

## Giving way to buses potentially a good idea

**A Transport Agency-funded research project undertaken by Abley Transportation Consultants has examined and quantified the economic and other benefits that would result if buses were given priority when exiting bus stops.**

The study provides an evidence base from which to review existing regulations, and to inform future policy decisions about increasing the priority of buses on the New Zealand road network.

### The need to give way

Buses in New Zealand are finding it progressively difficult to re-enter traffic when leaving bus stops in urban areas.

The government has a key strategic goal of improving the efficiency and effectiveness of public transport, and there has been a focus in recent years on measures to achieve this, such as electronic ticketing, bus lanes and priority traffic signals. Despite these measures, buses still rely solely on other road users' courtesy in order to merge back into general traffic flow when leaving a bus stop.

Over the course of a route, the delays involved in waiting for a gap can have a significant compounding effect, which impacts on a bus's travel time reliability and ability to stick to schedules, and on the overall efficiency of bus network operations. This in turn affects public transport patronage, as reliability and punctuality have been consistently rated in previous research as the most important factors that influence whether or not people use public transport.

### Understanding delays

The research sought both to identify the nature and extent of the delays experienced by buses, and to quantify the benefits of introducing measures to avoid or mitigate them.

As a starting point, the project used a literature review and focus groups to explore questions related to the potential benefits and dis-benefits of giving buses priority when leaving bus stops, for example: What were drivers' attitudes to 'give way to buses' rules? What were the safety ramifications of making a rule change? What trade-offs would be involved for buses and bus passengers, and for general traffic?

Focus groups with stakeholders and road users built understanding about current practices for bus egress movements and the likely implications of any change in the legislation.

Comprehensive data, gathered from Auckland and Christchurch, about the delays experienced by

buses on a typical day was compiled. The data was then used in a simulation to calculate the passenger and vehicle travel time benefits of removing these delays.

The simulation calculated there was a network-wide total of 29.5 hours per day of delays to buses, across all scheduled services in the Auckland region. The total gives an indication of the potential travel time savings that could be achieved through a change in the give-way legislation to give buses priority, if the change achieved 100% compliance. The results for the Auckland network were expanded to calculate nationwide benefits.

The preliminary stages of the research indicated there was a combination of tangible and intangible benefits arising from bus priority schemes. Some of the tangible benefits, such as travel time, vehicle operating cost and public transport reliability benefits, could be given a monetary value. Other, more intangible benefits included reducing driver stress and frustration, clarifying driver obligations, providing a catalyst towards improved road courtesy, and improving the profile of public transport for all road users.

### The economic perspective

The results gained from the simulation were used in the Transport Agency's economic evaluation framework to quantify the tangible benefits of a legislative change.

The evaluation showed the tangible costs of any such change would largely relate to implementation costs and the dis-benefits to other general traffic, as well as any road marking and signage costs.

The literature on give-way-to-bus schemes introduced overseas clearly showed that their success and the degree of compliance achieved was directly related to the extent of the signage and education campaigns implemented alongside them.

The literature also identified that the on-bus signage used for a scheme was likely to be a significant portion of its implementation costs. With this in mind, the research assessed three signage options – LED signs, decals and no signage – both in terms of their costs and of their likelihood of achieving the desired give-way compliance outcomes.

## Overall the assessment concluded (p8):

Give way to bus legislation provided a viable investment opportunity with resultant nationwide benefit-cost ratios (BCRs) ranging from 4.0 using LED signage to 4.5 using bus decals. A number of sensitivity test scenarios were assessed to ascertain the likely range of BCRs when a number of input assumptions were changed. This sensitivity analysis provided confidence in the robustness around the BCR calculations, with the BCRs being within a range of 2.9 through 8.7 as outlined in the table below. The significant up-front cost of investing in LED technology results in lower BCRs for the corresponding scenario; however the decal and no signage options yield similar ranges of BCR.

Scenario	LED BCR	Decal BCR	No signage BCR
Default analysis	4.0	4.5	4.3
Maximum BCR	4.8	5.7	8.7
Minimum BCR	3.3	3.7	2.9

Other indications from the research that introducing bus-priority measures might be a good idea, included feedback from stakeholders and

focus group participants, who were invariably supportive of a move to review and change the existing legislation. Both motorists and commercial road users considered if a law change did take place, there would be no significant dis-benefits for general traffic.

On the safety side, there was no conclusive evidence to suggest making a legislative change would also result in better or worse road safety outcomes. Suggestions in some of the international literature that there may be positive safety impacts required further investigation.

Recommendations for building on the findings from the research included a review of possible give-way-to bus-schemes, and ways of implementing them, to identify those that would best suit the New Zealand road environment. A further review could focus on the most effective signs and road markings for achieving the greatest compliance levels. An assessment of the likely costs associated with amending the existing give-way legislation would also be useful, and would verify the findings as to costs and benefits that emerged from the research project.