RECENT EXPERIENCES, SUCCESSES AND FAILURES WITH LOCAL AREA TRAFFIC MANAGEMENT IN AUSTRALASIA

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ABSTRACT

It is acknowledged that the application of local area traffic management (LATM) practices in Australasia in many ways has been consistent with current world best practice. Although there have been a range of LATM innovations introduced by different local government authorities in recent years these have tended to be done on a very ad hoc basis without a great deal of experience and learning being transferred from one local government authority to another. In many cases, LATM devices have been installed experimentally and in response to requests from the community but without a clear understanding of the likely outcomes and/or knowledge of research undertaken elsewhere.

This paper presents the findings of research undertaken that identified recent practices that have been adopted by a number of different local government authorities in each State of Australia and New Zealand. It presents evidence on both successes and failures of particular initiatives as well as those instances where differing results have been encountered. The paper draws together a range of experiences and gives a snapshot of the processes and devices that have been recently employed in the area of LATM.

INTRODUCTION

In the process of reviewing and updating the Austroads Guidelines for Traffic Engineering Practice Part 10: Local Area Traffic Management (Damen, Brindle and Gan, November 2002) it became evident that many local governments are trialing and implementing a range of traffic calming devices and are experiencing varying levels of success. Many of these authorities are using completely different practices and some are obtaining different results with the same devices. Their appears to be no consistency in the approach taken and it is clear that local government is not sharing information on this topic very effectively nor is it always taking advantage of the experiences of others from around the country.

The purpose of this paper is to highlight the findings of research undertaken that identified recent practices that have been adopted by a number of different local government authorities throughout Australasia.

RESEARCH BASIS

The approach used was to contact a representative number and spread of local government authorities in each State of Australia and New Zealand. In total over 50 authorities were approached for information, with the number varying from 4 in Tasmania through to 28 individual authorities in New South Wales. In addition, all State road authorities, the Land Transport Safety Authority of New Zealand, and the Institute of Public Works Engineering Association in each State were consulted.

All those contacted were asked for input as follows:

- Details of the types of devices that have recently been implemented and the reason for their selection;
- Any warrants or policies that have been identified or established for devices, strategies or schemes;

- Information on design guidelines that are widely in use that illustrate geometric parameters including treatments that cater for buses and/or cyclists;
- Details of successful public participation processes that have been used;
- Details of before and after implementation studies that may have been undertaken including any quantification of results;
- Any lessons learnt or relevant issues that are considered particularly important; and
- Information on recent successes and failures.

A series of questions was also developed in the form of a questionnaire, which was then used to elicit more detailed information from a subset of the group on the use and effectiveness of specific LATM devices.

All of this information was subsequently collated and assessed to identify where approaches and outcomes have been common as well as those instances where differing results have been encountered.

RECENT PRACTICE

Based on the research it is apparent that the devices most commonly installed by local government in the last 2 years include:

- Raised tables, ie flat-top road humps (eg Palmerston North, Wodonga, Rockingham, Launceston, etc)
- Road humps (eg Lismore, Upper Hutt, Lithgow, Stonnington, Launceston, Wodonga, etc)
- Kerb extensions/road narrowings (eg Upper Hutt, Gosford, Latrobe, Wodonga, Marion, Belmont, Launceston, Joondalup, Penrith, etc)
- Mid-block/median islands (eg Lithgow, Gosford, Upper Hutt, Belmont, Launceston, Joondalup, etc)
- Roundabouts (eg Stirling, Gosford, Latrobe, Marion, Belmont, Wodonga, Salisbury, etc)
- Threshold/perimeter treatments (eg Latrobe, Wodonga, Gosford, Marion, Rockingham, etc)
- Central linemarking/flush kerbing (eg Penrith, Joondalup, Gosford, etc)

To a lessor extent there has been implementation of devices such as one and two lane slow points and intersection priority changes and channelisation. Very recently there has also been a flurry of activity with the installation of speed cushions (eg Gold Coast, Marion, etc).

Devices that are rarely being used are ‘mobile’ speed humps, driveway links, left-in/left-out islands and pavement bars/tactile surface treatments. The feedback generally indicated that road closures were not commonly being considered.

EXPERIENCES BY LOCAL GOVERNMENT

The experiences of local government in relation to the implementation of LATM are quite revealing. It is clear that not all experiences are the same and that there are many contradictions in practice. It is not always clear what the reasons are for the different results particularly where these differences relate to the implementation of the same type of treatments. This finding highlights the need for substantially more research to be undertaken in Australia and New Zealand in a coordinated fashion to identify what are the key success factors pertaining to the implementation of specific LATM treatments.

The following section of this paper summarises some of the more relatable experiences of local government in recent years.

Effectiveness of Devices and Lessons Learnt

Median islands have been found to be effective in slowing down traffic in the City of Upper Hutt. Driveway links have been proven to be effective in municipalities such as the City of Marion, the City of Salisbury and the City of Prospect (**see Figure 1**). Roundabouts,

threshold/perimeter treatments, and raised tables have all been effective in the City of Latrobe. The City of Marion's experience also indicated that threshold/perimeter treatments have been most effective in slowing down traffic. Roundabouts have been found to be effective in reducing speeds, conflicts and the severity of crashes in Wodonga, Launceston, Penrith, etc.

Kerb extensions/road narrowings and flush kerbing/central linemarking have been found to be very effective in slowing down vehicle speeds in municipalities such as the Cities of Palmerston North, Wodonga, Belmont, Launceston, Penrith and Joondalup. This type of LATM treatment is being increasingly used by a large number of local governments as it tends to be a passive device that is more acceptable to the public. The effectiveness of the treatment can be linked at least in part to its continuous integrated nature in comparison to the isolated use of more severe treatments such as road humps and one-lane angled slow points. Only the City of Stonnington provided information to suggest that kerb extensions/road narrowings have been ineffective and are no longer being implemented in that municipality.

Speed cushions are not widely used as yet but have been found to be effective in quite a few locations (Christchurch, Gold Coast, etc) (**see Figure 2)**. In the City of Marion, speed cushions are currently being trialed and monitored for their effectiveness. So far, it has been established that they are effective in slowing down vehicle speeds where the 85th percentile speeds are less then 80km/hr. In the City of Manningham, speed cushions were installed but have subsequently been removed due to residents' complaints over noise issues.

Round profile road humps are often considered to be too severe on vehicles and are therefore seldom used. For this reason, the City of Ipswich and the City of Palmerston North use raised tables in place of round profile road humps. Other local government authorities such as the City of Rockhampton use raised tables as their experience shows this device to be more effective in reducing vehicle speeds than round profile road humps. Conversely, the City of Stonnington and the City of Launceston have found that in general round profile road humps are more effective in slowing down vehicles than raised tables and consequently raised tables are not used in these municipalities. Due to public opinion, the City of Marion has not installed any new round profile road humps or raised tables in that municipality in the last 5 years.

A device that has proven to be unsuccessful in many applications (eg The City of Redcliffe in Queensland) is the left in/left out triangular splitter island placed at intersections to prohibit right hand turning movements. This device has a high level of violation, particularly in those cases where the islands have been designed to allow larger vehicles to negotiate them. A lesson that can be learnt from this experience is that this type of device is not necessarily very effective on roads used by larger vehicles, eg areas with a mix of commercial or industrial uses. This highlights the importance of appropriate selection and design of devices.

Two lane angled slow points have been reported by the City of Caboolture in Queensland as being problematical. It has been found that motorists misusing the device can lose control and crash if they approach at too high a speed. Signage is not always effective in controlling approach speeds. A lesson that can be learnt from this experience is that devices with large horizontal displacements are not very appropriate on roads with high through volumes of speeding traffic.

Two-lane slow points are no longer preferred by many local governments as they do not effectively cater for buses, service vehicles and other large vehicles. Evidence also suggests that they have not always been as successful in reducing vehicle speeds as intended. Conversely, slow points in the form of blister islands are regularly being used throughout Australia and have been found to be very effective where the lane deflection reduces vehicle speeds down below 40km/hr.

Experience with the use of road narrowing and slow points also indicates that constricted lane widths will concentrate vehicle loads to an extent that existing pavements may not be capable of withstanding. This finding supports the need for appropriate design and in many cases the need

for pavement reconstruction at the time of device installation to prevent the pavement from failing in an accelerated fashion.

Another finding is that speed limit signage schemes have proven to be unsuccessful (eg the City of Penrith) where they have not been installed with other supporting physical devices. This experience reinforces the principle that signage schemes should preferably only be implemented where the speed environment of the road has been lowered with physical devices and other features to be consistent with the reduced speed limits.

In the City of Launceston, a LATM treatment involving flush coloured pavement bands was trialed in effort to reduce vehicle speeds on Trevallyn Road (**see Figure 3)**. Before and after studies showed that the treatments were ineffective in that the results showed that speeds actually increased after implementation of the treatment. This experience tends to indicate that devices that do not incorporate physical displacement may prove ineffective.

Acceptance of LATM

Road humps are the LATM device most often complained about by residents. The complaints most often relate to the inconvenience factor and the noise issues for adjacent residents, especially the acceleration/deceleration noise derived from vehicles travelling over the humps. For instance, as a result of frequent complaints about raised tables in the City of Salisbury, none have been installed in that municipality in the last several years.

Complaints are received about median islands, as they often restrict motorists movements forcing them to change their driving behaviour. Complaints are also received from cyclists in relation to road narrowings, as these types of treatments are not always designed to effectively accommodate them.

The reason most often conveyed for the success of LATM treatments is public acceptance and support of the devices. The amount of public support required to implement an LATM treatment varies quite considerably from Council to Council. Palmerston North requires 75% public support. Many other local government authorities have no specific measure for public support of devices that they use prior to installation (eg Upper Hutt).

Complaints are in many cases received during construction and for up to 2 months after installation. Complaints are predominantly made by local residents who are concerned about noise, loss of parking and the effectiveness of the treatments. After this initial 2 month period people often get used to the devices and complaints generally stop occurring.

Decisions about the implementation of LATM are often made by Council elected members that do not have the technical background necessary to make appropriate decisions. The lesson here is that it is quite important that technical staff provide the Council with the appropriate technical solution and justification that best suits the situation.

A common problem experienced is that LATM devices get installed during the development of a subdivision prior to the area being occupied. When residents move into the area they often complain about the location and/or size of LATM devices and request that they be removed or modified. It appears that this situation also occurs when residents are engaged through a consultation process and agree to the installation of a device. Often complaints are received some years later from people new to the area not previously involved in the LATM selection process.

Evidence also indicates that even when residents ask for a particular device to be installed in many cases those same residents ask for the devices to be removed again. A recent example is the case of the installation of speed cushions in the City of Manningham in Victoria. Speed cushions were installed after consultation with local residents but several months later they had to be removed because residents were complaining about the noise from them.

In large majority of cases devices have operated successfully regardless of the process used to select and implement them. Often the reason for failure is poor selection and design of the treatments. Very rarely are devices removed by local government authorities. Often devices do not fail entirely but instead have less than the desired level of effectiveness.

Design problems often relate to inadequate or inappropriate deflection and/or width being provided. The most effective devices are those that do not overly inconvenience local residents, that are highly visible, and that provide sufficient horizontal or vertical deflection or diversion that they produce much lower speeds.

CONCLUSIONS

It is very evident that there is a growing pool of knowledge on the topic of LATM within local government throughout Australia and New Zealand. This information indicates a range of different practices are being employed and approaches and opinions vary. Nonetheless, the experiences of many that have been gained over recent years are quite valuable and need to be shared. If they are not, they will be lost and the local government community, including new practitioners to the field, may suffer the failed experiences of others.

It is clear that there is a need for substantially more coordinated research and information transfer to be undertaken in Australia and New Zealand in this area to identify what are the key success factors pertaining to the implementation of specific LATM treatments. The question is who will fund this research and disseminate this information so that the entire local government community can benefit from it?

REFERENCES

DAMEN, P.J., BRINDLE, R., AND GAN, C., 2002. Guide to Traffic Engineering Practice Part 10: Local Area Traffic Management. Draft November 2002. Austroads.

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'Figure 1 – Driveway link in Prospect'

'Figure 2 – Speed cushions in the Gold Coast'

'Figure 3 – Flush pavement bands in Launceston'