

TECHNICAL NOTE

1ST NZ PUFFIN PEDESTRIAN CROSSING

Positive experiences with the trial of PUFFIN (Pedestrian User Friendly Intelligent Crossing) style near-side display pedestrian aspects at a mid-block signal controlled pedestrian crossing.

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ABSTRACT

Experiences with the introduction of a PUFFIN style pedestrian Crossing, using near--side pedestrian signal aspects. Before and after study revealed an improvement in pedestrian behavior. Near-side pedestrian signal aspects were accepted by the pedestrians. So much so, that the chance of a fully legal complaint crossing (on the green) improved by 60%.

Dubious interpretation of the flashing red clearance period was totally eliminated.

Hutt City Council was more than satisfied with the outcome, which exceeded their expectations. NZTA have agreed to extend the trial City-wide, to include all mid-block signal controlled pedestrian crossing within Lower Hutt City.

INTRODUCTION

Late 2008, Hutt City Council (HCC) had a requirement to signal control an existing Zebra pedestrian crossing out-side Hutt Central Primary School in Railway Avenue Lower Hutt.

The requirement for a signal controlled crossing had been established, and the need for signals was hastened by the expected increase in vehicular traffic (+30%) on Railway Ave as a result of the completion of the SH2 Dowse to Petone (D2P) interchange, connecting Dowse Drive to Huff Road.

The concept of using near-side pedestrian displays was first promoted by the author in 1993. An opportunity to use near-side pedestrian displays, instead of the NZ Standard far--side displays was raised at by the author at various levels within HCC. Such a technique is common overseas and usually called a PUFFIN crossing. PUFFIN's are not an approved Traffic Control Device in NZ yet. The School, NZTA, Police, and the Hutt City Road Safety Action Plan members were supportive of the trial.

In February 2009 a formal application for a trial of a new Traffic Control Device was lodged with the Chief Executive of NZTA. Approval for the trail was granted, with the normal conditions that some "Before" and "After" monitoring was undertaken and provided to NZTA. Approval was granted by NZTA and notification was posted in the NZ Gazette.

Behavioral scientists were engaged to undertake a "Before & After" study to measure changes in pedestrian compliance. No change was made to the audio-tactile facilities, nor the vehicle aspects or detectors.

The signal controlled isolated pedestrian crossing was installed prior to the commencement of the 2009 primary school year. Behavioral scientists were briefed and engaged to undertake the monitoring. Monitoring was undertaken for a three week period during the school term, with the NZ standard controlled crossing utilising far-side pedestrian displays. A swift changeover from far--side to near-side pedestrian displays was made on the afternoon of Friday 8th May 2009. The primary school children were briefed at a full school assembly just before the end of school (2:30pm). This meant that the children who are regular users of the crossing arrived for the day with far-side pedestrian signal displays, and departed with only near-side pedestrian displays. There was no evidence of any confusion created by the change in signal displays.

Monitoring of the operation with near -side displays continued for a further three weeks.

The behavioral scientists report stands separate from this paper, but in brief shows a 60% improvement in compliance with pedestrians leaving the kerb.

Encouraged with the success of the trial, HCC has requested NZTA to extend the trial City wide. This has been accepted by NZTA, pending amendments to the Traffic Control Devices Rule(s).

Puffin Near-Side Displays

The two cardinal features of the PUFFIN Near-side Call Box are;

- The near-side pedestrian display, which while smaller than the current Land Transport requirement, is far clearer to see for partially sighted people.
- Normally located at an angle, requiring pedestrians to face directly towards the on-coming traffic, while waiting for the safe to cross message to appear.

WHAT PROBLEM?

Concern has been expressed by the profession on numerous occasions about the apparent lack of understanding of the Flashing Red Man Display. (IPENZ Transportation Workshop). Wellington City Council and Auckland City Council have in the past embarked upon several media campaigns to improve understanding by road users of pedestrian signals.

We get to the current NZ Standard position by a series of small apparently logical improvements which in the author's opinion have collectively added to the problem.

NZ once had CROSS and WAIT displays on the far -side, supplemented by an illuminated near -side WAIT display for Call Acceptance. CROSS was White, WAIT was Red. As a power saving initiative we then progressed to have the WAIT Extinguish on both the near and far-side displays. This measure was introduced largely as a power saving issue during the late 1970's power crisis. The need was exacerbated by the use of incandescent light bulbs which were subject to 3 month replacement. Under these controls the Call box acted remarkably like a near-side PUFFIN pedestrian display with the call box either saying WAIT or blank. The far-side WAIT flashed, after the CROSS expired for the calculated (by speed and distance) clearance period. Flashing WAIT after a CROSS display on the near -side had a degree of intuitive logic not too distant from the PUFFIN method.

Once the CROSS/ WAIT displays were replaced (for cost reasons) with Red/Green Man displays (in converted 2 aspect vehicle lanterns), and the Call Accept notification on the call box was lost (PCB4 & RTA Style audio tactile) a leap of faith away from intuitive logic is required. The call accept recognition for pedestrians' was removed from within one metre of the pedestrians eye to the other -side of the road - perhaps 12m away.

It is now, in the author's opinion, not surprising that our flashing Red Man display is largely misunderstood. I would cite various media campaigns in cities to reeducate the legal meaning to all road users of a flashing red man pedestrian display.

A near -side PUFFIN Display is intuitively simplistic, and incorporates all the features of the previous CROSS/WAIT system, plus recognises the advantages of placing the call box on the right, requiring the pedestrian(s) to look directly toward the oncoming traffic.

MORE PUFFIN FEATURES

Today a full UK style PUFFIN has many features. These include;

- Near-side pedestrian displays, which removes the requirement for the illogical Flashing Red pedestrian display, and requires the pedestrian to look toward the oncoming traffic.
- Call cancellation, where waiting pedestrians who, after lodging a crossing request demand, depart (for whatever reason) before the vehicles are halted, are ignored and the vehicular traffic is not interrupted.
- Variable crossing clearance times that are proportional to the measured (Radar?) speed of pedestrians. This feature will decrease the clearance period for faster pedestrians progression, and/or extend the clearance period for slower pedestrians.

Both the latter two features promote more efficient vehicular flow of traffic.

There is further potential to use SCATS Strategic Approach information to vary the controller gap settings to provide more immediate pedestrian service during times of reduced vehicular flow.

NOTE:- For the purpose of this trial, only the characteristics of near -side displays at an isolated pedestrian crossing were measured. The other PUFFIN features mentioned above are not classed as traffic control devices, and can therefore be used by the Road Controlling Authority Traffic Engineers should they so wish.

HCC makes use of some of these features elsewhere, but not all nor exclusively throughout the City. We propose to do so, when funds permit.

CONCLUSION

HCC traffic engineers conclude from their own observations, community views and the behavioral scientists report that isolated signal controlled pedestrian crossings with near - side pedestrian displays as per the UK PUFFIN layout exhibit superior pedestrian safety characteristics than the NZ standard method which uses far -side displays and flashing Red Man symbol displays.

The author is of the view that this method represents the most significant change in technology and rules to improve pedestrian safety at signals since the introduction of vehicle phase red arrows.

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