



# INTEGRATING BUS PRIORITY SYSTEMS IN AUCKLAND, NZ

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## INTEGRATING BUS PRIORITY SYSTEMS IN AUCKLAND, NZ

*Brief : The Auckland region, home to 1.1 million people, has relied on a network of bus services, trains and harbour ferries to provide a public transport service. However, car ownership and use has been growing at a dramatic rate, leading to serious congestion problems which are now a major political issue for both central and local government.*

*Over the last 30 years innumerable studies into transport options have taken place, with favoured solutions ranging from an extensive motorway system to a light rail network. Despite the many recommendations, very little has been achieved, beyond some tinkering around the edges. Until now, that is.*

*Recently the region's cities have developed a growing network of bus priority systems on key arterial routes. The paper looks at the integrated approach adopted by the City Councils, the Auckland Regional Council and bus operators towards consultation with affected businesses and the public, marketing to potential users, liaison with other road users (particularly cyclists), and the ongoing programme of research into the effects of the bus priority systems on other road users, businesses and the public.*

*Outcomes include significant increases in patronage on the key routes, valuable reductions in travel times for both bus and car users, and a grudging acceptance by retailers of the system.*

*The paper concludes that the bus priority systems are a very cost-effective way of improving public transport use and the fear of an adverse reaction is worse than the reaction itself.*

### **Introduction**

The Auckland region has a population of 1.1 million people and a chronic traffic congestion problem. In the last 30 years, the number of vehicles has increased by 313%, compared with a population increase of 78%. At the present growth rate, Auckland's traffic is expected to grow by another 63% over the next 20 years.<sup>1</sup>

Aucklanders also have a high (and increasing) rate of car ownership. Car availability has increased from an average of 1.38 vehicles/household in 1986 to 1.55 vehicles per household in 1996 – approximately 600,000 cars and 95,000 heavy motor vehicles are registered in the region. This rate of car ownership is comparable with the USA, Canada and Australia.<sup>2</sup>

By the same token, car travel dominates travel to work, partly because “work”, for 88.4% of the region's population, is not in the CBD.<sup>3</sup> However, the CBD continues to be the focus of the public transport network, and approximately 33% of passenger trips into the CBD are by public transport (85% by bus, 11% by ferry and 4% by rail<sup>4</sup>). Dealing with such a diffuse travel pattern is one of the challenges for the total transport system.

An efficient transport system is considered essential for Auckland's ongoing prosperity because it services existing development and is instrumental in influencing future growth.

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<sup>1</sup> Auckland City Council memo, *Sandringham Rd Bus Priority Scheme*, p.1, 1999

<sup>2</sup> Auckland Regional Council (ARC), *Regional Land Transport Strategy (RLTS)*, p. 25, 1999

<sup>3</sup> ARC, *RLTS*, p. 29

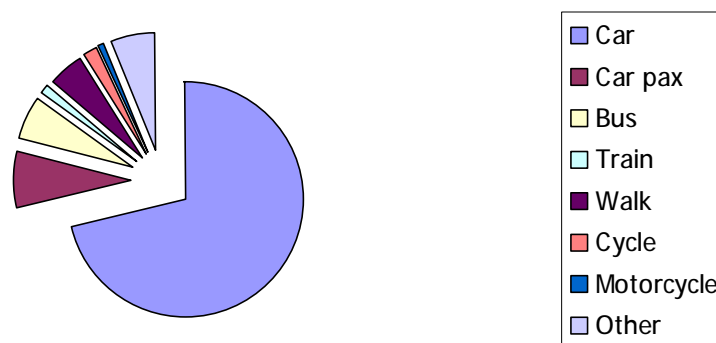
<sup>4</sup> *North Harbour News*, 4 July 2003, reporting ARC survey results

The region's public transport system is seen as the key to overcoming congestion. In fact, many surveys and workshops <sup>5</sup> identify public transport investment as the most desirable way to solve the problem.

Despite having three rail lines, bus travel is the backbone of Auckland's public transport system, as might be expected to serve a diffuse travel market.

The graph below <sup>6</sup> illustrates the car's dominance – 79% of work journeys are undertaken either as a driver or as a passenger. 6% of journeys are by bus, 1% by train, 8% by walking, cycling or by motorcycle, and 6% described as "other". Of this category, a growing number is by harbour ferry.

### How Aucklanders get to work



### Planning and funding public transport

The Regional Council, a body made up of directly-elected representatives from the four cities and two districts in the region, <sup>7</sup> is responsible for planning and part-funding public transport in the Auckland Region. Similar bodies exist in other main New Zealand metropolitan areas. City and district councils are responsible for roads, bus shelters, bus stop signs and similar infrastructure. Bus operators are responsible for providing and maintaining the vehicles, staff, ticketing equipment – in short, everything to provide the actual service.

The Auckland bus industry's investment in new urban buses since 1995 to 2003 is shown in Table 1 below :

Table 1	Number vehicles	\$ million invested
New super-low floor buses	314	72.4
New standard buses	263	56.5
Refurbished buses	40	3.5
Sub-total	617	\$132.4
Planned investment to 2006	295	90.0
Total	912	\$222.4

<sup>5</sup> For example, the vision workshops for the Auckland Growth Forum, discussed on p. 8 of *A Vision for Managing Growth in the Auckland Region*, ARC, November 1999.

<sup>6</sup> Auckland City Council, *Passenger Transport Update*, p. 2, November 1999

<sup>7</sup> Auckland City, Manukau City, Waitakere City, North Shore City, Papakura District and Rodney District.

Outside Auckland, the investment in new and refurbished buses since 1995 totals some 380 vehicles for more than \$71 million. New Zealand-wide, the investment totals 1,292 buses for \$293.4 million.<sup>8</sup>

Responsibility for marketing public transport services is divided among the regional and city or district councils and the operators.

Auckland's total public transport subsidy, or contract payments to all modes, is about \$50 million annually. This is split 40% paid by road users through road taxation, and 60% from the region's ratepayers, through a property tax.

About 55% of Auckland's bus routes are commercial, in that they do not receive any subsidy from ratepayers or road users. Note, however, that a fare concession scheme operates in the region and the concessions are available on all services. The remainder are provided under contract, which are let by a competitive tendering process by the Regional Council. All bus (and rail and ferry) services are registered with the Regional Council, regardless of their commercial or contract status and fit into an overall transport plan.

The Passenger Transport Action Plan, developed by the Regional Council, identifies four key corridors – northern, western, southern, and central. The northern corridor is the North Shore Busway. The western and southern corridors are based around the existing rail lines, with a combination of bus priority systems to link them. A central corridor route is planned for the centre of Auckland's CBD, linking a number of key destinations.

Connecting the corridors is a growing network of bus priority systems, such as:

- bus lanes,
- bus advance areas at intersections,
- bus bypasses using short lanes at intersections to allow buses to travel around traffic stopped at traffic lights,
- bus boarders (bus stops set out into the road, rather than recessed into the footpath),
- signal pre-emption using transponders mounted on the bus. The transponders either hold a green light for 10 seconds which is about to turn red, or will bring the green phase forward if they are already on red, and
- real-time information linked to the signal pre-emption system.

From a rather hesitant start in 1996, the region's Bus Priorities programme has introduced some 103 separate initiatives, with a further 23 either planned to implement or under investigation in 2002 onwards (see Table 1 below).<sup>9</sup> All are aimed at improving bus travel times and reliability, and thereby the mode's attractiveness to potential passengers. Some initiatives are as small as new signs, effective enforcement and a bit of paint on the road, while others are major programmes which involve a considerable degree of consultation and investment.

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<sup>8</sup> BCA urban operators' survey, August 2003.

<sup>9</sup> BCA, *Auckland Bus Priorities Initiative*, report dated May 2001.

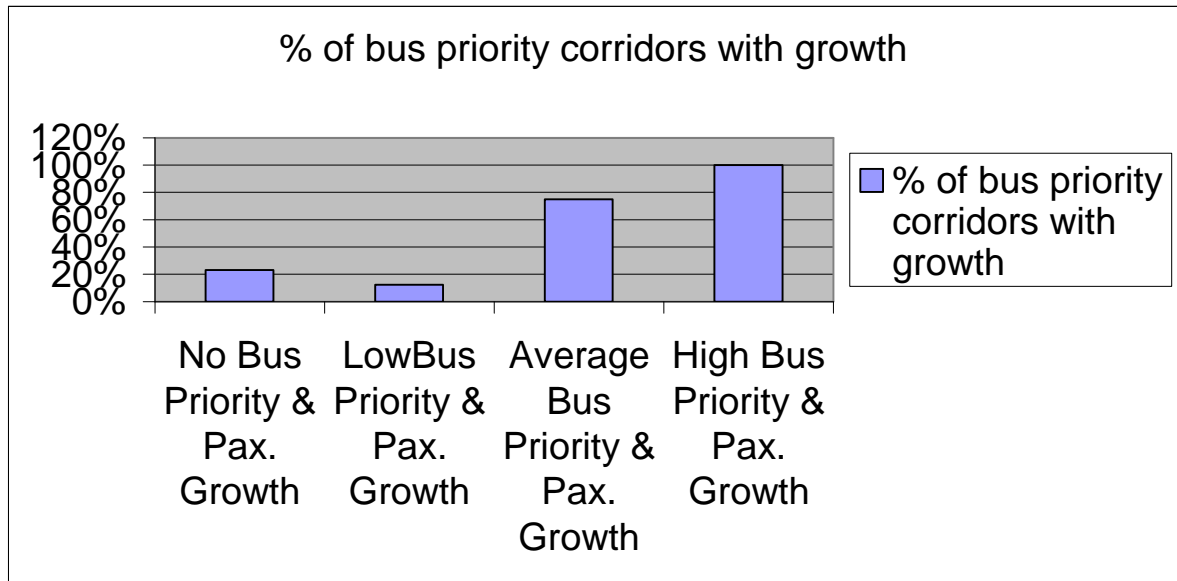
Table 2 Priority measure undertaken	Number of examples						
	1996	'97	'98	'99	'00	'01	'02+
Bus lanes extended, "greened" or built	7	3	3	7	10	18	23
Effective enforcement of illegal bus lane use and better signs		3	2			2	2
Bus priority at intersections, signal phasing, changes to layout	3	5	3	3	5	3	
Road modifications (clearways, widening, etc)		2	1	1	2	2	1
Bus stops relocated		1		1		2	
Real-time information provided					1		
Car restraint measures		1		1		4	

Table 3 sets out the bus priority projects in the Auckland region by roading authority as at February 2003 :

Table 3 Agency	Completed				In annual plans	
	Number of bus lanes	Km of bus lanes	"B" light, pockets, etc	Other (Signs, etc)	Number of bus lanes	Km of bus lanes
Transit NZ	7	15 km	6	-	2	3.6 km
Auckland City	10	26 km	7	3	12	9.0 km
Manukau City	3	2 km	6	-	4	3.0 km
Waitakere	-	-	1	3	1	0.2 km
North Shore	2	3.7 km	2	2	6	7.0 km

What has been the impact on patronage? With such a large number of bus priority systems across the region of varying length and complexity, it has not been possible to draw a firm conclusion that a bus priority initiative automatically results in patronage growth. We have analysed each bus route which benefits from some degree of priority and have divided the routes into "high", "medium" or "low". If a route has a high or medium level of bus priority systems on it, patronage has grown, as Table 4 shows :

Table 4 : Patronage growth in bus priority corridors.



“**Low bus priorities**” are very short pieces of bus lane or longer pieces but on comparative small pieces of the route, e.g. Ponsonby Road signal pre-emption and Great South Road for the Papakura – Auckland services where the bus lane length which probably represents less than 10% of the total route.

“**Average Bus Priorities**” are bus lanes of 2-4 km of near continuous length with signal preemption and “B” phases. The bus lane length probably represents more than 20% of the total route, such as Sandringham Road / Mt Wellington services.

“**High Bus Priorities**” are bus lanes of 4+ km of near continuous length with signal preemption and “B” phases. The bus lane length probably represents more than 33% of the total route, such as Dominion or Mt Eden Roads.

### **Mt Eden, Dominion and Sandringham Roads initiatives**

This paper now focuses on three bus priority initiatives, considering their planning, implementation, outcomes in terms of patronage, operating costs, and the reactions of residents and businesses on the routes, and the media. They are the first bus lanes to be implemented in NZ on this scale.

### **Why these routes?**

Mt Eden, Dominion and Sandringham Roads are three key arterials linking the Auckland Isthmus. They run roughly parallel to each other into the city centre. All are within the purview of Auckland City and the City Council has taken responsibility to get them working effectively, and all link into initiatives on other key roads.

The first was Dominion Rd, with five km of bus lanes and signal pre-emption, which was implemented in March 1998. About the same time, two km of bus lanes and signal pre-emption were implemented in Mt Eden Road. Real-time information is also provided at key stops. In April 1999 a number of bus priority projects were undertaken at key intersections along Sandringham Rd, with better timetable information provided at upgraded bus shelters. Connecting bus lanes in Symonds St were “greened” in August 1999.

These routes were chosen because they are important bus routes seriously affected by ongoing traffic congestion. The primary aim, according to the Council, is to improve Auckland's roading network's ability to meet growing travel demands. The Council also seeks to provide a quality alternative to the single-occupant car by reducing trip times and improving reliability.<sup>10</sup>

Equally importantly, the council's planners and bus operators were certain that if bus priority measures were introduced here, they would actually work. This is a crucial element in winning wider public acceptance for the total programme.

### **Consultation**

These routes were also the first major bus priority initiatives in the city and faced political opposition and the community's distrust of buses which was reflected in its car bias.

Effective consultation with residents, businesses, and the general public is at the heart of each bus priority initiative because the fear of the unknown will sink even the best-laid plans. A central theme of the strategy is to introduce bus priority measures which are right for their location. For example, these initiatives took out car parking along the routes to create space for the bus lanes, thus depriving residents of on-street parking and shops of potential customer parking. Other routes have involved taking traffic lanes.

The consultation was a two-stage process – a series of workshops with the affected community, with design work undertaken as a result of the feedback. This process led to a proposal which then underwent a more orthodox consultation and political approval in late 1997.

In addition, surveys of pedestrians and businesses have continued annually. The City Council believes that the consultation process is crucial if the initiatives are to be accepted by those affected. The success has meant that each subsequent initiative has been easier to implement.

The bus lanes are in force only at peak times so that parking in the off-peak is unaffected. Cyclists (bus and cycle lanes) share the lanes, with the intention of separating more vulnerable road users from the bulk of the traffic.

### **Quality partnerships**

The City Council's investment in public transport-based infrastructure required bus operators to play their part in making the system more attractive to potential passengers. To balance the design, construction and implementation of the priority schemes, bus operators signed a "Quality Partnership" agreement which set out their obligations to the Council and to the passengers.

The bus operators' key components of the Quality Partnerships are :

- Ensure that 90% of services are operated with modern low-floor easy-access buses (or a suitable substitute);
- Increase service frequencies so that passenger capacity (measured by the number of standing passengers) always exceeds passenger demand at all points along the routes;
- Service changes must be reported directly to the city planners;

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<sup>10</sup> Auckland City Council, *Application for EECA "Energy-wise" Award*, p. 5, 2000

- The fare structure will be simplified and the operators will “seek to implement” an integrated ticketing system. In addition, breaks-of-journey to allow passengers to get off and rejoin the service without a fare penalty are to be encouraged;
- The operator must investigate re-routing a greater proportion of its services so that more direct routes are provided;
- Patronage information shall be provided to Council;
- Operators will collaborate with the Council to enforce the car and parking restrictions in the bus lanes.

As noted in Table 1 above, Auckland’s bus operators will have invested about \$132 million in 617 new buses between 1995 and 2003, replacing about 75% of the region’s bus fleet <sup>11</sup>. The low-floor buses which are commonly used on the priority routes feature passenger comfort as well as being more efficient and quieter.

These vehicles do not have any internal steps between the front a rear doors, and have a seated capacity of 39 people. The EURO 2 engine (in vehicles introduced between 1999 and 2002) is rear-mounted. Since 2002 new urban buses have EURO 3 engines, but the full benefit of such low-emission engines must await the availability of low-sulphur diesel.

Passengers enter through wide doors with aisles with non-slip floors and easy access seating. The vehicles are wheelchair-capable and are popular with elderly and/or disabled passengers and parents with pushchairs.

Operators are also placing a greater emphasis on driver training and the industry’s training organisation has now registered a urban route service driving certificate on the national qualifications framework, with an emphasis on understanding and meeting customer service expectations. The Association is working with regional councils to give a preference to bus operators with qualified staff through the competitive tendering process.

The industry is also working towards an integrated ticketing system based on contactless cards which will be usable across all modes and bus operators. An interim system based on paper tickets and revenue shared among all participating bus, rail and ferry operators according to market share, was launched in Auckland in April 2003.

The partnership programme extended to other agencies as well. Table 5 outlines the various agencies’ responsibilities :

**Table 5 : Quality partnership responsibilities**

Agency	Contribution
Auckland City	<ul style="list-style-type: none"> <li>• Technical investigation</li> <li>• Community consultation</li> <li>• Implementation and monitoring</li> </ul>
Auckland Region	Technical investigation and advice Marketing and communication assistance
Bus and Coach Assn	Technical advice
Stagecoach NZ	Technical advice Service improvements
NZ Police	Enforcement of moving vehicle offences in the lanes

<sup>11</sup> BCA survey of members, August 2003



## Marketing to potential users

Marketing public transport is principally the Regional Council's responsibility, with assistance from the city or district council and operators. In this case, a combination of media was used – direct marketing, posters, billboards, radio and newspapers.

All households up to 500 metres from the routes received an information pack. A set of pamphlets explained the benefits of the bus priority system and how it works, the changes to the roads, when the lanes would be effective, and the likely impact on travel patterns. The pack also included redesigned timetables for the new services, and a free return ticket to encourage new users to try it.

The free tickets had an excellent take up. The average response to direct marketing campaigns such as this is usually less than 0.5%. The free ticket take up is between 4% and 5%. The cost of the free rides is carried by the operator.

The service had its own brand, called "Start" – part of a new "start" for the region's bus services, and attempting to distinguish the premium services on the bus priority routes from the standard services elsewhere. The message was "Take the bus and leave your car at home".

Posters, billboards and newspaper advertising reinforced the message. Billboards were used to explain the project while the bus lanes were under construction. Posters at bus stops along the route reinforced the improved frequency and simplified fare structure. Independently, the newspapers provided positive PR and public response. TV was not used because it is too loosely targeted.

"Greening" the lanes, a project which was completed during 2000, has reinforced their exclusive nature and keeps private motorists out of them – even though the lanes are in force for a few hours each weekday.

Internal marketing to the staff was not forgotten either. Because the lanes were used to be used by cyclists as well, bus drivers needed to be reminded to take care and a protocol was developed to keep everyone safe.

The ACC issued a pamphlet at motorists and cyclists, setting out some simple road rules such as "watch for buses pulling in or out of stops", avoid riding two or more abreast", make your self visible", "scan the road and be aware of buses", etc.<sup>12</sup>

## Outcomes – journey times<sup>13</sup>

Initially, city-bound bus travel times fell from an average of 13 minutes in 1997 (before the lanes were implemented) to an average of about 9 minutes in 1998 on Dominion Rd. Travel times remained roughly the same until March 2000 when they started to creep up again. In March 2001 bus journey times were about 11 minutes on the Dominion Rd route.

City-bound car travel times on this route have risen from about 7.5 minutes in October 1998 (six months after the bus lanes opened) to about 11 minutes in March 2001. This time is comparable with the bus travel time.

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<sup>12</sup> ACC, *Safe cycling on bus/bike lanes*, pamphlet, 1999

<sup>13</sup> Forsyth Research, *Bus Lane Monitoring Report*, March 2001, prepared for the ACC and released in May 2001.

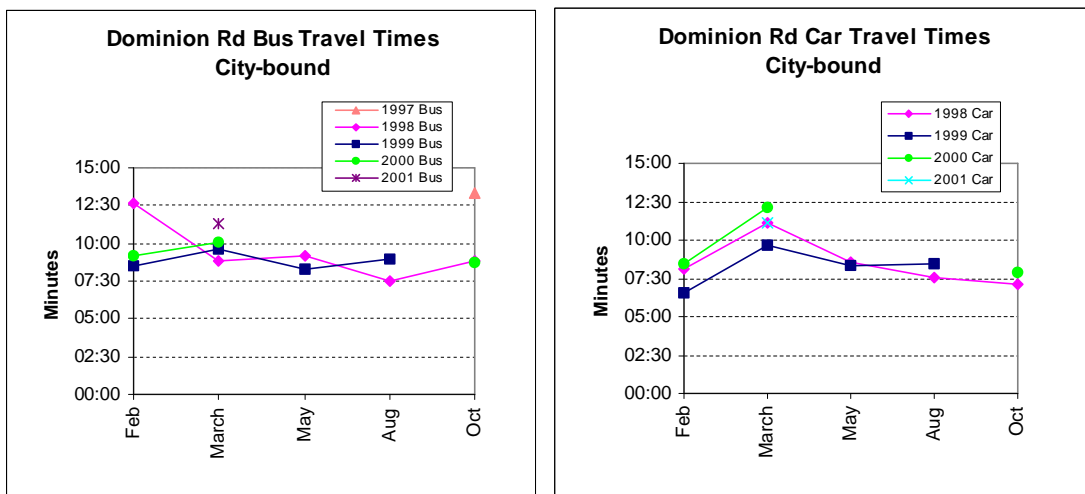
Outward evening peak bus travel times on Dominion Rd have remained reasonably constant at between eight and ten minutes. Car travel times have varied between about 7.5 minutes in March 1998 – 2000, but have suddenly risen to 12 minutes in March 2001. Again, this compares favourably with the bus travel times.

Travel time variations for both modes on the Mt Eden route are quite limited. City-bound bus journey times in 1997 were about 10 minutes; they fell to about 7.5 minutes in May 1998 after the lanes opened, but have since risen to 10 minutes again in March 2001. Car journey times have varied between five minutes and seven minutes over the four year survey period.

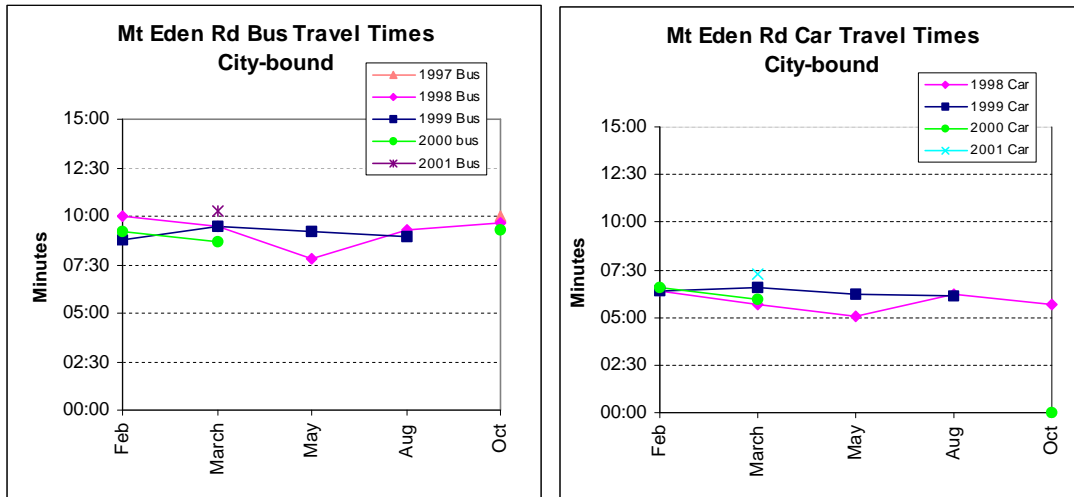
Outward journey times show a greater degree of variation. Bus journey times fell to 7.5 minutes in May 1998 (down ½ a minute from 1997 before the lanes opened) but have risen to about 9 minutes in March 2001. Car journey times have varied between six minutes in May 1997 to eight minutes in March 2001.

Signal pre-emption is also delivering average savings per bus of 13 seconds per intersection, with 9.14% of buses receiving, on average, a 90 second saving (lights were green and about to turn red; the 10 second delay triggered by the bus transponders allowed the bus to pass through before the red phase).<sup>14</sup>

The following graphs illustrate the changes in bus travel times :



<sup>14</sup> ACC, EECA application, p. 5



### Bus reliability

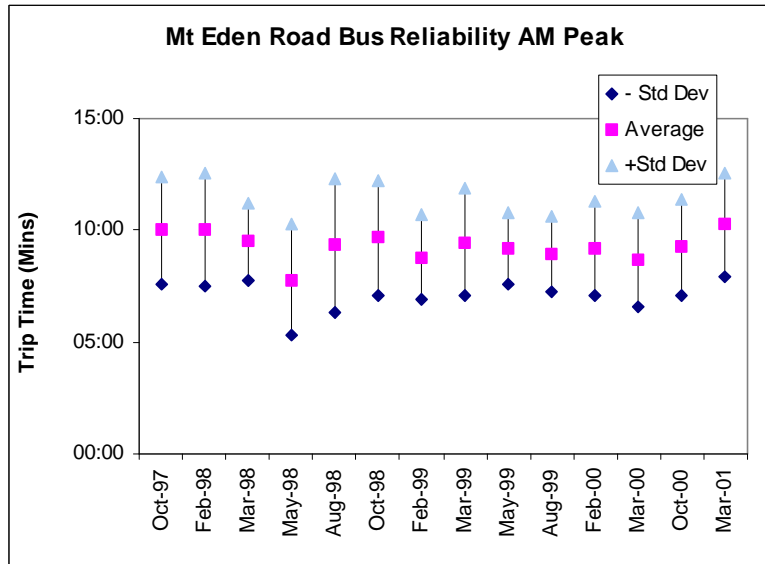
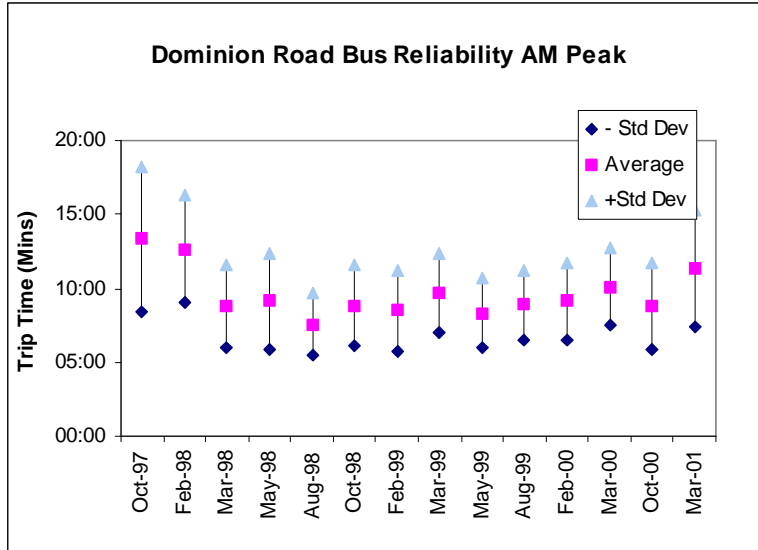
Improving bus reliability is another important objective of the bus priority initiatives, particularly during the city-bound morning peak. The following graphs illustrate the significant improvements in reliability following the priority systems' introduction on Dominion and Mt Eden Rds in March 1998.

The graphs below shows a reduction in variability travel times on Dominion Rd from more than 10 minutes before the bus lanes were introduced to a variability of five minutes in late 1999. In more recent times, reliability has fallen, with a variation approaching eight minutes in March 2001.

Variability in travel times on Mt Eden Rd is less marked because the lanes are shorter. There has been a slight trend towards a smaller variability from the average. Sandringham Rd shows an improvement from about six minutes in March 1999 to about four minutes in the most recent survey.

Bus priority systems for the outward journeys in all three routes do not show a significant change in what is a reasonably reliable service. The variability range has remained about four minutes on each route.

The worsening in reliability in the most recent surveys highlights the importance of extending the bus lanes on both key routes. The industry has been pressing the ACC for action on this front.



### Vehicle traffic counts

The ACC reported that car traffic on Dominion Rd after the bus lanes were introduced fell by some 300 vehicles per day, or about 10%, in both the morning and evening peaks. Traffic numbers remain unchanged on Mt Eden Rd.<sup>15</sup>

More current information is not available for this route, but a study undertaken on the North Shore's Orewa Rd transit lane, which also has bus priority lanes, showed that vehicle numbers had fallen by 21%, from 1,834 vehicles during the morning peak to 1,446 vehicles. 68% of commuters travel in the transit lane in 27% of the vehicles.<sup>16</sup>

<sup>15</sup> ACC, *Start bus promotion factsheet*, April 1999

<sup>16</sup> Report into the Orewa Rd Transit Lane, North Shore City Council, May 2003.

## Cycles

Obviously cyclist numbers using the system are weather-dependent. Cycle numbers on Dominion Road show an increase in 1998 over 1997 (March 1998 = 80 cyclists daily), but have continued to decline since that peak. March 2001 recorded about 50 cyclists using the lanes daily.

Mt Eden Rd cyclist numbers have been more erratic. City-bound daily numbers have risen from 20 in February 1998 to a peak of 65 in October 2000, falling back to about 35 in March 2001. Outward journeys are less frequent; daily trips rising from about 12 in February 1998 to a peak of 48 in October 2000. The most recent survey shows 28 cyclists travelling out from the city in March 2001.<sup>17</sup>

## Bus patronage

The three routes all show significant gains in patronage<sup>18</sup>. The following tables compare the increase in passengers traveling on the corridors.

**Table 6 : Morning peak comparisons**

Route	AM 1998 v 99	AM 1999 v 00	AM 2000 v 01
Dominion Rd corridor	14.05%	11.52%	16.04%
Mt Eden Rd corridor	18.86%	14.74%	6.76%
Sandringham Rd	2.56%	11.19%	13.54%

**Table 7 : Evening peak comparisons**

Route	PM 1998 v 99	PM 1999 v 00	PM 2000 v 01
Dominion Rd corridor	17.52%	10.59%	15.89%
Mt Eden Rd corridor	14.87%	15.23%	3.73%
Sandringham Rd	5.81%	13.48%	10.35%

**Table 8 : Inter-peak comparisons**

Route	1998 v 99	1999 v 00	2000 v 01
Dominion Rd corridor	4.01%	8.31%	14.75%
Mt Eden Rd corridor	1.53%	8.47%	0.99%
Sandringham Rd	2.74%	12.53%	12.00%

**Table 9 : Summary – total patronage movement, 1998 v 2001**

Route	AM peak	PM peak	Inter-peak
Dominion Rd corridor	43.49%	27.45%	46.15%
Mt Eden Rd corridor	43.32%	11.13%	36.18%
Sandringham Rd	27.62%	27.66%	30.50%

*In these tables, "AM" is between 0500 and 0900 hours, "PM" is between 1600 and 1900 hours, "Inter-peak" is the times outside the peaks. "1998 v 99" is the percentage change in*

<sup>17</sup> Forsyth Research, *Bus Lane Monitoring Report*, March 2001, prepared for the ACC and released in May 2001

<sup>18</sup> Stagecoach NZ, patronage data (Roskill Depot), October 2001

*patronage on comparable months in 1998 and 1999. "1999 v 00" compares the patronage change for the same period the following year, and so on.*

Average passenger numbers for weekdays during a month for the three routes increased from about 237,300 people in 1998 to 318,500 in 2001. This is a monthly increase over the three year period of 34.2%, or 81,200 people.

All parties regard this movement as a significant success.

Over all of their routes in this period Stagecoach achieved a 4.17% increase in patronage. The percentage increases shown in the tables above show growth on the priority routes tracking well ahead of the company average.

A quote from a new bus passenger illustrates the public's response to the bus lanes : *"I noted the number of the bus going past me on the shoulder; when I saw the same bus going back in the other direction before I reached the Harbour Bridge, I knew I had to change my transport mode."*

### **Bus operating costs**

The initial increase in patronage resulted in surplus capacity being filled. The agreement with the Council required the operators to increase capacity in line with patronage growth (more people = more or bigger buses and a greater frequency), which has resulted in larger vehicles being used on the routes.

The service frequency is now five minutes in the peaks, 10 minutes on the shoulders and 15 minutes in the off-peak.

Changes in the funding criteria also means that additional services can be slotted in as required (and before the patronage demand requires them). These are paid for under contract by the Regional Council.

The operators do not report any quantifiable cost-savings at this stage as a result of the Dominion Rd, Mt Eden Rd and Sandringham Rd bus priority systems, but they have allowed the operators to defer or avoid future costs by saving time in traffic congestion and therefore the need to put on additional vehicles to keep to the timetable. However, they advise that congestion is now causing problems on the road before the lanes start, and the industry is working with the City Council to extend the lanes and priority intersections further out on the key corridors.

The North Shore bus lanes, which run along the motorway shoulders, have allowed the bus operators to avoid significant capital costs. One operator reports a saving of some 20 additional vehicles, or an additional \$1.6 million annually in contract costs.

### **Retailers' reactions**

Retailers resisted bus lanes because the loss of parking could lose them customers. Car drivers expected travel times to increase because of the loss of a traffic lane (in some cases), and residents did not like the loss of on-street parking outside their homes. During consultation the Council decided not to put bus lanes in main shopping centres which rely on "convenience parking" for their custom.

The Council felt that on-going monitoring of the retailer and public reaction to the lanes was important to demonstrate that the fears were largely unrealised. The surveys were undertaken prior to implementation and twice since then.

121 businesses were interviewed in February 1998, before the lanes were implemented. In the third round a year later, 105 of the original cohort were interviewed, thus allowing responses to be compared accurately.

The objective of the survey was to determine business characteristics and identify changes in these indicators since the inception of the bus lanes. Respondents were also asked about their attitude towards the lanes and the economy in general.

- The number of full-time staff employed in the businesses has risen by nine;
- The overall pattern of business has not changed significantly;
- 74% of customers are “regulars”; “casual” customers have declined from 25% to 13% overall; most are local;
- One business out of 105 attributed customer loss directly to the bus lanes, and one business felt they had gained business as a result of the lanes;
- 26% said business turnover had increased, 29% claim it has decreased and 38% say it has remained stable. Internal business changes or a general economic decline are blamed for these changes; a few businesses attribute the decline to the bus lanes.
- Of the threats to business, 46% identified lack of parking and congestion (little change from the previous survey). 13 businesses identified the bus lanes as a weakness, down from 17 the previous year.
- 60% said the bus lanes had no effect on their business, while 40% said there was a negative effect. This is unchanged from the previous survey.

A fourth survey was completed in early 2000. In that survey 66% of businesses claim that they have experienced no impact from the bus lanes and mention of the lanes as a contributing factor to any decline in business was the lowest of all four surveys. The research suggests that businesses are becoming accustomed to and are accepting the bus lanes as part of their overall environment.<sup>19</sup>

A survey was not undertaken in 2001.

### **Public reaction**

Just over 400 members of the public were asked to assess their reactions to the bus lanes in four areas (Valley Rd, Balmoral, Mt Roskill, and Mt Eden, about 100 people in each) in February 1999. Themes explored in the surveys included the respondent’s purpose of the visit to the area, means of transport used, parking issues, attitudes towards buses and bus lanes, frequency of shopping and their demographic. The principal findings are :

- Awareness of the lanes remains high and a clear majority (between 65% and 83%, depending on the area) regard the lanes as a “good idea”;
- Opinion on whether the lanes have a beneficial or harmful effect has polarized between the two surveys.

Perceived benefits are that the bus lanes have made public transport quicker and thereby have improved access to the area, as well as reducing congestion and have brought more people to the area.

Perceived harms relate mostly to the loss of parking and more parking congestion on the side streets (which is where the parking was reallocated). There are some concerns about safety, traffic congestion and discouraging people coming to the area.

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<sup>19</sup> ACC, *Bus Lanes progress report*, p. 3, November 2000

89% of shoppers (up from 85% in the first survey) do not feel the bus lanes have affected their use of the local shopping centres. 6% said the lanes allowed them to use the shops more often, and 2% said their local shopping had decreased. .

As the Council concluded in a paper : *“The success of the programme has shown that, contrary to the conventional wisdom of a few years ago, Aucklanders will respond positively to passenger transport improvements.”*<sup>20</sup>

### **Benefit : cost analysis**

The Auckland City Council’s costs for the city-wide bus priority programmes are as follows <sup>21</sup> :

1997-98	\$ 600,000
1998-99	\$1,000,000
1999-00	\$1,100,000

The Council has evaluated of the benefits and costs (b:c) for the bus lane projects.

§ The b:c ratio for the Dominion Road scheme was in the range of 4.4 to 7.

§ The b:c ratio for the Mt Eden Road scheme was in the range of 4.7 to 5.6.

In 1998 an engineering consultant undertook an economic analysis of signal preemption systems to establish the value of continuing with the loop-based system. This analysis indicated a b:c of 5.45 and 4 for the installation of signal preemption on Great North and New North Roads respectively.

Benefits taken into account include savings in vehicle operating costs while stopped and while moving, savings in accident costs, savings in operating costs, and savings in travel times. Monetary values were given these benefits in accordance with standard b:c roading project evaluation. Separate options were evaluated for both bus and car traffic.

Costs included the capital cost of installing the lanes and signal pre-emption systems, the cost of installing the green chip, as well as changes in travel times and vehicle operating costs.

### **Conclusions**

There is no doubt that the Auckland bus priority project has been and continues to be a success. The Auckland City Council is a leader in these innovations not only in the Auckland region but through the country as a whole. The bus industry has responded to the Council’s lead with significant investment in new plant and equipment, as well as in driver training and initiatives such an integrated ticketing scheme. The public has responded to improved service standards and modern equipment in satisfying numbers, leading to a reduction in car traffic on Dominion Rd.

Business fears have not been realised, or at worst, have been greater than feared. The bus lanes’ acceptance as part of the business environment is an important step in the process of rolling them out as part of the general roading system. So too is the public acceptance, with a very high majority agreeing that bus lanes are a positive step towards overcoming traffic congestion and problems of mobility.

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<sup>20</sup> ACC, *Application for Chartered Institute of Transport Innovation Award*, p. 9, November 2000

<sup>21</sup> ACC, *EECA Energy-wise transport Award*, p.9, February 2000



The Association is advocating bus priority systems in other parts of New Zealand where traffic congestion is a problem.

John Collyns  
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