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TRAFFIC RESTRAINT AND TRAFFIC MANAGEMENT  
IN EGYPT

BY

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Traffic control and specially the control of passenger car use has rapidly grown everywhere in Egypt due to:

- Great increase in vehicle ownership and it's use for different purposes such as work, recreation, etc....
- Rapid growth of population,
- Increase in the rate of immigration from rural to urban areas,
- Pollution effect due to vehicle exhaust,
- Noise occurred by vehicle operation,
- Great need for land space in city centres for streets and parking lots,
- Growing costs of urban traffic congestion, and
- Political reasons in some special and important places.

Apparently traffic control is different from "Traffic Mangement" which aims to make the movement of people and vehicles fast, efficient, convenient, economic and safe. Traffic mangement definition provides a multi-objective problem for traffic engineers. To make the movement fast may be at the expense of safety and vice versa. On the other hand an efficient system is not necessarily the fastest.

Traffic could efficiently be flowing if judgment is made over the network as a whole. The most important aspect of traffic mangement is the maximization of benefits of applying some system while minimizing the environment damage.

Apart from traffic mangement, authorities in many places are applying some type of restrictions on vehicle movement. These restrictions are known as "Traffic Restraint". The extensive use of one-way streets, prohibiting parking in certain places, prohibiting some type of commercial vehicles to move on some specific roads, road pricing and the like which limitizes the use of cars.

The recent decision of the Egyptian authorties to price the Cairo-Alexandria desert road to increasing park charges in many places added new restrictions on car use.

This paper discusses the meaning of traffic restraint and under which conditions it preferable should be applied. It reviews objectives of restraint policies to show whether restraint is beneficial to the society or not. The paper summarizes and discusses restraint methods and experience. Finally, the paper answers question to how far the Egyptian authorities have applied, and to which extend they can apply traffic restraint in future.

### The Concept of Traffic Restraint:

Traffic restraint simply means the restrictions which apply on traffic movement to restrict its flow speed or path in order to achieve, in general specific modifications in any of the unrestrained movement characteristics. Some people believe that traffic restraint will nowadays become very important due to growth of population, increase in car ownership, car use and others. Moreover, the pollution effect of car exhaust and noise associated with car movement and the growing demand for streets and parking lots made people increasingly think in traffic restraint.

Traffic management is different from traffic restraint. Traffic management makes use of the available resources to increase and encourage car use and make traffic as much as possible fast, efficient, convenient, economic and safe, possible with minimum damage to the environment. Traffic management may include:

- junction control (as priority control, signal control, etc..)
- area traffic control,
- lorry path,
- bus priority control,
- car sharing patterns,
- coordination between different transport modes,
- minimizing bus stops,
- the optimum use of available land use,
- retiming traffic signals and their optimization,
- re-routing traffic by isolating left turn traffic,
- avoiding queues at intersection by giving priority to vehicles,
- providing emergency arrangements for control in situations where traffic flow is hindered by accidents, road workers or weather conditions. and
- providing parking facilities where necessary.

Traffic restraint mainly is a mean rather than an aim. It imposes restrictions on car use and movement to achieve a congestion release. It should not follow the rule of first come first applied regardless of the value of the trip. The trip may be an ambulance trip, police trip, or business trip which are more important than recreational or visting trips. Traffic restraint can take any of the following forms:

1) Street Closures and Extensive Use of One Way Streets:

It may include the entry of special types of vehicles to some streets at certain times as it happened, for example, at Oxford area in London where only public transport is allowed, and in Ras-El-Bar in Egypt where on Nile Street summer evenings only pedestrians are allowed.

In general, such type of restraint must evaluate benefits and penalties and the general view of the network flow before the decision is taken.

One way streets are frequently used in central business districts, with the system expanding as the need arises for additional one-way streets. As a minimum, one way streets should be designed in pairs to provide a balanced design for traffic movement. Before reaching to a decision a careful consideration of benefits and penalties should be undertaken. The one way streets should function as systems rather than as individual facilities.

If one way streets are not designed as a system or if there is no good balance in the decision the one way street system may represent a restraint to traffic flow. The one-way street may result in operational difficulties in form of bad understanding, and long distances must be travelled. Safety is decreased in this system at junctions were drivers move from one way street to two-ways street.

2) Parking Preduction and Increasing Parking Charges:

Parking is an important consideration in traffic operation since the vehicles which operate on streets and highways have a terminal point requiring parking. Parking demand directly is related to land use. The central business district (C B D) is a focal point of highway-intensity land use, generating higher parking demand.

Parking reduction simply means the control over location and space of parking lots. It is evident that when a driver could not find space to park his vehicle he will not come to this area again with his car, and that limitizes and reduces the number of trips to such places. In such cases the trip cost may increase and this discourage trips excpt the very necessary. An

important trouble occurs when drivers insist to park at road curbs and road sides which reduce road capacity and decrease the level of service. Moreover, it increases the probability of accidents. Higher parking fees may reduce some kinds of trips, especially when the driver is parking long times.

### 3) Road Pricing:

The general attitude is that the government collects money by general taxes and a special tax on vehicle licenses to spend on road construction and maintenance as one of the important life activities. Additionally, the authority may impose new costs on road users known as road price. Although road pricing was introduced in 1909 to reduce congestion on certain roads and to oblige drivers to use less alternative roads, or to introduce some luxury services on roads, but there is no efficient form for road pricing.

In many places, road pricing is devised not only to reduce congestion but also to finance road construction out of the national budget. Road pricing may be disadvantageable and non-justiciable for people if it is the only road between an origin and a destination.

### Purposes of Traffic Restraint:

Obviously traffic restraint is not acceptable unless it results in improvement in some life activities. Objectives of traffic restraint can be summarized as:

#### 1) Reducing Congestion:

Restraint may add more additional capacity by prohibiting some slow or big size vehicles from using certain roads at specific times. Road pricing may result in constructing new roads and new parking lots which reduce congestion. It has been proved in many places that restraint at busy times in busy areas may reduce congestion and loss of time.

#### 2) Keeping Historical and Important Buildings:

By traffic restraint the planner may prevent historical buildings against demolition especially at historical places, and in central business districts where land and building are very expensive and valuable.

3) Savings in Fuel Consumption:

By prohibiting car drivers to go through certain places or by limiting parking fees, people will transfere from private cars to the public transport which saves energy per capital per kilometer. Reduction in energy may save fuel in the range of 2% to 50%.

4) Improving Environment Conditions:

Motor vehicles cause atmospheric pollution through exhaust gases, dust occured by tyres and fuel losses from fuel tank and car carburettor. Carbon monoxide which has an influence on hemoglobin in the blood, hydrocarbons which are toxic if highly concentrated, oxides of nitrogen and smoke are compounds of motor vehicle exhaust gases. Restricting car use by reducing flow and number of trips may be a step towards improvement of the enviornment. Traffic noise caused by vehicles, and especially by commercial vehicles, can be reduced by limitizing the number of moving vehicles and number of trips. The major factors which influence the generation of road traffic noise are mainly the traffic flow, speed and percentage of commercial vehicles. Traffic restraint can positively affect traffic noise of which our community is increasingly suffereing.

Traffic Restraint in Egypt:

Three main categories of traffic restraints in the Egyptian society are to be noted:

- 1) Category suffering from traffic restraint and really affected by more costs they should pay and time loses
- 2) Category suffering from traffic restraint in form of environment pollution and long times they spend in buses or taxis, and by walking.
- 3) Category which does not care and might not have heard about enviornment pollution or traffic restraint.

The first and second categories are mostly living in big cities and governorate capitals while most of the third category is living in villages and rural areas.

People moving and driving in Egypt's big cities can be classified as:

- 1) Well educated people who are acquainted with some kinds of traffic restraint due to their contacts with other countries and they easily can understand traffic restraint and can deal with it.

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- 2) People who can understand traffic restraint but they have no experience, these people may suffer from restraint.
- 3) People who own cars and can not read well enough while driving to follow restraint instructions. These people may cause many problems to the traffic system and to themselves.
- 4) Businessmen always are in a hurry. They are ready to pay penalties in money terms to save time. They may go against the stream or park at road side and so creating many problems to the system.
- 5) People who cannot read or write. They may drive or walk and create many problems. They represent a great share of the society.

The above analysis means that the Egyptian society can not accept restraint in general terms. Moreover a careful study should be undertaken to decide the most suitable restraint methods. Some restraint methods may be applicable in some areas, but could be un-efficient in other places.

How Far the Egyptian Authorities Applied Traffic Restraint:

Traffic restraints have taken many forms in Egypt and they can be classified as:

1) Extensive use of one way street system:

It is known that a one way street system is one measure of traffic management, but it becomes restraint if it is used extensively as observed in many big and even small cities in Egypt. It represents a restraint due to:

(a) There is not enough publicity for people to know whether a street is one way or not. Strangers (people from other places) may find many troubles and this create problems to others.

(b) There are not enough signs or plates to show one way streets.

(c) Many of drivers can not read well enough to follow signs, if existing, specially during night where light is not sufficient.

(d) The highway network is not efficient enough to decide some streets to become one-way, because the parallel roads might be unpaved.

2) Limiting Vehicle Speed:

It is widely known that streets are for cars and so highway agencies must try to make the flow more easier and

fluent. In Egypt, the maximum speed is limited by 90 Km/h on Cairo-Alexandria roads and much less on many other roads.

One may find some justification for authorities to apply speed limits due to car condition, road condition, driver ability, budget limit and the like, but on the other hand it is the responsibility of the governorates to improve pavement conditions, curves, sight distance, superelevation, efficient control of intersections, etc. to increase speed limits, if existing. The disadvantage of continuous reduction in speed limits is that we will obtain a very unefficient transportation network. Generally speed limits is used in many other countries but they must be temporarily and a step towards increasing these limits or eliminating them.

### 3) Road Pricing:

Road pricing is known in many countries on the following road types:

(a) alternative, well serviced roads where restaurants, free telephone service; etc... are existing.

(b) alternative free roads where other roads are available and the driver like to have better level of service.

(c) roads in historical areas or safari roads without pedestrians.

(d) roads leading to airports, sea-ports which are used by either wealthy people or foreigners who do not pay taxes.

(e) very expensive roads in which national budget cannot afford.

Generally, a careful cost-benefit analysis should be performed to avoid a new tax imposing on people. In Egypt there is none of the above reasons to price roads and so it represents a traffic restraint.

### 4) Increasing Vehicle License Tax:

In Egypt, the vehicle license tax has increased to more than the double during last years. Surely this leads to a reduction in car ownership. This could cause danger that people might drive cars without license, as observed in some far places.

### 5) Limiting Vehicle Import:

The Egyptian authorities, like many other countries, has increased tax on importing cars, although the national



production is not covering the demand. The car tax is higher than the car value and this will lead to a reduction in car ownership and car use. Moreover the authorities restrict the importing of cars older than three years from the day of production. These types of cars are already expensive and their tax is very high and this represents a new restriction on traffic.

6) Prohibiting Some Types of Vehicles to go Through Certain Places at Specific Times:

It is unfair to prohibit certain type of vehicles from moving on some roads, even for certain times, since owners pay all types of taxes and duties. In Egypt commercial vehicles are prohibited to use the Cairo corniche road during day time and that represent a restriction affecting people's income and trading activities.

7) Fuel Price:

Although Egypt is one of the oil production countries, but fuel prices are high relative to people's income. Car ownership is essential to many Egyptians although its high price and taxes and people's relatively income. High fuel prices may represent a restriction on car use.

To Which Extend Egyptian Authorities Can Apply Traffic

Restraint:

Traffic restraint, as it has been explained should be a solution to the problem of congestion, to increase efficiency and to improve environment pollution. It is more important to have based understanding of congestion and transportation network efficiency which are still debatable matters. A cost-benefit analysis must be considered before applying any type of restraint. Moreover, the planner should compare the money and time spending due to traffic restraint with environment improvement and congestion release.

The transportation planner should calculate and predict accurately the effects of restraint which can be summarized as:

- 1) reduction in number of trips,
- 2) increase in fuel consumption,
- 3) increase in traffic load on alternative roads,
- 4) increasing pressure on public transportation,
- 5) reduction in activities and employment,
- 6) difficulties in people's movement, and
- 7) reduction in people's freedom, and

- 8) if great degree of restraint, it creates political and bad public opinion.

Due to the above reasons the Egyptians rejecting most traffic restraint and there is no hope of applying any further restraints due to:

- 1) not enough publicity or signs of traffic restraint instructions,
- 2) no clear knowledge of restraint policy. This policy is mostly unknown to the public and the designer himself,
- 3) traffic restraint may partially a problem in a place but creates many problems in other places.
- 4) According to the Egyptian attitude, it is not convenient to businessmen to spend long times to reach a certain place or to look for a parking lot.

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