



New Zealand Bus Industry Costs and Challenges

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Outline

- Context – why understanding costs is important
- Capital & operating cost components
- Cost trends
- Impact of road works
- Achieving greater cost efficiencies
- How costs are allocated
- How NZ compares to elsewhere
- *Health warnings:*
 - *Limited data available in public domain*
 - *Lots of pictures of buses!*



Context – Why Costs Are Important

- Bus is *generally* cost effective compared to other PT modes
 - Versatile
 - Backbone of PT
- NZTA farebox recovery policy
 - Policy finalised June 2010
 - National target of 50%
 - To be achieved by 2018
- Public Transport Operating Model (PTOM)
 - Should give Council's greater cost transparency



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Capital Costs

- New full size buses typically cost around \$350-450,000
- Smaller buses generally cheaper
 - But often not by much
 - Generally not proportional to the number of seats
- Larger buses (bendy/double deck) marginally more expensive



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Operating Costs

- Costs around \$200-300,000 / year to operate a single bus in service depending on:
 - No. of hours of operation – typically 75-80 hours per week
 - No. of days a week the bus operates
 - Labour & fuel costs – needs 2-2.5 drivers/day & 500-600 litres of fuel/week
- Each bus needs to earn **> \$50 per hour** to cover operating costs
- A smaller bus is cheaper to operate (but not much)



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Operating Cost Components

- **Labour - 60-70% of total**
 - Depending on **pay & conditions**
- **Fuel - 10-20% of total**
 - Historically reducing cost in real terms
- **Tyres, maintenance, insurance - 10-20% of total**
 - A young fleet generally has lower maintenance costs but requires a large investment
- **Red tape (10%)**
- **Total costs:**
 - *Cost per kilometre* - \$1-1.6
 - *Cost per hour* - \$22-28
 - *Annual cost* - \$30-50,000



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Increasing Red Tape

- Bureaucracy
- Health and safety
- Training requirements
- Drivers' records
- Etc....



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Cost Trends

- Bus costs have generally been increasing faster than inflation - due to
 - Labour shortages
 - Increasing fuel costs
 - Congestion
 - Road works
 - Red tape



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The Cost of Road Works

- Road works can require major rescheduling or diversion of services
 - Often requires additional resources to maintain existing service levels
 - Can have untold long-term impact on revenues
- *e.g. a ½ hourly service which takes 56 mins end to end needs 4 buses*
- *If journey times increase by 5 mins, an extra bus (& driver)is needed*
 - Costs increase by 25%
 - Well above normal **level of profit** that could be expected



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Achieving Operational Efficiencies

- Unlike trains, buses move in a mixed traffic stream & are subject to delays that other vehicles face
 - Bus speeds typically 60-80% of car speeds
- A small improvement in speed/reliability can cause a big change in operating cost
 - **Bus priority measures** can help!
- Significant efficiency gains can often be made from **good bus service planning**
 - Social implications, but often plenty of scope



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Moving from a Vicious to a Virtuous Circle

- Vicious circle
 - Buses get slower
 - Costs increase
 - Fares increase
 - Revenue reduces
 - Service cuts
 - Etc.
- *Move to a virtuous circle with:*
 - *Bus priority measures*
 - *Improved service planning*
 - *Other pro-PT policies*



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In Perspective: Bus v Rail Costs

- Big difference in scale of costs
- \$30 of labour will take you:
 - 15km on an urban bus
 - 1km on a local train



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Cost Allocation

- Can be allocated in a number of ways
 - Usually by bus, hours operated or miles operated

- Generally
 - Fuel & tyre costs are mileage related
 - Driver costs are related to hours operated
 - Maintenance costs tend to be related to hours or the number of buses operated



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Cost Allocation

- A bus 'makes a contribution' if it takes enough revenue to cover the cost of the driver, fuel & tyres, some maintenance costs

- It's often ok for a bus to make a contribution when costing the operation of late evening or early morning services

- 'Making a contribution' is less acceptable when costing weekend services
 - Operators can only tolerate so many services which only make a contribution

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Efficiency of Bus Services in NZ

- Ian Wallis Associated Limited recently completed a commission for the (then) Auckland Regional Council
- Benchmark the efficiency & effectiveness of Auckland's passenger transport performance against similar cities
 - 5 in Australia (Melbourne, Perth, Sydney Brisbane & Adelaide)
 - 4 in Canada (Vancouver, Edmonton, Ottawa & Calgary)
 - 3 in the USA (Portland, Seattle & Honolulu)



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Efficiency of Bus Services in NZ – Measures Considered

- **Working expenses per vehicle km**
 - A measure of the cost efficiency of modes between different cities
- **Average vehicle loadings**
 - Ratio of passenger km of travel to vehicle km operated in service
- **Working expenses per passenger km** (working expenses divided by passenger km)
 - A measure for comparing overall cost-effectiveness across modes & cities
- **Ratio of total fare revenue to total working expenses**
 - The working expenses recovery ratio (WER) or 'farebox recovery ratio'

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Efficiency of Bus Services in NZ – Average Bus Loading / Utilisation

- **Average bus loadings** = ratio of passenger km of travel to vehicle km operated
 - Auckland = 7.5 (lowest)
 - 15-30% lower than Wellington (8.8)
 - NZ cities lower than Australian cities (in the range 9.3 to 14.0)
 - Due to the relatively low frequency of services on a relatively large number of routes
- Points to a need to improve efficiency of **service planning**



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Efficiency of Bus Services in NZ – Working Expenses per Passenger Kilometres

- **Working expenses per passenger km = a measure of overall cost-effectiveness**
 - Auckland = 0.65 (3rd highest of the 10 comparator cities)
 - Significantly higher than Wellington (0.52) & all Australasian cities (range 0.40 to 0.56)
 - Overall range was 0.39 to 1.05
- Due to combination of moderately **high costs** & relatively **low average loading**~



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Efficiency of Bus Services in NZ – WER Ratio

- WER ratio = ***the ratio of total fare revenue to total working expenses:***
 - Auckland 38% - 2nd highest of 10 comparator cities
 - Wellington = 45% - highest
 - Ranges from 21% to 45%
- Due in part to its relatively **high costs** (relative to the Australian cities in particular)



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Efficiency of Bus Services in NZ – Working Expenses Per Vehicle Km

- **Bus working expenses per vehicle km = a measure of the cost efficiency of modes**
 - Auckland = 4.9
 - Range is 4.2 to 7.8 if Sydney is included (4.2 to 5.4 if excluded)
 - Wellington = 4.6 (rate includes diesel & trolley services)
 - Auckland's cost efficiency is 31% higher than the cost rate for diesel buses in Wellington
- Due to the very **low level of competition** for provision of services in Auckland

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Conclusions

- Strong focus on controlling bus operating costs
 - Farebox recovery ratio policy
- Labour costs are a large component of bus operating costs
 - Operating efficiencies are key to controlling operating costs
 - Management of road works
 - Service planning
- NZ's bus operating costs are generally high compared to elsewhere in the world
- PTOM should allow greater understanding of costs



Questions?

