffic medians, a strip in the middle of a road, serving the divider function over a much longer distance.

Some traffic islands may serve as refuge islands for pedestrians. Traffic islands are often used at partially blind intersections on back-streets to prevent cars from cutting a corner with potentially dangerous results, or to prevent some movements totally, for traffic safety or traffic calming reasons. IN certain areas of the United Kingdom, particularly in The Midlands, the term island is often used as a synonym for roundabout.

a raised or marked-off area between lanes of a roadway, used by pedestrians to get out of the flow of traffic, as a place for traffic signals, for separating lanes, etc. Traffic Island is physical structure or a painted object found on roads and roadside. Traffic island serve various purposes depending it type. It is usually seen as a raised area along the road for a better & orderly flow of traffic or act as a stopping/ resting area for pedestrians.

A traffic island is a solid or painted object in a road that channels traffic. It can also be a narrow strip of island between roads that intersect at an acute angle. Traffic control can be utilized to deal with the movement and development of cars and other sorts of transportation framework. Without traffic control, these vehicles will be unable to move from one place to Islands are designated areas between travel lanes used for pedestrian sanctuary and traffic control. These areas are used in channelized intersections to direct entering traffic into definite travel paths another with ease. When that happens, accidents would unavoidably occur.

An island is defined as an area between traffic lanes used for control of traffic movements. Raised medians and islands provide space to locate pedestrian safety features and traffic control devices, amenities, landscaping and stormwater management. A rotary intersection or traffic rotary is an enlarged road intersection where all converging vehicles are forced to move round a large central island in one direction before they can weave out of traffic flow into their respective directions radiating from the central island.

The traffic islands provide space for the vehicles making the weaving movements at intersection, dividing the through moving traffic and left turning vehicles, provision for pedestrians to wait at the intersection during stop signal.

VOLUME OF TRAFFIC

Number of vehicles at the cross roads. Number of vehicles passing a given point on road in a given unit of time in a given direction. Number of vehicles passing a given point on road in a given unit of time in all the possible directions. The design traffic volume needs to be determined for each TOD plan.

This should be the hourly traffic volume that is converted from the peak 15-min flow rate, based on the recommended method in the highway capacity manual (HCM) 2010. In a case where the peak 15-minute flow rate is not used, peak hour factors of 0.75 for the major approaches and 0.80 for the minor approaches are recommended in the national standard. The design traffic volume of motor vehicles is measured by the passenger car unit (pcu). Seven vehicle types, that is, passenger car, motor cycle, van, minivan, heavy truck, bus, and tram, are considered in the determination of design traffic volume. The equivalent factor for each vehicle.

First need to converted into peak 15-min flow rates by dividing them by the peak hour factor (and typically a heavy vehicle adjustment factor and driver population adjustment factor, which do not apply in this example). These flow rates are then assigned to the different lane groups. For the through traffic on the eastbound and westbound approaches, it is assumed that 55% of through traffic chooses the exclusive lane, with 45% in the shared lane.

In the absence of field data, this type of assumption has to be made by the analyst. A good reasonableness check in this volume split is to assure similar v/s ratios for both lane groups, which does hold true in this example.

The lane group flow rates are then divided by the saturation flow rate of each lane group to give the v/s (volume to saturation flow) ratio for the lane group. Conceptually, the v/s ratio describes the fraction of an hour worth of green time needed to serve the demand of the particular lane group given its saturation flow rate (capacity).

In this example, exclusive through lanes have an assumed saturation flow rate of 1900 passenger cars/h per lane; shared lanes a rate of 1800 passenger cars/h per lane; and exclusive left-turn lanes a rate of 1700 passenger cars/h per lane. The saturation flow rates can also be field measured or be calculated using the appropriate HCM equation.

DEVELOPMENT

In this project we are develop the traffic island. In this the traffic island have solar panels which generates the electricity which provides to the whole island to supply this electricity. This solar panels fixes at top of the traffic island and have direct contact with the sun for generating the electricity. The island also has some LED screens which shows some information about the city and this traffic island. The LED strips are also fixes at the perimeter of the island. Inside this there are sitting areas included for the people and for some cultural program and some event.

This study is intended to set forth quantitative criteria on the traffic island, which in turn is designed to improve traffic safety and to facilitate the channelization at intersections. Thereby, it further aims at proposing the standards applicable to intersection designs and to projects to improve their management. Variables affecting construction of a traffic island at the Y-intersection or at the 4-way intersection are traffic volume, existence of the right-turn lane on the border between main and minor roads and the traffic volume over the lane, the difference in the number of lanes between bordering main and minor roads, and type of an intersection. The 3-way and the 4-way intersections do not show much difference. Still, in determining whether to construct a traffic island, the former is affected by the traffic volume over the right-turn lane on the main road, while the latter is more affected by the right-turn traffic volume on the minor road.

With the continuous development of the transportation industry, the project of artificial traffic island is attracting more and more attention. However, the traditional design method has not met requirements for the complex structures of artificial islands. This paper discusses the application of BIM technology in the field of the design for artificial islands. Based on the practical engineering, the paper further proposes how to effectively use the BIM technology in the complex designs of artificial traffic islands, and presents the application effect. Finally, the BIM technology is successfully and effectively applied to the implement of 3D collaborative design, visualization of engineering design, and demonstration of construction progress.

TRAFFIC FLOW

traffic flow is the study of interactions between travellers (including pedestrians, cyclists, drivers, and their vehicles) and infrastructure (including highways, signage, and traffic control devices), with the aim of understanding and developing an optimal transport.

The traffic stream may also consist of pedestrians, bicycles, or mass transit vehicles.

Traffic flow studies have focused on the interactions among various traffic participators (e.g., vehicles, drivers, pedestrians, and bicyclists) and infrastructure (e.g., highways, signal control devices), aiming to reveal the relationship between individual traffic participants and the resulting traffic flow phenomena. As a result, traffic flow studies are empirical studies that heavily rely on high-quality measurements of real data.

More recently, vehicles mounted with dedicated global positioning system (GPS) devices were used to monitor daily traffic (Wolshon and Hatipkarasulu, 2000). Such vehicles, called probe vehicles or floating cars, travel in a road network as regular vehicles but consistently upload their status information (e.g., latitude, longitude, instantaneous speed, and moving direction) to data centers at short time intervals via wireless communications (Kerner et al., 2005, Wang et al., 2011, Shen and Stopher, 2014, Massaro et al., 2016, Feng and Timmermans, 2016, He et al., 2017a, He et al., 2019c, Liu et al., 2019). We can further estimate traffic flow properties along the roads that were just traveled by the studied probe vehicles. The intermittent trajectory data obtained from probe vehicles are useful for travel behavior studies but conventionally inadequate to reconstruct the details of traffic flow dynamics in both temporal-spatial scopes. The shortcoming of the probe vehicle data comes from two aspects. First, since the states of probe vehicles were not cautiously updated, the detailed driving behavior of the studied vehicles cannot be retrieved. Second, the low penetration rate (only a limited number of probe vehicles usually appear along a road segment at the same time) of probe vehicles makes it impossible to reflect 100% of traffic flow dynamics (He et al., 2017a, Guo et al., 2019).

TRAFFIC CONTROL

Traffic control, supervision of the movement of people, goods, or vehicles to ensure efficiency and safety. Traffic is the movement of people and goods from one location to another. The movement typically occurs along a specific facility or pathway that can be called a guideway. It may be a physical guideway, as in the case of a railroad, or it may be an agreed-upon or designated route, marked either electronically (as in aviation) or geographically (as in the maritime industry). Movement—excepting pedestrian movement, which only requires human power—involves a vehicle of some type that can serve for people, goods, or both. Vehicle types, often referred to as modes of transportation, can be broadly characterized as road, rail, air.

Traffic evolves because of a need to move people and goods from one location to another. As such, the movement is initiated because of decisions made by people to transport themselves or others from one location to another to participate in activities at that second location or to move goods to a location where they have higher value. Traffic flows thus differ fundamentally from other areas of engineering and the physical sciences (such as the movement of electrons in a wire), because they are primarily governed and determined by laws of human behaviour. While physical attributes are critical in the operation of all modes (e.g., to keep airplanes in the air), the demand or need to travel that gives rise to traffic is derived from the desire to change locations.

There are four basic elements in a computerized traffic control system: computer(s), communications devices, traffic signals and associated equipment, and detectors for sensing vehicles. Traffic flow information is picked up by the detectors from the roadway and transmitted to the computer system for processing. Traffic control can be utilized to deal with the movement and development of cars and other sorts of transportation framework. Without traffic control, these vehicles will be unable to move from one place to another with ease. When that happens, accidents would unavoidably occur.

Traffic control is a significant part of the present society because it focuses on the supervision of the vehicles to ensure efficiency and safety. We can solve this problem with proper traffic control. Highly trained staff must be observing and monitoring the traffic control structure. Like in any other profession, education and training are of the most extreme significance when working in the traffic control field.

Traffic control can be utilized to deal with the movement and development of cars and other sorts of transportation framework. Without traffic control, these vehicles will be unable to move from one place to another with ease. When that happens, accidents would unavoidably occur. There are different circumstances in which traffic should be controlled.

Driving through traffic control zones requires that you know a couple of critical principles to the extent safety is concerned. Either you are the one driving, or you are the one controlling the traffic. You don't entirely depend on the traffic flows and signs to a traffic controller. As a driver, you also should know traffic rules and regulations to help with the traffic flow.

SAFETY FOR PEDESTRIANS AND VEHICLES

A pedestrian safety island reduces the exposure time experienced by a pedestrian in the intersection. While safety islands may be used on both wide and narrow streets, they are generally applied at loca-tions where speeds and volumes make crossings prohibitive, or where three or more lanes of traffic make pedestrians feel exposed or unsafe in the intersection.

Pedestrians are among one of the most vulnerable road users. Speed of vehicles is considered as one of the major causes of danger for pedestrians crossing the street (making cross movements). Therefore, it is of almost importance to devise suitable solutions for reducing speed of vehicles.

One of these solutions is Pedestrian Refuge Islands (PRI). With regard to fluctuations in pedestrian and vehicle traffic volume in traffic hours, there are different variations in collisions between vehicle and pedestrian.

In this article the effect of constructed PRI in Tehran on speed of vehicles and consequently their effects on probability fluctuations of fatal accidents are determined. Speed of vehicles in two phases of before and after arriving to the PRI is assessed. Additionally, speed of vehicles in non-observed volumes of vehicle and pedestrian are calculated using Aimsun.v6 simulation software.

Paired T-test is applied to compare average speed of vehicles before and after the PRI. The results revealed that except for traffic volumes of 3000-4000veh/hand 400-600 ped/h in other volumes reduction of average speed of vehicles as a result of PRI is significant. According to the results, it is recommended that PRI should be installed in midblock where traffic volume of vehicles in each lane is less than 750 veh/h.

CONCLUSION

- Most road projects today involve modifications to existing roadways and the planning, operation and maintenance of such projects.
- From this project the traffic island has modification and development.
- The traffic island also reduces some traffic and maintained road safety ang regulate the traffic flow.
- This development of traffic island must be eco friendly and generating solar energy and have safe for pedestrians.