LECTURE A11 – TRAFFIC CALMING

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INTRODUCTION

Traffic calming has become the recognised term to describe the use of traffic management to restrict traffic volumes and speeds so as to improve the environment of a particular road or area.

Areas most in need of traffic calming are typically those subject to arterial avoidance, or rat-running traffic. A rat-run is the term used to describe a road that carries traffic volumes that are noticeably higher than desired in relation to the local environment. A rat-run road is typically an alternative to a major road and is used to avoid traffic congestion especially during peak traffic periods.

INTRODUCTION

The history of traffic calming starts with the realisation, in many countries, that the lack of Road Access Management has resulted in environmental degradation and traffic congestion in existing areas.

The acceptance of city centre traffic calming has led to a demand to protect outlying areas, often residential, from the effects of excessive traffic. With the spread of traffic calming, it has become clear that a comprehensive city policy to manage the environment, including improved public transport and residential traffic calming, is essential.

INTRODUCTION

Care however must be exercised to ensure that traffic calming, which is probably more accurately termed traffic aggravation and resident calming, does not result in “road rage”.

CURRENT SITUATION

The demand for residential traffic calming is generally from the public, usually at the grass roots level, as a result of irritation creating a willingness to organise.

Taking a resident-based approach to consultation tends to encourage the NIMBY (Not In My Back Yard) syndrome.

Before commencing any traffic calming action, it is essential to quantify the problem and to be in a position to monitor the situation. This requires the collection of adequate traffic data.

CURRENT SITUATION

The perceived problems and causes must also be clearly identified, and it is at this stage that questionnaires and full general public involvement is required.

It should be realised that balancing the legitimate environmental demands of the residents against the wider needs of accessibility by the general public is a difficult and time-consuming exercise.

The need for residential traffic calming arises from the desire to reduce traffic volumes, to protect vulnerable road users, such as pedestrians and cyclists, to protect property, to limit pollution and to safeguard health and the ability to enjoy a relaxed, sociable, residential environment.

CURRENT SITUATION

Traffic calming cannot be undertaken in isolation. It must take into account the road network because devices installed in one road affect surrounding roads.

To assess the effects of traffic calming, traffic data must be collected and analysed. The primary purpose of traffic calming is normally to reinforce the road hierarchy.

Traffic calming techniques are not all appropriate to every type of road in a suburban network. It is important, therefore, to establish the road hierarchy in an area before giving any consideration to the type of traffic calming measure that may be implemented.

TRAFFIC CALMING TECHNIQUES

The major restraint on the implementation of traffic calming is the conflicting objectives of reducing speed and volume on some roads while forcing traffic back onto the slower, more congested routes they have diverted from. The choice of the most suitable traffic calming measures is difficult even in small residential areas and they all have different effects on accessibility, speed, noise, pollution, safety and pedestrians.

TRAFFIC CALMING TECHNIQUES

The measures considered in an area must be a reflection of the function of the road on which they are to be applied, and the geometric design needs to take cognisance of this.

Some of the measures are described briefly below.

a) No control – vehicles approaching intersections with no control do so with caution as the right of way is defined by “first come, first served”. Most authorities however are reluctant to not control intersections because of fears of abuse.

TRAFFIC CALMING TECHNIQUES

b) Priority control - tends to regulate speeds. YIELD or STOP control forces traffic to slow at an intersection in order to confirm that it is safe to proceed. Nevertheless, the control should only be applied to the minor flow. Control of the major flow soon leads to motorists ignoring the signs, which creates a very dangerous situation. Four-way stops are the worst form of intersection control and are generally abused.

c) Modern Roundabouts – by far the best and most successful form of traffic calming. Roundabouts are safe, efficient and have a high capacity. They deal with high turning movements and enable u-turns.

TRAFFIC CALMING TECHNIQUES

d) Traffic circles – similar to roundabouts but less safe and sometimes subject to abuse. Nevertheless, the mini-circle can be effectively used for traffic calming and is preferred to the four-way stop. Thus disadvantages are far outweighed by their advantages and mini-circles should be considered as a very suitable traffic calming measure on minor streets.

e) Speed humps (and not speed “bumps” as typically found in townhouse developments) - discourage speeding and/or use of the road. Generally ineffective, but widely used anyway.

TRAFFIC CALMING TECHNIQUES

f) Rumble strips - are intended to warn of a hazard rather than to reduce speeds and are therefore not particularly effective for traffic calming. They give an audible warning and function by inducing vibration within a vehicle to alert the driver to a hazard ahead. The noise generated is often unacceptable to adjacent property occupiers.

g) Raised tables - are flat topped speed humps with a much larger flat top section to facilitate pedestrian movements and may be combined with any formal or obvious pedestrian crossing point such as at schools and intersections.

TRAFFIC CALMING TECHNIQUES

h) Raised intersections - are a specialised form of raised table applied to the whole area of an intersection.

i) Thresholds - are a specialised form of raised table applied to the mouth of an approach road at an intersection to discourage and/or to slow traffic entering a traffic controlled area.

j) Road narrowing - Narrowing the road and providing only narrow verges, creates a closed-in appearance which assists in reducing speed.

TRAFFIC CALMING TECHNIQUES

k) Chokers - These are local road narrowings designed to restrict the flow and, to a lesser degree, the speed of traffic. They can be one or two-lane.

l) Chicanes - are artificial bends introduced into the horizontal alignment of a road, or intersection primarily for speed control.

m) Road closures - are the most effective form of traffic volume control. Simple road closures are appropriate to prevent traffic from turning off a main road and are often incorporated into improvements of major road intersections. Generally, simple road closures are not popular with residents.

TRAFFIC CALMING TECHNIQUES

n) One-ways - have been used in traffic calming schemes overseas but are not recommended. They increase traffic, encourage speeding and are often ignored thereby increasing safety problems.

o) Prohibited movements - are also specialised forms of partial road closures by banning left or right turns or particular classes of traffic. Prohibition by signing only is rarely successful and extensive physical works are usually required to make the measures effective.

TRAFFIC CALMING TECHNIQUES

p) Traffic signals - are not recommended in residential areas. They are visually intrusive and encourage the perception that a road is primarily a traffic artery.

q) Four-way STOP - is not desirable. This form of control tends to increase collision risk because drivers approaching the intersection expect all others to be stopping and proceed without stopping. It also causes collisions to migrate to neighbouring two-way STOP intersections.