

Enhancing Public Transport Effectiveness: Progress Update

Introduction and Context

A programme to enhance Public Transport (PT) Effectiveness was mandated by the PT Leadership Forum On 24 September 2009. It involves working with a Task Force appointed by the Forum and developing measures to enhance PT effectiveness over a 50 year timeframe. To do this, a project plan (See Appendix 1) and related process was developed. This involves the following:

- 1 Developing and presenting proposals to the Leadership Forum for its meeting on 24 September;
- 2 Engaging PT experts to provide a detailed analysis of the key dimensions mandated by the Forum. These were looking at PT Effectiveness and developing proposals for change from the following perspectives:
 - a. User/Customer;
 - b. Operators
 - c. Planner/funders;
- 3 Engaging the Task Force through an all day workshop to focus and refine on the key dimensions and issues arising from them;
- 4 From this, developing a proposal for the Leadership Forum (for its meeting on 2 December 2009)
- 5 In the light of decisions taken by the Forum, undertaking further work with the Task Force to develop key measures of effectiveness, the performance gap that needs to be bridged and responsibilities for implementing the measures,
- 6 Reporting back to the Forum in early 2010.

Leadership Forum Direction

At its meeting on 24 September, the PT Leadership Forum confirmed that it wanted PT effectiveness analysis undertaken from the perspectives of the user, the operator, and the funder and planner.

The Forum considered the wider context that will affect public transport use over the next 50 years and it noted, amongst other things, the following key issues:

- 1 Financial and economic (including taxation and ACC) and social policy settings;
- 2 Regional policies and growth strategies and related land use plans;
- 3 Local funding capability and governance;
- 4 Transport infrastructure and standards;
- 5 Parking policies;
- 6 The physical limitations to increasing road capacity, especially through major urban centres;
- 7 Climate change responses and their flow on effects to fuel prices;
- 8 Decreasing/more difficult to extract oil supplies and related increases in fuel costs;

- 9 Changing demands and demographics and the ageing of the population;
- 10 The importance of environmental quality;
- 11 Flow on social and economic effects from the above factors, and
- 12 The importance of users expecting continuous quality improvements.

It asked the Task Force to look at PT Effectiveness over a 50 year time frame and develop a 50 year vision. It indicated that it wanted the analysis and proposals to be able to deliver reliable, cost effective and innovative public transport that:

- 1 Offers competitive travel times and a quality user experience;
- 2 Supports land use and land development strategies and decisions;
- 3 Eases severe congestion;
- 4 Improves productivity and economic growth; and
- 5 Provides business certainty, delivers commercial returns and is attractive for long term investment.

The Forum particularly emphasised the importance of reliability and the need for rapid growth in public transport use. Attached, as Appendix 2, is the presentation given to the Forum as amended to include its views and direction as summarised above.

Expert Engagement and Reports

Given the direction from the Forum, three PT experts were engaged to develop analysis and proposals on specific performance characteristics of public transport from the operators, users, and funder/planners perspectives. In doing this they were asked to examine and document:

- 1 The performance attributes of effective public transport;
- 2 Indicators of the attributes;
- 3 Relevant domestic, regional and international performance comparisons, benchmarks and benchmark ranges;
- 4 Examples of places and systems that exhibit good (or excellent) performance against whichever performance characteristics and attributes are appropriate;
- 5 Useful case studies or examples in the literature/web that illustrate PT effectiveness.

For the purposes of the investigation, PT was deemed to be *the system of public transport that is used from origin to destination*. PT effectiveness attributes therefore included walking and cycling modes, park and ride, related modal shifts, and any directly related PT infrastructure such as bus stops, stations, terminals and transfer stations and systems.

The three experts were Russell Turnbull from Parsons Brinckerhoff, Dr Peter Stoveken from Stoveken Consulting, and Ian Wallis from Ian Wallis Associates. Copies of their reports are set out in Appendices 3 -5. A summary of some the key issues from these reports is set out below:

Russell Turnbull (Parsons Brinckerhoff) - Appendix 3

Russell emphasised, as did the other experts, the importance of the customers/users in setting PT Effectiveness measures. On page 3 of his report Russell said:

“Of the three major stakeholder groups, Councils, ARTA, NZTA and the service contractors are in a the greatest position to impact on the *specific performance characteristics* and *initial measures* of service provision in quantitative terms, whilst the third stakeholder group - the customers, fare and taxpaying community – have little effective impact but have the ultimate expectations in qualitative terms.”

Russell then set out what he called the “web of influence” which matched expectations and responsibility, and assigned attributes against both expectations and responsibilities. (See Appendix 3, page 3). His report then set out performance attributes from the Leadership Forum material. In doing this, (Appendix 3, pages 6 – 26) he sets out characteristics, indicators and benchmarks, and makes some interesting points about the importance of, amongst other things:

Reliability: To the user this means “adherence to schedule”, and is typically one of the top two service attributes in user surveys. Reliability should be used as a measure of whether the trip has effectively run;

Frequency: This is another important service attribute in user surveys, along with waiting time, which includes waiting at transfer points;

Convenient access to information: This should be provided through various sources is important and should include trip planning mechanisms which, in turn, support a service that follows logical patterns and is not impeded by unnecessary barriers;

Simple Fare Payment Systems: These should be designed to encourage appropriate use of the system and should cover the range of mechanisms such as stored value electronic cards, 10 trip tickets, monthly passes and discounts for higher use;

Seamless Transfers: This requires reduction to the deterrence effects and costs associated with changing modes;

Competitive Travel Times: This requires comparison of public transport travel time against other modes;

Affordability: This requires public transport pricing to be competitive with (or better) than alternative modes (principally the private car);

Comfort and Cleanliness: Both the mode (vehicle, carriage/vessel) and the infrastructure (for the whole of the journey) needs to be comfortable (seats, temperature, odour) and clean;

Safety and Security: Both the mode and the infrastructure needs to be safe to use (in terms of the physical elements) and secure (safe from crime).

Russell's report shows that there are no system wide indicators applied to PT across New Zealand and the use of indicators and benchmarks is hugely variable. A number of authorities use some similar indicators for performance characteristics such as punctuality, access to information, bus stop furniture and bus stop availability, but their benchmarks are different. In many of the areas set out above there are no relevant benchmarks and very few quantitative ones.

In a summary discussion on international comparisons (page 27), Russell Turnbull says:

"Many of the successful public transport cities have adopted a hierarchy of transit services.

The hierarchy typically comprises a high capacity rapid transit network that forms the backbone of the transit system; a high frequency express bus type service that is typically "branded" or marketed as a superior service to regular bus; and a network of supporting services that act as feeder services to the other parts of the network and provide good geographic coverage at the expense of frequency. The cities offer other targeted services to support particular market niches.

Many cities have introduced high-frequency bus services that offer a slower service than rapid transit networks but remain competitive to car travel. These services are often distinguished from other bus services by branding, marketing and image promotion. These services include Portland's "Frequent Service", Vancouver's "Frequent Local", and Perth's "System 21" system.

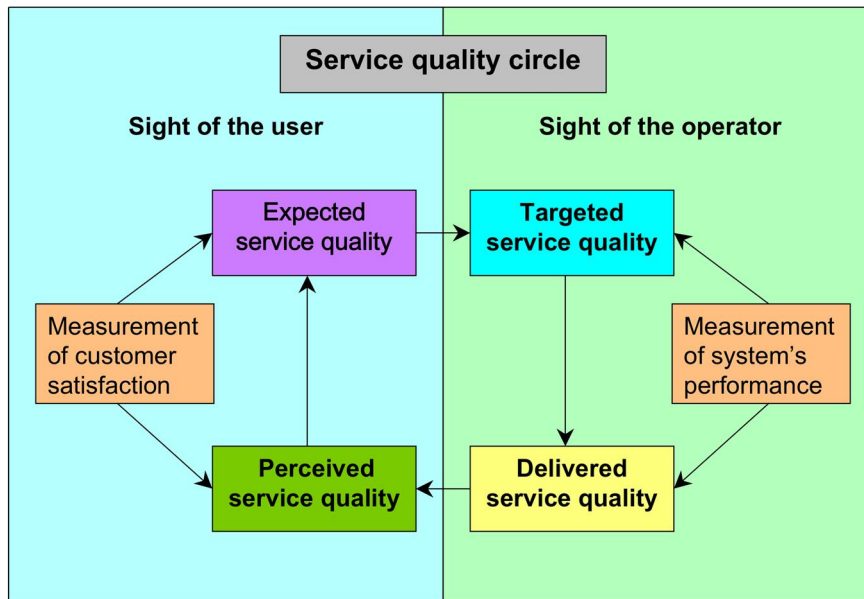
Many successful public transport cities achieved greatest transit mode-share gains when improving the frequency and reliability of existing services rather than introducing new services.

Emphasis is placed by most successful cities on providing total transit system services by enhancing customer information, access to transit (including walk, cycle and park-and-ride), (bus/train/ferry) stop amenities, frequency, reliability, passenger comfort, safety and security. The development of network and service guidelines for NZ should give due consideration to all elements affecting the total system including fares and ticketing, information and facilities."

Dr Peter Stoveken (Stoveken Consulting) - Appendix 4

In his report, Peter set out a "quality circle". This shows how user based service quality expectations and perceptions should be translated into targeted and delivered service quality:

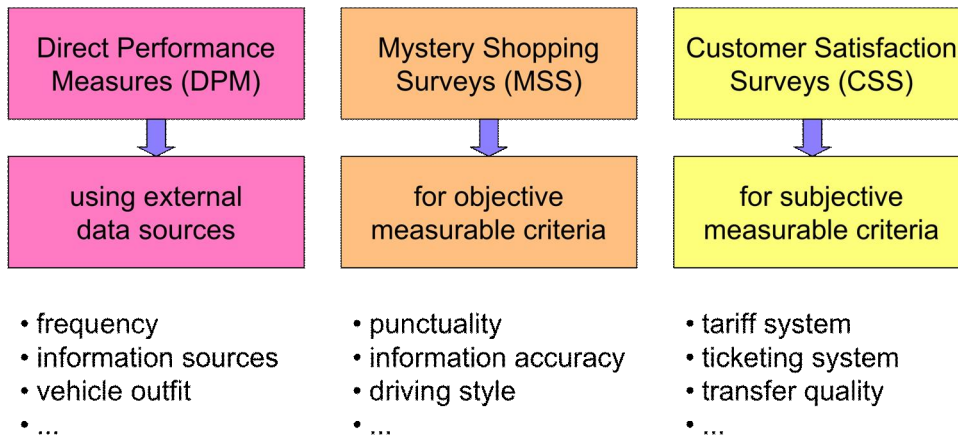
Quality circle



In discussing the perspective of users, Peter sets out three general procedures for measuring quality:

Perspective of users

3 general procedures to measure quality



Think piece for initial discussion "quality of public transport"

Sloeveken Consulting 8

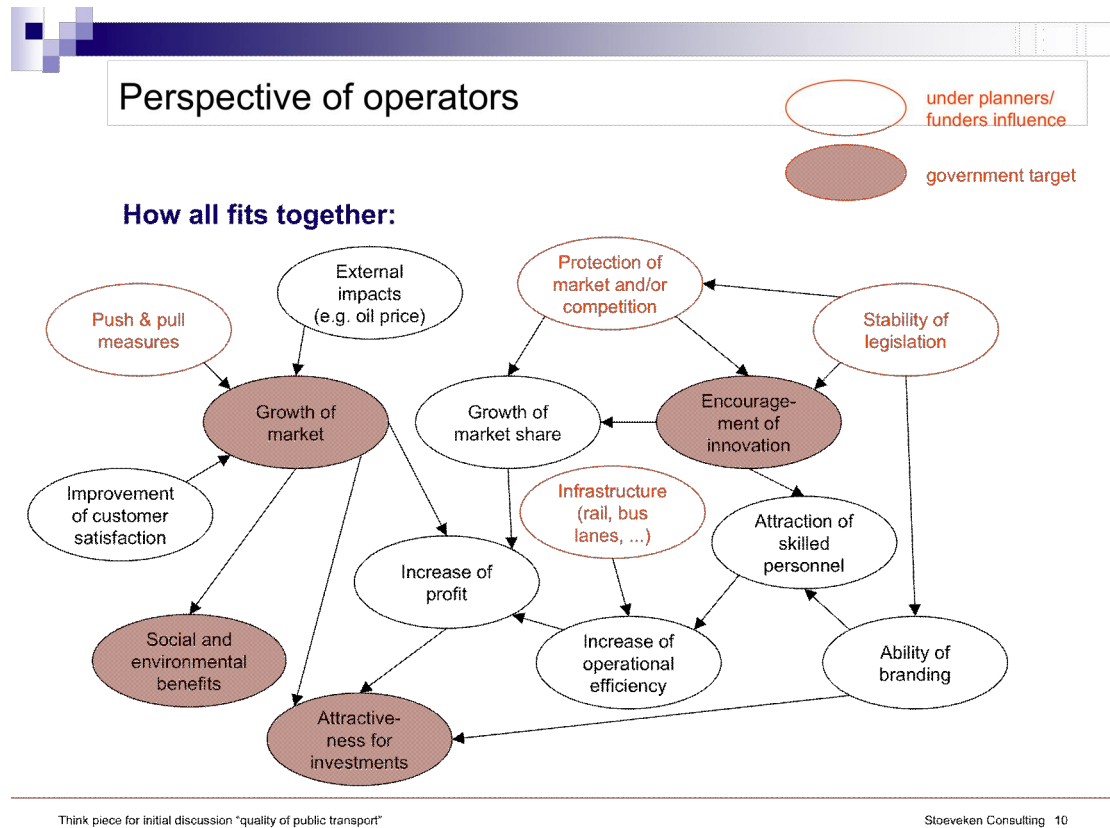
In relation to the operators' perspective, Peter sets out a list of business attributes (page 9):

- Value of public transport market
- Growth of market and market share
- Stability of legislation (e.g. funding and planning procedures)
- Push&pull measures of planners/funders
- Efficiency of network, schedule and operation
- Profit and profit growth
- Attractiveness for investments
- Ability to protect existing markets and to compete for new markets
- Attraction of skilled personnel, innovation strength
- Social and environmental awareness, branding

and a list of business indicators (page 11):

- Growth ratio, profit margin, percentage market share
- Contentedness of users, number of complaints, percentage of inhabitants knowing the service (next bus stop, network, frequency, fare), vehkm/a, perskm/a, modal split, percentage of monthly tickets
- Length/percentage of bus lanes, time lost at stops and intersections
- Schedule and roster efficiency, sickness rate
- Farebox recovery ratio, Operation costs per km, per hour, per passenger-km, environmental costs (greenhouse gas trading)
- Overhead for bureaucracy, overhead for administration, success ratio of tenders
- Public awareness of brand

He then provides an interesting diagram showing how various performance measures fit together and provide market, innovation, social and environmental, and investment benefits:

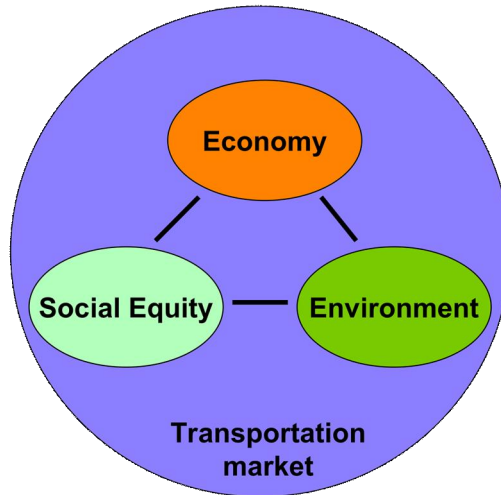


In relation to the planner/funder perspective, Peter's report sets out economic attributes and indicators (pages 13 and 14), social equity attributes and indicators (pages 15 and 16), and environment attributes and indicators. He sees these three dimensions forming an important linked trio that supports the transportation market:

Perspective of planners/funders

The perspective of the users and operators need to be embedded, but there is a market perspective, too:

- Economic aspects
- Social aspects
- Environmental aspects



Think piece for initial discussion 'quality of public transport'

Stoeveken Consulting 12

Ian Wallis (Ian Wallis Associates) - Appendix 5

Ian's report sets out some key customer categories and attributes:

Customer Perspectives – Categories and Attributes Overview

Category	Attributes	Category	Attributes
A Service reliability	<ul style="list-style-type: none"> • On time performance • Delivery of scheduled service 	F Integrated services and systems	<ul style="list-style-type: none"> • Fares and ticketing integration • Integrated marketing and branding • Integrated networks and timetables • Integrated information provision • Multi-modal passenger infrastructure.
B Service frequency and coverage	<ul style="list-style-type: none"> • High frequency • Accessible transit stops • Good temporal coverage 	G High levels of safety and security	<ul style="list-style-type: none"> • On and off vehicle safety • On and off vehicle security.
C Fast journey (door-door) times	<ul style="list-style-type: none"> • Low in-vehicle time • Low initial wait time • Low transfer wait time • Low access and egress time • Faster than car where possible 	H High levels of passenger comfort	<ul style="list-style-type: none"> • In-vehicle comfort • Out of vehicle comfort • Offers an 'experience'.
D Attractive and affordable prices	<ul style="list-style-type: none"> • Equitable • Cost effective for all community • Significantly cheaper than car • Certainty of outlay for users • Attractive in off-peak • Convenient, fares and ticketing. 	I Positive system/service image	<ul style="list-style-type: none"> • Perception of high quality service • Easily recognisable • Offers an 'experience'.
E Accurate, accessible and timely information	<ul style="list-style-type: none"> • Timely and correct (real time) • Accessible (easy to understand and visible) • High impact 	J Inclusive and accessible services	<ul style="list-style-type: none"> • Facilitates usage by all members of society • Caters for people with physical or mental disabilities • Emphasis on access to/from services (stop and street design).

Ian then goes on to set out customer perspectives. In doing so, he makes the following key points:

- Most market research evidence (NZ and international) gives a consistent picture of attribute importance as rated by existing PT users (principally for bus services).
- Service reliability generally rates as highest in importance, followed by service frequency and adequate span of operating hours.
- 'Convenience' is seen as a very strong factor 'driving' car use, in preference to PT, walking or cycling. 'Convenience' aspects include:
 - being in control
 - flexibility (timing, destination, etc)
 - privacy, sociability
 - less effort, less complexity.
- Service frequency is one of the most important aspects, as perceived by PT users and potential users.
- From the perspective of the potential user (with car available) it has been said that there are only three levels of service:
 - *Frequent*, ie 'turn up and go' (10 minutes or better frequency)
 - *Clock-face*, ie with readily memorable timetables
 - *All other*.
- Only the first category is likely to be attractive to car users. (pages 11 and 15)

Ian sees the Operator perspective as essentially "The Business of 'Being in Business'". The prime objective here is growing shareholder wealth. This requires decisions on:

- Capital Investment. Whether to invest/divest in new vehicles or facilities; if so what sort, how many and how much to pay.
- Employment Arrangements. How many staff to employ, under what arrangements and with what training.
- Service Provision. What services to offer to the market (public and regional council combined).
- Competition. When and where to compete with other market players.
- Pricing. Setting prices (tender prices and commercial fares) in expectation of making profits commensurate with the risks.
- Risk management.
- Growing the business and growing shareholder wealth. (page 25)

In relation to roles, responsibilities and competition issues, Ian says:

"Arguably, the majority of operators desire to 'own' all aspects of the services they provide and the way they meet market needs (as is typical in other parts of the private sector), including:

- taking market (patronage and revenue) responsibility
- having opportunities and incentives for entrepreneurship and innovation in developing services, including in new markets
- setting fares
- making investment decisions (eg vehicle specifications)

- marketing/branding and other means of attracting passengers and enhancing customer loyalty.” (page 26)

In discussing the planner/funder perspectives, Ian refers to the New Zealand Transport Strategy, 2008, the Government Policy Statement on Land Transport Funding, 2009, and the NZTA Assessment Procedures and Criteria (See pages 19, 20, 21 and 22 in Appendix 5). These are key directional documents and requirements and set the key strategic architecture within which PT effectiveness is expected to perform.

Ian makes some interesting points in relation to regional council perspectives. These are:

Some Regional (Council) Perspectives

- Regional Councils' policies for PT focus on high-quality, integrated systems that will:
 - enhance accessibility throughout the region
 - provide a competitive alternative to car use (and offer a resilient transport system in the event of 'oil shocks')
 - cater for the needs of the transport disadvantaged, including people with disabilities
 - support land use strategies
 - contribute towards environmental, carbon/greenhouse, public health and safety/security objectives.
- In many/most cases, RCs do not have clear priorities between the two main roles (market segments) for PT, ie:
 - as an alternative to car use ('transport efficiency' role)
 - catering for needs of transport disadvantaged/people with disabilities ('social' role)

Choice of priorities has substantial implications for system development directions.
- Also often lack of clear policies and rationale on relative contributions to PT funding from users, ratepayers, taxpayers and motorists.
- Main metropolitan RCs generally regard direct control over services and fares as best way to achieve their PT objectives and minimise potential risks - this has potential to conflict with PTMA review outcomes.
- RCs also keen to minimise administrative and financial risks - contract administration/ monitoring, exposure to cost escalation and patronage uncertainties.

Expert Reports Summary

The material covered in these reports shows the significance of the *customer/user dimension* and reinforces the importance of *service reliability and related frequency* (and related timetable memorability) as prime attributes that attract and retain customers. Supporting these attributes are other critical attributes such as:

- Integrated ticketing, and related fares and fare products;
- Seamless transfers;
- Attractive and affordable pricing;
- Accessible, accurate, reliable and timely information, and

- Service and system comfort and safety.

In terms of the operator dimension, attributes such as having and realising opportunities for innovative investment, being able to make secure investment decisions, growing market share and profitability, and attracting and retaining skilled and able personnel, were important.

From the planner/funder viewpoint, seeing transport in and as part of a wider economic, social and environmental context, ensuring PT supports land use and development strategies and practices, seeking and maintaining high quality integrated systems, having clear priorities for PT in relation to other, private transport modes, and having clear and sustainable policies on funding sources, were some of the key attributes.

These three reports were used as prime background material for an experts' workshop.

Experts' Workshop

This workshop was held on Tuesday 10 November, 2009. Those who wrote the expert reports and other experts (external to and from NZTA) were invited. In line with the brief for the reports, the workshop used the user, operator and planner/funder perspectives. Its purpose was to integrate the work done by the experts and to develop and add further issues, attributes and perspectives as input material to the Task Force workshop.

The workshop approached this task by working in groups to combine the attributes generated in the expert reports. It then developed 50 year resilience tests for later use in assessing proposals. An example of the approach to this is attached as Appendix 6. This work was then combined in a plenary session, the results from which were:

A High Priority Changes that will enhance PT Effectiveness over the next 50 years

1. Aligned transport planning/funding to support and where appropriate (e.g. urban centres, high density trunk routes), give system preference to PT and require road planning and funding to include PT delivery mechanisms;
2. Plan for and optimise PT as a network; have one regional scale plan for this;
3. Fully align land use and transport planning, both strategic and operational;
4. Use customers' views as a key driver of PT system design and operation; ensure PT awareness is a topic for public discussion/debate/dialogue;

5. Using customer perceptions, make PT travel an appealing, attractive and enjoyable experience that is seen as safe, reliable and convenient (goes where it needs to go from the users' viewpoints)
6. Ensure PT solutions are always seen as origin – destination and time from origin to destination design and delivery requirements.

B Low Hanging Fruit (Important things that should be done over the next 5 years)

1. Effective, customer centric communication, especially real time information on bus/train arrivals and related system information;
2. Apply integrated ticketing and fares/fare products;
3. Progress a customer friendly focus and ethos, with PT employees chosen for customer service skills;
4. Remove barriers that limit, reduce or stop ease of access to the main PT system – enhance walking and cycling access by identifying and removing barriers to access (e.g road crossings; accessways; grade separation; pedestrian priority at lights etc; improve supporting spoke/collector system and park and ride facilities;
5. Initiate a general zero based review of the PT system aimed at providing better service at less cost;
6. Provide incentives so employers or institutions such as schools and universities can provide free or subsidised PT access to employees; remove FBT.

B 50 Year Resilience Tests

1. Means for users to use travel time productively (e.g. web/cellphone/entertainment/food/beverage provision);
2. Ensure desirable existing and emerging PT experiences from overseas examples can be applied in NZ;
3. Ensure PT can deliver to more diverse travel needs and patterns, including travel anywhere any time and supporting more intensive, higher density living environments;
4. Ensure PT attracts continued investment in system infrastructure, by both system providers and owners/operators;
5. Ensure PT health benefits are important in cost benefit calculus – especially in relation to increased walking/cycling and reduction in noise

and emission pollutants; ensure environmental benefits of PT are known, understood and delivered;

6. Don't box up PT inside artificial boundaries; ensure "PT" boundaries are flexible and can reach into and use new modes and forms of travel;
7. Keep PT competitive with perceived alternatives - both cars/private vehicles and related road costs/pricing;
8. Put a high premium on vehicle and infrastructure design, appearance and comfort;
9. Provide PT rights of way;
10. Ensure PT competes in the leisure/recreational travel market.

D Key Effectiveness Attributes

1. Travel time:
 - Includes perceived and actual times
 - Includes origin/destination times as part of travel time
 - Provide higher frequencies wherever practicable with a target of 5 to 10 minute headways and no timetable problems
2. Access to and within the network:
 - Mode priority – in space and time
 - Greenwaves
 - PT/bus priority lanes
 - Grade separation
 - Total network management
3. Information:
 - Real time
 - Access – knowing about the system
 - Prediction – being able to rely on information
 - Use – information works for effective use the system
 - Encourage good/discourage bad behaviour
4. 4 "Ps" of retailing:
 - Product
 - Place
 - Pricing
 - Promotion

5. Key, linked attributes:

- Ease of use
- Speed of journey
- Reliability
- PT priority/rights of way (physical and time based, including signalling)
- Personal security and comfort from getting to system, getting on system; on board and travel environment
- Overall PT perception

Task Force Workshop

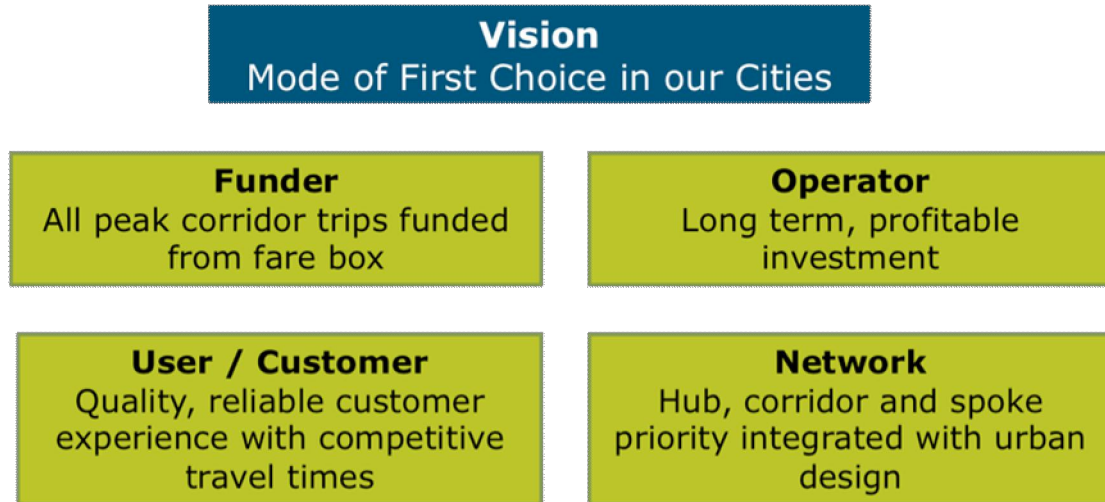
This workshop was held on Wednesday 18th of November. Task force participants were nominated by the Leadership Forum. They were assisted in their deliberations by staff from NZTA. The format for the workshop involved nominated participants working in three groups covering user, operator and planner/funder dimensions.

The workshop involved them considering the task in two ways: thinking about what PT should be like 50 years on and, in doing so, defining what “More Effective PT” is and what they would want to see it achieve by 2060; and also what key, specific changes need to be made and put in place in order to deliver more effective PT.

The workshop was then given a presentation by Dr Peter Stoveken (Appendix 7). Following this, the groups were then asked to build on the *50 years on* work and think about timeframes and priorities for PT effectiveness and especially *what the priority changes are, who would be responsible for undertaking them, and how the changes would flow across the different timeframes.*

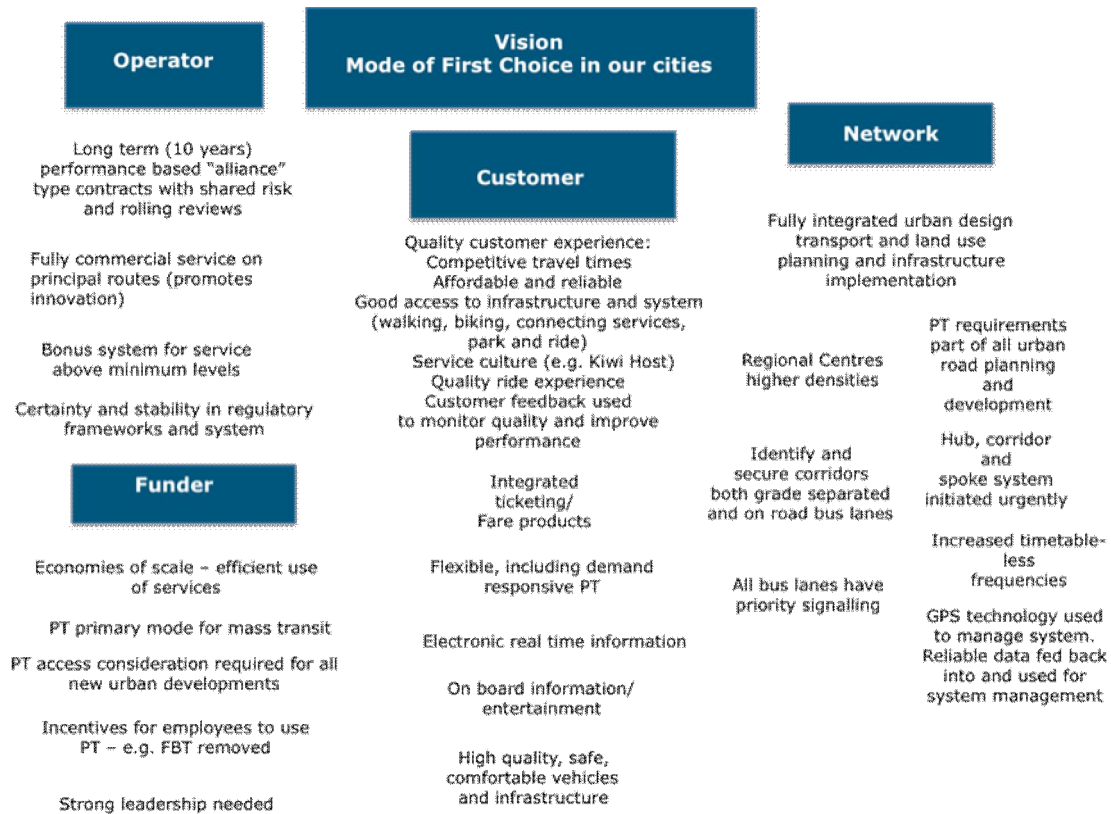
Those attending the workshop put forward a number of useful and overlapping ideas. There was a high level agreement and consensus among all participants. The full results from the workshop are set out in Appendix 8, but they can be summarised into four key dimensions, supporting an overarching vision for Effective PT: *Mode of First Choice in Our Cities*. In turn, each of the four key dimensions has goals that are designed to support and help realise this vision:

Results from Task Force Workshop



This four dimension summary material was developed from a longer list of key attributes, as follows:

6



As is evident from this summary material, another major dimension has been added to those of the customer (replacing the term “user”), the operator and the funder, and that is the vital and overarching *network design* component.

The network dimension was repeatedly referenced and discussed through both the Experts’ and the Task Force workshops. It became evident that it is a central and critical mechanism for delivering PT effectiveness. The other dimension that was emphasised and strongly evident through both the expert reports and the workshops is that of the customer (the Workshop preferred to use the word “customer” rather than “user”).

When thinking about how to define and implement PT effectiveness, it became apparent that the most effective ways of approaching the task are to frame it around the network and customer dimensions, and to link the operator and funder dimensions to the prime drivers of *enhanced networks (and related design and development)* and *customer focus*.

Enhanced Networks and Customer Focus.

Enhanced Networks

If PT effectiveness is to be enhanced, and especially if the vision and related objectives from the workshops are to be realised, then a strategy that develops from some of PT’s inherent strengths stands the best chance of success. Whatever strategy is used, PT will always face competition from private vehicles,

especially the car. In the future, other forms of private vehicle (such as small electric vehicles and electric assisted cycles) may well evolve into viable forms of inner city transport. Electronic guidance technologies may even allow such vehicles to assemble into groups and operate like quasi trains along certain routes. Whatever happens, PT must be able to compete with and/or incorporate such technologies into its system.

What PT does best is to move people en mass and quickly. High density forms of PT, such as trains or grade separated bus ways, can move large numbers of people at speeds and in volumes that private vehicles cannot match – at least not through congested inner city areas. Even if electric pod vehicles on guided track ways evolve, they are unlikely to be able to match the speed and people throughput that higher density PT can provide, especially in congested areas.

New Zealand's major cities all have physical and land use constraints that limit the number and capacity of roads, and especially multi lane roads. As limits are reached, congestion will increase. Pricing mechanisms such as congestion charging may re distribute traffic to reduce congestion somewhat, but they won't enable more people to get to city centres at the same time. Further, parking costs are unlikely ever to reduce and may well increase further, especially if city centre space becomes more contested. In situations where both road and parking space are limited or costly, higher density PT comes into its own. It can deliver people effectively and quickly and relatively cheaply in such circumstances – which is why there is an international resurgence of higher density systems, such as light rail and bus ways, into major metropolitan centres.

For higher density PT to be effective, however, it needs to be carefully designed. The design needs to focus on and develop from *identified corridors and related hubs*. Clearly, corridors and hubs need to be placed so as to respond to travel demand between and among city and city regional centres. This, in turn, means that hubs and corridors must be placed so as to respond to present and future land uses and related developments, especially any developments that are based on higher density land uses. Therefore, integration of transport and strategic land use strategies and developments is clearly of major importance.

Corridor and hub design would start from and should develop further from the layout of existing systems, which of course include corridors and hubs. However, it is important that the inherent design is durable in the face of likely future land use change and development.

Assuming corridors and hubs are designed and placed to respond to and meet higher density travel demand, another design component is also needed to make the system work – and that is a *spoke system* connecting to hubs and allowing people to transfer from lower density PT (or private vehicles) to the higher density PT system.

Spokes connect to hubs and provide important input points into the higher speed, higher density corridor system. If this is done effectively, the system can support both frequent and often timetable-less services. Of course, for the

system to work, reliability is critical.

The one disadvantage of a corridor, hub and spoke system is the requirement for customers to make transfers between vehicle modes. Therefore system design must incorporate features that provide for quick, easy and minimal transfers for customers.

The key elements of an effective and enhanced network system are outlined above in the slide illustrating the results of the Taskforce workshop. Key dimensions include identifying and securing hubs and corridors, integrating PT with land use planning and related infrastructure development, and the use of information and GPS technology to help manage and operate the system. Grade separated PT lanes and, where these are not feasible, bus priority lanes are also important if higher density PT is to operate efficiently.

Customer Focus

If PT design works to transport customers speedily and efficiently, another key component is needed to secure and grow patronage: and that is working continuously on *enhancing a quality customer experience*. As is evident from the results of the workshop and the expert reports, customer perceptions are critical to securing patronage. And perceptions must be matched by reality. Therefore, within the design and operations of an effective network, there needs to be a continuous focus on identifying and meeting customer needs. As is illustrated on the above slide, reliability, competitive travel times and affordability are critical attributes, supported by a service culture. Other important ingredients identified through the workshops and in the reports include integrated ticketing, fares and fare products, accessible and reliable information, good access to PT infrastructure (which, in turn, needs to be well designed and customer friendly) and high quality, safe and comfortable vehicles.

The results of the Taskforce Workshop led to a proposal for improving PT effectiveness being centred around the two dimensions of enhanced networks and customer focus. This doesn't mean the other dimensions (operator and funder) should be ignored, but rather they should be developed alongside and in support of the two key strategic dimensions.

In the event, concentrating on an efficient corridor, hub and spoke network will help realise both operator and funder objectives.

Operator Perspective

From the operator perspective, enhanced networks and customer focus provides a mechanism to deliver fully commercial services on key routes, and it also provides for stability in PT operations where routes are defined and secured in advance of demand. Bonus systems for service above minimum levels and longer-term contracts can also be part of such a network.

Funder Perspective

From the funder perspective, a network/customer driven strategy delivers a more efficient and better-supported network, helps PT become a primary mode for mass transit, and delivers economies of scale. Public funds can be effectively used to shape and incentivise PT in such a system. And an efficient and customer responsive system is more likely to encourage employers to provide incentives for employees to use PT.

Nevertheless, a corridor, hub and spoke led strategy incurs some trade offs.

Trade Offs

A corridor based network approach delivers principally to main cities and to peak time use. Its initial emphasis has to be on enhancing existing hubs and corridors and ensuring future urban development and transport services are completely congruent.

In any strategic initiative, it is neither possible nor desirable to try and do everything at once. It is much better to work on making and securing achievable gains, and then moving on to the next step.

So the trade off from the approach outlined above is that non peak and social PT services, and PT services in smaller centres where corridors and hubs don't apply, will not gain much initially. But, over time, there will be spin off gains that help in these areas.

The first gain will be in the hub connections. If these are designed and operated well, patronage should progressively increase. If this occurs, then non peak patronage and services are likely to improve. System wide delivery will then experience increased passenger growth and related increase in service frequencies – which, in turn, will encourage increased patronage. This is, of course, provided the customer focus dimension applies to the edge parts of the system as well as to its central spines.

In terms of smaller centres, spin offs should come in terms of better ticketing and fare products, better product and system information and related management capabilities, improved and customer friendly vehicles and support systems, and of course the customer focus practices and service culture experiences.

Leadership Forum

The results from the Task Force workshop, and especially the ideas of focusing a strategy on enhanced networks and customer focus were put to the PT Leadership Forum on 2 December 2009. Appendix 8 sets out the presentation and proposal given to the Forum.

The essence of the proposal for enhancing PT effectiveness is:

Develop a 10 year network and customer based programme, concentrating on:

- Identifying, securing and improving corridors;
- Hubs (transit centres/exchanges);
- Connections to hubs; and
- Integrated ticketing, ticket products and user information.

When a more reliable, frequent system starts to pick up and/or 5 years out, initiate a 10 year programme on:

- More effective connector services;
- Demand responsive PT;
- Social (non commuter) based PT; and
- Smaller city and rural PT.

The benefits from doing this were stated as:

- More economic PT with higher fare box recovery (cost per passenger km reduces and more routes are commercial);
- Congestion relief (provided the PT system is designed to continuously increase its capacity);
- Reduction in demands for increased roading/parking, especially in and through city centres;
- Productivity improvements through efficiency of movement gains;
- Economic development gains and benefits (city and regional centre environments improve; businesses benefit from increased customer throughput and reliable access provided by PT).

In addition to considering and discussing the above proposals and supporting information, the trade offs outlined above were also considered and discussed by the Forum.

The proposed vision statement received considerable discussion. Forum members felt that “Mode of First Choice in our Cities” was possibly an overstatement – while it was a good vision for the PT sector, it needed some qualification for wider use. In order to do this a vision statement such as “*Mode of Real Choice*” may be appropriate.

The Forum also wanted any proposals coming from the next stage of work to be subject to resilience testing..

After considering and discussing the Task Force workshop findings and proposals, the Leadership Forum agreed to the Mode of Choice emphasis and strategy based on the two key planks of enhanced networks and customer focus (but, as mentioned above, subject to a more qualified vision statement).

The Forum agreed that the next steps should be:

Using *enhanced networks* and *customer focus* as design principles, engage the Task Force to:

- Identify and prioritise critical steps;
- Identify low hanging fruit;
- Develop indicators, benchmarks and targets; and
- Work on a PT effectiveness package and proposal to be considered at the next Leadership Forum.

Where to Next

Given the Leadership Forum's confirmation of the PT Effectiveness Proposal as outlined above, and its commitment to proceed to work with the Task Force on the enhanced network and customer focus dimensions, and then report back to the Forum, the following approach is recommended:

1. Develop up proposals showing international but NZ relevant best practice design for network layout and systems, and for related network management, including appropriate performance attributes, indicators, benchmarks and targets;
2. Develop up similar proposals for customer satisfaction, and link the two together (for example, showing how particular customer requirements translate into network design and operational requirements);
3. Benchmark New Zealand performance for Auckland, Wellington and Christchurch against both the network design and customer best practice requirements;
4. Develop a *PT Effectiveness Improvement Pathway* from this comparison for discussion by the Task Force – the pathway would show the changes to current practices and future steps necessary for effective, customer focused network design and management, together with required changes in PT performance attributes, indicators, benchmarks and targets. It would also show:
 - a. Sequencing and integration of changes;
 - b. Priority actions;
 - c. Sector responsibilities (who has to do what and when);
 - d. Low hanging fruit/immediate changes.

Pathway indicator, benchmark and target proposals would be subject to resilience testing prior to confirmation;

5. Put these proposals to the Task Force through another workshop; and
7. In the light of the Task Force considerations, finalise The PT Effectiveness Improvement Plan for Leadership Forum agreement and commitment. The plan should include:
 - a. Key measures of effectiveness – presented as targets;
 - b. The performance gap that needs to be bridged and a sequential programme of work to bridge the gap;

- c. Assigned responsibilities for implementing the measures, bridging the performance gap, and attaining the targets.

To do this, it would be helpful to use the services of Peter Stoveken (big picture network proposals) and Russell Turnbull (indicators, benchmark and targets).

This would result in a product for another Task Force meeting early in the New Year – probably around mid February, depending on the availability of the two experts and any extra research etc that needs to be undertaken.

Lindsay Gow,
Lead Consultant, PT Effectiveness Project,
16 December 2009.

Appendix 1

PT Effectiveness: Project Plan

October 19 – November 3 – Develop Performance Characteristics and Initial Measures of PT Effectiveness

Task 1:

Commission experts/consultants to:

Develop further and more specifically initial *Understanding of PT Effectiveness*, by unpacking and then developing *specific performance characteristics and initial measures* for the *three quality public transport perspectives covering users, operators and funders/planners*.

Performance characteristics and measures should cover:

- a. *The performance attribute(s);*
- b. *Indicators of the attribute(s)*
- c. *Relevant domestic/regional/international performance benchmarks and/or benchmark ranges)*

In undertaking this task, experts/consultants are asked to:

- d. Note that for the purposes of the investigation, PT is deemed to be *the system of public transport that is used from origin to destination*. PT effectiveness attributes can therefore include walking and cycling modes, park and ride, related modal shifts, and any directly related PT infrastructure such as bus stops, stations and transfer stations and systems.
- e. Where relevant and possible subdivide characteristics and attributes into ones related to and appropriate for metro systems (Auckland, Wellington and Christchurch), for provincial systems (E.g. Hamilton, Tauranga, Nelson); and also into peak and off peak services.
- f. Set out any changes that they think should be made to the three *perspectives* lists, and especially if they have any additions for *performance characteristics that are missing* or for *performance areas that could be usefully subdivided into more than one category*, together with relevant *attributes* that detail these.
- g. Provide examples, where practicable, of places and systems that exhibit good (or excellent) performance against whichever performance characteristics and attributes are appropriate;
- h. Reference any useful case studies or examples in the literature/web that they know of and which illustrate PT effectiveness,

Responsibility: Michelle to commission work; TA experts/consultants to undertake work

Status: – **Complete** – four experts/consultants commissioned; three reports received; one report will not now be completed, although comments have been received from the consultant.

Task 2:

- a. Bring together initial attributes, indicators and benchmarks, establish their relationships, identify potential critical indicators and relevant benchmarks and ranges relating to the three quality perspectives (users/operators/funders-planners);
- b. Develop combined initial attributes, indicators and benchmarks (where there is overlap and positive synergies),
- c. Identify rub points/negative synergies (where performance attributes and indicators diverge/contradict one another),
- d. Identify and indicate ways of resolving or minimising contradictions,
- e. Develop initial priorities of effectiveness attributes, indicators and benchmark targets and ranges in a 3 x 4 matrix (high medium and low; and the significance of their contribution to PT Effectiveness over the next 5, 10, 30 and 50 years).
- f. Identify performance attributes/indicators and benchmarks of potential low hanging fruit (things that can be done quickly (within 5 years) and easily and principally within the control of the PT system).
- g. Identify how priorities (short and long term) can be achieved

Responsibility: Lindsay and Michelle working with TA and consultant experts using experts' workshop on Tuesday 10 November. DCG Members and other selected TA people will participate in the workshop.

Deliverable (from Experts' Workshop):

- a. *Integrated three perspective attributes, indicators and benchmarks/benchmark ranges*
- b. *50 year resilience tests;*
- c. *3 x 4 matrix of priorities of effectiveness attributes, indicators and relevant benchmarks and ranges that will materially and progressively accelerate PT Effectiveness over the next 50 years;*

- d. *Potential low hanging fruit and things that can be done quickly and easily to improve effectiveness and which are principally within the control of the PT system.*

The results of this workshop and its outputs will be considered and discussed by the DCG Group at its 11 November Meeting prior to engaging in Task 3.

Task 3

In the light of the DCG discussion and the outputs of the experts' workshop:

- a. Refine performance attributes, indicators and benchmarks/ranges, and their priorities;
- b. Identify and prioritise critical attributes, indicators and benchmarks and ranges that will materially enhance PT effectiveness, identifying synergies and indicating how rub points can be resolved or minimised;
- c. Consider how the PT effectiveness attributes, indicators and benchmark package links with and identify dependencies (in both directions) with infrastructure and urban planning policy and investment settings, and also with institutional, governance and relationship settings and arrangements;
- d. Identify how the attributes, indicators and benchmarks support economic growth, improved productivity, and increased value for money. Reassess the package in the light of this analysis.
- e. Develop initial benchmarks and targets for performance in a 3 x 4 matrix - high, medium, low priorities/5 years, 10 years, 30 years and 50 years, with proposals and/or commentary on assumptions or requirements relating to infrastructure and urban planning policy and investment settings
- f. Develop proposals on how critical effectiveness targets can be realised, identifying short, medium and long term ones, and identifying what can be achieved within the PT system and what requires external policy changes.
- g. Summarise appropriate, high level key ideas from the above work into a package for discussion at the Task Force Workshop.

Responsibility: Lindsay and Michelle and selected TA experts/consultants – working with DCG members

Deliverables –

a. Material covering:

- 1. Initial priorities covering critical performance attributes, indicators, benchmarks/ranges and targets (in matrix form);*
- 2. Initial proposals on how critical effectiveness targets can be realised, identifying short, medium and long term ones, and identifying what can be achieved within the PT system and what requires external policy changes;*
- 3. Supporting assumptions/requirements for infrastructure and urban planning policy and investment settings;*
- 4. Supporting assumptions/requirements on institutional, governance; and relationship settings.*

Note: This work (deliverables (a 1 – 4) above) will be progressed (using the PT experts) in parallel with, but then reviewed and completed as Task 3, after and in the light of outcomes from the Task Force Workshop.

Deliverable for Task Force Workshop –

- b. Summary package of selected ideas from the above work that provides thought starters and some thought directions (but not conclusions) on ways of enhancing PT effectiveness.*

Status: Completed and delivered to workshop participants, along with all background material including expert reports and expert workshop results.

November 18 – Task Force Workshop

Personnel: Lindsay, Michelle, DCG Members, (Dave and SLT invitees?), selected TA experts, and nominated Leadership Forum reps.

Deliverable: *Prioritised package of key measures and implementation mechanisms that are the most important things to:*

- 1. Materially enhance PT effectiveness over the medium and longer term (up to 50 years); and*
- 2. Make the biggest difference now (in the short term - within 5 years)*

Status: Workshop completed.

Task 4

Refine and finalise material from second task force workshop, combine with results from Task 3 (a – f) and put into appropriate format for pre circulation and presentation to Leadership Group

Personnel: Lindsay, Michelle, DSG and Dave, using selected TA experts/consultants as necessary.

Status: Completed – but the detail of the information was not sufficient to meet the specific requirements set out in Task 3 (a-f).

December 2 – Leadership Forum

Task 5

Using the results from the Leadership Forum, refine proposals on PT Effectiveness for Governance Group consideration on 8 December.

Responsibility: Lindsay, Michelle working with DCG

Status: Completed, and decision taken to proceed with strategy based on two key dimensions of enhanced networks and customer focus.

December 8: Governance Group Meeting

Task 6

In the light of the Leadership Forum consideration, produce report outlining and summarising key parts of all work to date and proposing a process for meeting the Forum's direction on further work with the Task Force and report back with proposals for Task Force consideration.

Responsibility: Lindsay, working with Michelle and appropriate experts and DCG members.

Status: Complete (This report fulfils this requirement)

Appendix 2 (Dave's updated presentation to Leadership Forum of 24 September)

Appendix 3 (Russell Turnbull's Report)

Appendix 4 (Peter Stoveken's Report)

Appendix 5 (Ian Wallis' report)

Appendix 6 (Attached),

Appendix 7 (Peter Stoveken's Presentation to the Task Force Workshop)

Appendix 8 (Dave's presentation to Leadership Forum of 2 December)

Appendices 2,3,4,5,7 and 8 to be added by Michelle

Appendix 6 – Resilience Testing Approach

50 Years On

How do we think about a 50 year planning horizon? Barry Mein says:

“For what it’s worth, I think a 50 year planning horizon is far too long: my recent experience with the latest RLTS in Auckland suggests that 30 years is actually too long for effective planning. The tendency is to simply extrapolate from our current understanding of issues and our recent past, without really understanding the different drivers that will be at play in the future: we don’t know what we don’t know. While we need to take a longer term perspective than the usual 10-year investment horizon, we do need to be careful not to get carried away with this. The key is to look at whether the things that we are putting in place now are sufficiently resilient/adaptable to cope with quite different future states: not to try to predict what the future will hold.”

This is the most useful way of planning for long timeframes. It involves **testing proposals for resilience**. In order to develop useful resilience tests, we can do three things:

1. Think about what’s changed (in this case in the area of PT), and what underlying technologies and practices haven’t changed over the last fifty years;
2. Project some present or likely trends that may have a major influence on future development;
3. Then develop resilience tests from the combination of the two approaches.

1 What's changed and what hasn't since 1960?

Examples are:

- Basic PT vehicles (buses, light rail, heavy rail) are still with us;
- There has been an evolution of light road public transport (van type) vehicles;
- Exotic new power sources (e.g. nuclear fission or fusion or solar) and transport forms (e.g. hover systems, monorails) haven't materialized or been cost effective;
- Cycling has moved from being principally a transport to principally a recreational means of conveyance; the same may well be true for walking.
- PT competes against and has lost massive market share to the private car – which has evolved into a much less costly, more available and more sophisticated conveyance;
- Urban form has evolved to be heavily dependant on car technologies with a predominant and now extensive low density character;
- Even where urban form has been designed for walking access (e.g. schools), car transport is often dominant;
- Housing styles and locations are more extensive and diverse;
- Information and related communications technology has evolved significantly and is now embedded in vehicles, systems, and daily business and social transactions, and is increasingly accepted by most people as a basic need;
- Electric propulsion and storage systems have evolved to be lighter and more flexible and efficient
- There is a trend to more inner city and some regional centre higher density living – but so far this tends to cater for principally for higher socio economic demographic groups without families (people who haven't yet had or won't have children, and empty nesters).

2 What embedded trends will continue to play out over the next 50 years?

Examples are:

- Life expectancy will increase;
- Health services and technologies will continue to provide the means to reduce and manage disease, including diseases of age;

- An ageing population will significantly increase;
- Birth rates remaining either just at or below replacement;
- The role of Asia, and especially China, will have a dominant economic, trading and cultural influence on NZ;
- Migration from Asia in particular will have a major influence on New Zealand and especially on major metropolitan areas;
- Travel demand for business, social and recreational reasons will not diminish and will probably increase – IT connectedness doesn't seem to reduce travel, rather it stimulates more travel;
- Urban form will continue to remain principally low density (80% of what we have now is likely to still be there in 50 years);
- House owners will want to continue to have location, style and density choices;
- Inner city/regional centres are likely to attract higher densities and more inner city living, and the socio economic and demographic spread may widen;
- Private vehicle makers will respond innovatively to changes in emission requirements, fuel sources and fuel and resource prices;
- IT systems may produce “driverless” private vehicles that can be driven automatically on certain roads or
- Public transport vehicles will continue to become more fuel efficient and produce fewer or zero emissions;
- We will see an increasing diversity in design and types and propulsion systems for public transport vehicles;
- Driverless forms of public transport are likely to evolve faster than driverless private transport
- Information technology and communication technology will provide more and more integrated personal and commercial services;
- People will demand and expect timely and relevant information and communication capabilities to be available to them 24/7 and wherever they go;
- By 2060, we'll know the extent and severity of global warming;
- For resource supply and global warming reasons, liquid fuel prices will increase substantially and there will be a premium on renewable fuels;

- In the face of diversity and complexity, there may be a re emphasis on local, community values, differences and experiences.

3 Resilience Tests

From the above lists, the following resilience tests could be applied to 50 year PT:

- How can PT compete against the private car in terms of cost, trip times, comfort, system and vehicle amenities, safety and reliability?
- How can PT constructively use information technology to improve both vehicle and system performance, to increase customer satisfaction, and increase market share?
- What range of PT vehicles/systems provide resilience for the future in terms of fuel types, increasing fuel costs, on board information and entertainment expectations, and more stringent, including zero, emission requirements?
- How does PT relate to and manage in the face of our predominantly low density urban form.