

BEFORE THE AUCKLAND UNITARY PLAN INDEPENDENT HEARINGS PANEL

IN THE MATTER of the Resource Management Act 1991 and the Local Government (Auckland Transitional Provisions) Act 2010

AND

IN THE MATTER of Growth topic 013

AND

IN THE MATTER of Topic 013 RPS Urban Growth – B2.1, B2.3 and B2.5

**STATEMENT OF EVIDENCE OF KEVIN MARK WRIGHT
ON BEHALF OF AUCKLAND COUNCIL, PROPOSED AUCKLAND UNITARY PLAN,
REGIONAL POLICY STATEMENT (TRANSPORT STRATEGY)**

24 NOVEMBER 2014

1. INTRODUCTION

1.1 My full name is Kevin Mark Wright. I hold the position of Manager Transport Strategy at Auckland Council. I have been in this position since 1 November 2010.

1.2 I hold a Master of Laws from the University of Waikato, and a Bachelor of Commerce and Bachelor of Laws from the University of Auckland. I have 18 years' experience in Transport Strategy. Full details of my qualifications and relevant past experience are at **Attachment A** to this evidence. Key projects I have been involved in relevant to Topic 013 on growth include:

- Waitakere City Transport Strategy;
- Growth and Transport Integration – Northern Strategic Growth Area and New Lynn;
- Auckland Regional Land Transport Strategy 2010;
- Future Land Use and Transport Planning;
- Auckland Plan Transport Chapter;
- Transport Infrastructure in Greenfield Areas; and
- Integrated Transport Programme.

1.3 I am providing evidence on behalf of Auckland Council in relation to strategic transport matters for B2.1 Providing for growth in a quality compact form (**B2.1**), Development capacity and supply of land for urban development (**B2.3**), and B2.5 Rural and coastal towns and villages (**B2.5**) in the Regional Policy Statement section of the Proposed Auckland Unitary Plan (**PAUP**).

2. CODE OF CONDUCT

2.1 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2011 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

3. SCOPE

3.1 I have been asked to provide evidence in relation to the strategic transport effects of a quality compact urban form with a RUB tool in Sections B.2.1, B2.3 and B2.5 of the PAUP Regional Policy Statement.

3.2 My evidence is from a strategic transport planning perspective and focuses on growth issues in relation to:

- (a) Transport effects of urban growth and a quality compact urban form;
- (b) Transport effects of the RUB as a planning tool in the PAUP; and
- (c) Transport effects of growth on the urban periphery.

3.3 My evidence focuses on high level transport impacts of different urban forms and not on the specific location of the RUB.

3.4 I have drawn on my own professional experience, the results of modelling a range of land use and transport scenarios and learnings from research and overseas cities. Key documents I have used, or referred to, in forming my view are:

- Future Land Use and Transport Planning Project report April 2010;
- Auckland Plan scenario development work stream report, Sept 2011;
- Auckland Plan chapter 13 – Transport; and
- Transport in Greenfield Area Study 2013.

3.5 I have relied on the following Council witnesses while preparing my brief of evidence:

- Chloe Trenouth (Planning)
- Michael Tucker (Growth Strategy)
- Donald Munro (Transport)

3.6 I also refer in my evidence to the ART 3 strategic transport modelling discussed by Mr Joshua Arbury in the evidence that he gave on behalf of the Council for Topic 012 RPS section B3.3 Transport.

3.7 My evidence is structured as follows:

- Section 4 – Summary
- Section 5 – Context
- Section 6 – Strategic transport modelling
- Section 7 – International studies of transport effects of urban form
- Section 8 – Transport effects of a quality compact urban form in Auckland
- Section 9 – Transport effects of the staged release of land within the RUB and structure plans as planning tools
- Section 10 – Conclusion

4. SUMMARY

4.1 My overall expert opinion is that the objectives and policies relating to quality compact urban form in Sections B2.1, B2.3 and B2.5 of the RPS are important to achieving an effective transport system that contributes to the outcomes sought in the Auckland Plan. A quality compact urban form supported by multi-modal transport would result in transport outcomes that better support the purpose of the Resource Management Act 1991 than an urban form that enables low density development on the urban periphery.

4.2 A quality compact urban form for Auckland, with the appropriate transport investment/system/infrastructure, can result in the following transport outcomes:

- Better access to employment and other activities by a range of transport modes;
- Shorter distances to travel;
- Less overall vehicle kilometres travelled;
- Lower overall congestion across the network, but may be higher in certain locations;
- Lower overall harmful emissions and environmental effects, but greater exposure to air pollution in centres and corridors;
- Greater use of public transport, walking and cycling;
- Lower average transport costs per household;
- Less dependency on motor vehicles; and
- More efficient transport investment.

- 4.3 In my view, the proposed objectives in Section B2.1 to define a RUB with urban growth focused inside that boundary are required to provide certainty for transport planning and investment. A staged release of future urban zones and the use of structure plans as tools will support the PAUP's transition to a quality compact urban form.
- 4.4 Improved transport planning and investment enable more optimal transport outcomes and better integration of land use and infrastructure. Effective management of growth within future urban zones helps to ensure the right infrastructure is in the right place when it is economically efficient to do so at an acceptable cost.
- 4.5 The key findings from my transport experience in Auckland, modelling of land use and transport scenarios and understanding of impacts of different urban forms from international studies are:
- (a) A combination of density and containment of urban growth generally results in better transport outcomes than less dense and dispersed urban growth.
 - (b) Modelling of different land use and transport scenarios for Auckland indicates significantly better transport outcomes arise from a more compact urban form compared with a dispersed urban form.
 - (c) The cost of transport infrastructure per dwelling in greenfield areas varies significantly depending on the level of density and proximity to existing or proposed transport networks.
 - (d) Integrated land use and transport leads to better overall outcomes. The RUB, a staged programme to release future urban zones and structure plans are effective tools to achieve integrated land use and transport.
- 4.6 My evidence outlines in detail the reasons for my opinions summarised above.

5. **CONTEXT**

- 5.1 The following statements regarding Auckland's transport system and the Auckland Plan are provided as context for my evidence.

Auckland's transport system

- 5.2 There are existing accessibility problems and congestion in Auckland which need to be addressed at the same time as providing for growth. The capacity of the transport

networks has not kept pace with population growth. Auckland’s transport networks are still being established, particularly for public transport, cycling and freight. Auckland has relatively high levels of congestion for its population, although lower than congestion levels in most of the major cities in Australia. The following table shows the Auckland congestion indicator for March 2011 along with indicators for Australian cities for 2008/09 using Austroads methodology. (Source: Auckland Congestion: International Comparisons, Houghton Consulting (2011).

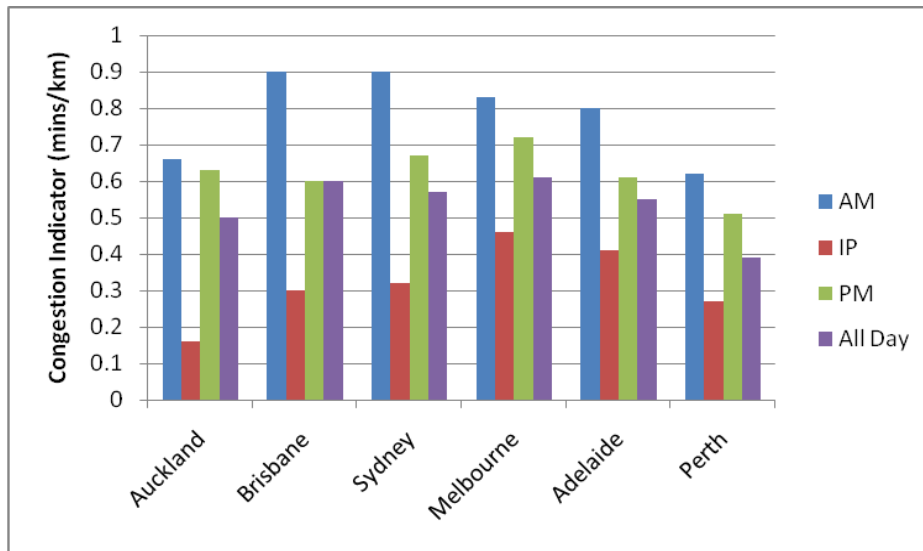


Figure 1 – Congestion comparison between Auckland and Australian cities

5.3 Expected growth in population, employment and visitors will increase the demands on the transport system in Auckland, particularly the road network. In my opinion, there are significant challenges in providing for growth in greenfields proposed in the PAUP because of the current state of Auckland’s transport system in the existing urban area and the level of funding available to support that growth.

5.4 Auckland’s transport system has over the last 8 years begun the transformation into a more mature system that is multi-modal and better able to meet the needs of different transport users. Continued investment in all modes is planned over the next 20 years. The state highway network is nearing completion and improvements are being made to develop public transport and cycle networks to make these more attractive and safe to use.

Auckland Plan

5.5 The Auckland Plan promotes a quality compact city approach which integrates land use, infrastructure and policies to achieve its long term outcomes. As discussed by Mr

Michael Tucker in his evidence, the outcomes sought in the Auckland Plan have been an important driver in the development of the PAUP and are in my opinion reasonably consistent with the sustainable management purpose of the Resource Management Act 1991.

- 5.6 The Auckland Plan gives particular attention to transport because of the significant investment it requires and its influence on a range of outcomes in the Auckland Plan, but transport itself is not the ultimate outcome. The transport targets and directives are set as a means to achieve the wider economic, social, cultural and environmental outcomes sought for Auckland.
- 5.7 One of the fundamental principles in the transport chapter of the Auckland Plan is that transport supports planned long term land use: *“Ensure that long-term land use and activities drive long-term transport functionality, (taking into account the existing and proposed transport network), and that transport investment aligns with growth as envisaged in this Plan.”* (Source: Auckland Plan para 748).
- 5.8 The long term land use and urban form sought for Auckland is explained in Mr Michael Tucker’s and Ms Chloe Trenouth’s evidence. The aspirational target of accommodating 70% of growth within the metropolitan area 2010 is aligned with the aspirational targets set for transport. If that 70% target proves to be unlikely to be achieved, then the transport system is required to support up to 40% of growth outside the metropolitan area 2010. The transport system needs to be flexible enough to support a 70:40 urban form, even if better transport outcomes could result from a 70:30 urban form.
- 5.9 The Auckland Plan transport chapter promotes developing solutions from both the supply side and the demand side. From the supply side, multi-modal transport infrastructure and services have been identified. Economically efficient solutions are required for the movement of goods and people and appropriate management of congestion.
- 5.10 From the demand side, tools such as travel plans, pricing and making alternatives to motor vehicle more attractive, help to reduce the pressure on the road network. Land use policies or tools such as a RUB also help to reduce the demand for long trips by motor vehicle across the network. The Auckland Plan envisages a range of tools being applied.

- 5.11 The Auckland Plan recognises that additional funding is required in order to implement the full transport network over a 30 year period. Auckland is in the midst of an investigation of existing and additional funding mechanisms to provide additional funding required for the Auckland Plan transport programme.
- 5.12 Auckland Transport develops the Integrated Transport Programme which provides the detail about the 30 year transport programme and how it serves the existing transport demands as well as supporting planned growth.
- 5.13 Transport is part of a package in the Auckland Plan to achieve high level outcomes which involve transport contributing to a quality compact urban form. The transport-related reasons in the Auckland Plan for a quality compact urban form include:
- (a) It makes better use of existing infrastructure. A quality compact form enables greater network efficiency through the cost-effective provision and servicing of transport infrastructure. Better use of existing infrastructure costs less, and these cost savings are passed on to ratepayers, taxpayers and home buyers. Improved public transport is more viable. Greater access is provided by different modes and the road network is freed up for better freight movement.
 - (b) Negative environmental effects can be reduced. Expansion into the rural environment needs to be carefully managed to ensure the potential adverse effects from urban activities (pollutants and greenhouse gases, stormwater flows into the marine environment, emissions to air) are minimised.

6. STRATEGIC TRANSPORT MODELLING

- 6.1 As discussed in Mr Joshua Arbury's evidence for the hearing on Topic 12 RPS section B3.3 Transport, strategic transport modelling using the ART3 model was undertaken during the preparation of the Auckland Plan to consider the transport effects of four different land use scenarios.
- 6.2 Mr Arbury provided a detailed overview of the ART3 model inputs and outcomes of the modelling in his evidence for Topic 012. I do not replicate that information in my evidence. However I note that a key conclusion Mr Arbury drew from the modelling of the different land use scenarios is that a more compact urban form delivers better transport outcomes that support economic and environmental wellbeing to a greater extent than a more expansive urban form. The modelled results for highly contained

and compact urban forms were significantly better, compared to a more expansive urban form, in relation to:

- Access to employment;
- Access to public transport;
- Commute times to major employment areas;
- Total vehicle kilometres travelled on the road network;
- Public transport use; and
- Carbon dioxide emissions.

7. INTERNATIONAL STUDIES OF TRANSPORT EFFECTS OF URBAN FORM

Transport costs of urban form

7.1 Based on the literature reviews that I have read about the transport effects of urban growth, there is considerable international evidence that low-density single use development in rural and undeveloped areas (referred to as sprawl) results in higher transport infrastructure costs. In the following paragraphs of my evidence I refer to a number of studies and reviews that support these findings.

7.2 Robert Burchell et al. carried out a comprehensive study of the costs of sprawl over a 25 year period for 3,091 counties in the United States (Source: *Costs of Sprawl – 2000* Transit Cooperative Research Programme Report 74, Burchell, Lowenstein, Dolphin, Galley). It was found that compact development results in public-private capital and operating cost savings of between 12% and 26% for local roads, compared to low-density single use development.

7.3 Ewing et al surveyed 83 metro areas and ranked them by their sprawl index (Source: "Measuring Sprawl and Its Impacts." Ewing, R., R. Pendall and D. Chen. Smart Growth America. 2002). They compared the top ten most sprawling metro areas with the ten least sprawling in the following travel and transportation related outcomes:

- Daily vehicle miles travelled per capita.
- Average vehicle ownership.
- Percent of commuters taking transit to work.
- Percent of commuters walking to work.
- Average commute times.
- Average annual traffic delay.

- Traffic fatalities per 100,000 people.
- Ozone pollution levels.

7.4 The least sprawling metro areas were found to perform better than their sprawling counterparts in nearly every outcome: fewer miles driven per day, fewer cars owned, greater percentage of commuters walking or taking transit to work, fewer traffic fatalities and lower ozone levels.

7.5 In 2006 Tony Biddle et al. reviewed international literature relating to assessments of the total community costs of developing infill versus greenfield areas and concluded that the costs of infill are less than the cost of greenfield development (Source: *The Costs of Infill versus Greenfield Development – A Review of Recent Literature* (2006) Tony. Biddle, Tony. Bertoia, Stephen. Greaves, Peter. Stopher Institute of Transport & Logistics Studies, The University of Sydney, NSW, Australia).

7.6 The following are the key findings from that review:

“The evidence reviewed points to a conclusion that the costs of infill are less than the cost of greenfield development in terms of infrastructure costs and externalities such as air pollution and water supply, and the rehabilitation of contaminated industrial sites. It also suggests that market forces command that both forms of development exist and that each provides for housing at a lower cost than most existing housing. Beyond this conclusion, it is clear that densities and development control in both scenarios are important. With infill development, there are societal costs, particularly in terms of health issues, both mental and related to pollution levels. The studies reviewed in this paper did not identify large savings in costs to society from high densities of infill over medium density infill. Savings over greenfield development were similar for all densities of infill studied. On the other hand, low density, uncontrolled greenfield development had far greater societal costs than medium density greenfield development. Those living in low density situations may experience the benefits of cleaner air themselves. Their doing so, however, may cause higher levels of overall greenhouse gas emissions and increased levels of airshed pollution and global greenhouse gas emissions overall, in addition to being more costly for society as a whole in terms of energy consumption, infrastructure and human services. Greenfield development is expected in a rapidly growing city like Sydney. As identified in different ways in a number of studies reviewed, greenfield development should be controlled and lot sizes restricted if costs overall are to be minimised.”

7.7 Todd Litman's analysis of the transport effects of compact urban form indicates that more compact, infill, multi-modal development can provide the following transport benefits (Source: *Considering the Impacts, Benefits and Costs of Different Land Use Development Patterns* 2014, Todd Litman, Victoria Transport Policy Institute):

- Reduced per capita automobile travel resulting in reduced traffic congestion delay, energy consumption, pollution emissions and traffic accidents.
- Increased portion of household and jobs with access to public transportation.
- Increased walking and cycling activity.
- Reduced transportation costs.

7.8 Robert Burchell and Saham Mukeherji found in their study regarding costs of sprawl that: "Managed growth allows all development that would have taken place under conventional development to occur but directs that development to locations where public services can be provided more efficiently. This scenario results in appreciable savings in a relatively short period of time. Resources need not be as aggressively consumed, yet the amount of residential and non-residential development is not altered. That is the message of this research." (Source: *Conventional Development Versus Managed Growth: The Costs of Sprawl*, Robert Burchell and Sahan Mukherji *American Journal Public Health*. 2003 93(9): 1534–1540).

7.9 Stuart Donovan and Ian Munro carried out a literature review of the impacts of urban form on transport and economic outcomes (Source: *Impact of urban form on transport and economic outcomes* (2013)). Their key finding was that urban form matters in relation to transport and economic outcomes: "*A compact and centralised urban form is associated with modest but not insignificant reductions in vehicle ownership and use. Perhaps more importantly, a compact urban form delivers considerable economic benefits.*"

8. TRANSPORT EFFECTS OF QUALITY COMPACT URBAN FORM IN AUCKLAND

Transport effects of compact urban form in Auckland

8.1 Under a quality compact urban form, most of the existing population, business activity and growth would occur inside the metropolitan area 2010 (up to 70% by 2040). This will involve high use of existing transport infrastructure and services. In the process of upgrading existing transport infrastructure and services, there is the ability to plan for the growth element as well as existing users.

8.2 It is implicit in understanding potential transport effects of a quality compact urban form that well-timed investment in transport infrastructure and services which are integrated with land use and their design ameliorates some of the worst adverse effects. In my opinion, these will need to be supported by policy interventions in areas where spatial form and infrastructure alone are unable to make sufficient difference.

8.3 Based on my understanding of international studies, the results of extensive integrated land use and transport modelling for the Auckland region and my experience with growth and transport patterns in Auckland in my opinion, a quality compact urban form for Auckland, with the appropriate transport investment/system/infrastructure, is more likely to result in the following transport effects, compared to a less compact urban form:

- (a) Better access to employment and other activities by a range of transport modes – This arises due to the density of land use and proximity to a range of activities that density can support.
- (b) Shorter distances to travel – Shorter distances arise due to proximity to places of employment, social infrastructure/services, retail and other activities.
- (c) Less overall vehicle kilometres travelled – This arises due to a combination of shorter distances to travel and greater use of public transport, walking and cycling.
- (d) Lower overall congestion across the network – This arises due to a combination of shorter distances to travel and greater use of public transport, walking and cycling.
- (e) Lower overall harmful emissions and environmental effects – This arises due to a combination of less overall vehicle kilometres travelled and lower overall congestion.
- (f) Greater use of public transport, walking and cycling - This arises due to greater residential intensification and a greater concentration of activities in centres. This makes walking and cycling trips shorter (to centres, public transport and a range of activities) and makes public transport services more attractive to use and therefore more viable to provide. Greater use of public transport services has flow-on effects to make the transport system more efficient, such as dedicated road space for buses.
- (g) Lower average transport costs per household – Lower average transport costs arise for households that have opportunities to travel by walking, cycling and public transport, to travel shorter distances or for a shorter time, or to own fewer cars per household.

- (h) Less dependency on motor vehicle – This arises due to more attractive opportunities to travel by public transport, walking and cycling. Developments on the urban periphery are more likely to have fewer vehicles per household because of the availability of other modes of travel.
- (i) More efficient transport investment – The investment in the public transport system is more likely to be efficient under a compact urban form because services can be designed to serve areas of concentration, such as centres and corridors, and are likely to be used to a greater extent than a more dispersed urban form. A more compact urban form will generally result in a higher patronage base per service kilometre for the same level of service resulting in a more efficient public transport system and lower subsidies than for a more dispersed urban form. Investments in high movement corridors such as state highways, arterial roads and rapid and frequent public transport are more economically efficient due to higher throughput of people and goods and with less exposure to congestion.

8.4 A quality compact urban form can also result in negative impacts on transport outcomes:

- (a) More local congestion which needs to be managed – This arises particularly in centres and areas of higher density. The level of congestion may depend on the management of traffic, parking and the attractiveness of alternatives to motor vehicle travel.
- (b) Greater exposure to air pollution in centres and corridors – This arises due to the higher numbers of people living, working or visiting centres and corridors, compared to a more dispersed urban form.

8.5 In my view, the transport effects of a quality compact urban form outlined above better support the purpose of the Resource Management Act 1991 to promote the sustainable management of natural and physical resources than a less compact urban form. The potential positive transport impacts outweigh the potential negative transport impacts of a compact urban form.

Transport effects of greenfield expansion in Auckland

8.6 Significantly different transport effects and costs can arise in relation to greenfield development, depending on how well the development is planned/integrated with

existing and proposed transport networks, how dense the development is and the balance of residential and employment in the broader area.

- 8.7 Based on international evidence, my own experience in Auckland and the evaluation of indicative greenfield plans in Auckland (Source: Transport in Greenfield Areas project 2013), better transport effects and significant cost savings can be achieved through the application of a quality compact urban form approach to greenfield developments. This involves planning greenfields as part of the ultimate urban fabric and not as peripheral low-density residential subdivisions. Better transport effects and costs can be achieved by mixtures of land use, a mix of residential and employment, a mix of densities, with centres based on efficient public transport routes and supported by a multi-modal transport. This helps to reduce dependency on motor vehicles and reduce the externalities including congestion on the greater transport network.
- 8.8 Under a quality compact urban form, growth occurs to a lesser extent in areas outside the existing urban area. To support this growth new infrastructure and services are required (as well as making use of existing infrastructure e.g. roads and rail lines). In Auckland under a quality compact urban form approach, an urban pattern containing a mix of densities and land uses will roll out in these future urban zones through a staged and coordinated infrastructure programme. From my understanding of the Integrated Transport Programme being developed for 2015-2045, it is expected that these would be supported over time by multi-modal transport services in order to contribute to the outcomes of the Auckland Plan.
- 8.9 From a purely transport perspective, better transport outcomes arise if centres in future urban zones will be planned in an integrated way so that they make best use of public transport, walking and cycling. This helps to reduce the burden on the existing state highway and local road network arising from growth in future urban zones. Matching local employment with local residents by focusing growth in employment centres is an ideal goal from a transport perspective so that growth outside the metropolitan area 2010 doesn't result in a majority of trips to places of employment within the metropolitan area 2010.
- 8.10 In the Auckland context, there have been examples of residential developments that occurred in the western parts of Auckland (e.g. Massey) which developed as low density residential subdivisions in the 1950s with very little local employment and low levels of public transport service. Residents in Massey were very car dependent and were required to travel long distances to work and experienced increasing congestion

along the north-western motorway. Transport infrastructure and services have been implemented and planned subsequently to retrofit solutions and improve access. By contrast, the Hobsonville Peninsula development is providing a mix of residential and employment, a range of densities (but predominantly medium density) and multi-modal transport infrastructure and services.

- 8.11 In 2006 Waitakere City had approximately 15% of the region's residents and only 8% of the region's jobs within its boundaries. As a result, 56% of its workforce travelled outside Waitakere to work. About 25% of local jobs were filled by people who commute into Waitakere from other parts of the region. (Source: Waitakere City Transport Strategy 2010 based on Census 2006, Statistics New Zealand and Waitakere City Council business surveys). The Northern Strategic Growth Area initiative aimed to address this imbalance with plans for 15,000 jobs in stage one. A mix of residential and business land is planned or being taken up at Hobsonville Point and Massey North.
- 8.12 From a transport perspective, there are disadvantages of growth outside the urban area because of long distances to travel, a lack of public transport services to link to the rest of the urban networks and trips onto the urban network contributing to congestion. These additional trips can reduce the effectiveness of the freight network and the efficient movement of goods. Under the current development contributions policy developers do not bear the full cost of infrastructure required for greenfield development. Land prices in greenfields are usually lower for the initial occupants because of the lack of transport access or the higher costs to travel to connect with the rest of the urban network. Occupants rarely contribute to the full price of transport infrastructure and services to the new area, with the additional costs being shared across Auckland by the funders of the entire transport system.
- 8.13 Auckland Council, Auckland Transport and NZTA staff carried out a Transport In Greenfields Areas (TIGA) study 2013 to identify indicative transport infrastructure in greenfield areas as part of the section 32 analysis for the RUB. The TIGA study provides some indication of the different levels of transport infrastructure costs to support a proposed development in greenfield areas being considered for the RUB. It was evident in the development of the TIGA study that the cost of transport infrastructure per dwelling varies significantly depending on the level of density and proximity to existing or proposed transport networks. The TIGA study highlights the different costs per dwelling of servicing the different greenfield areas (see Figure 2 below). This shows a table of indicative infrastructure cost estimates (capital expenditure in 2013 dollars) for arterial roads and major public transport infrastructure in

the greenfield areas. The cost estimates were based on assumptions about the land use, the type of transport infrastructure and 'per kilometre' rates.

Greenfield Area	Scenario	Indicative cost of transport infrastructure (lower)	Indicative cost of transport infrastructure (upper)	Approximate Cost Per Dwelling (using higher development densities)	
				Lower	Upper
Warkworth	8 July 2013 version	\$350,000,000	\$500,000,000	\$57,518	\$82,169
Silverdale	8 July 2013 version	\$610,000,000	\$770,000,000	\$28,863	\$36,434
Northwest	8 July 2013 version	\$1,000,000,000	\$1,300,000,000	\$51,948	\$67,532
South	8 July 2013 'Preferred'	\$1,800,000,000	\$2,100,000,000	\$39,919	\$ 46,572
Total		\$3,760,000,000	\$4,670,000,000	\$28,863	\$82,169

Figure 2 – Comparison of indicative cost estimates of transport infrastructure costs in greenfields

8.14 It is worth noting that in exploring options for the south, the transport infrastructure costs per dwelling varied significantly depending on the size, shape and location of the greenfield area, ranging from \$31,690 to \$47,038. These related to transport infrastructure that had been optimised for the particular greenfield area. In my opinion and based on the findings of Burchell, there is a risk that the transport costs would be higher in the greenfield areas if there had not been an attempt to integrate land use and transport.

8.15 From the modelling of different transport and land use scenarios for possible greenfield areas in Auckland, it was evident that significantly different transport results arise from the modelling of different forms and locations of development in future urban zones, depending on how well integrated the transport and land use is (Source: TIGA study 2013).

9. TRANSPORT EFFECTS OF THE STAGED RELEASE OF LAND WITHIN THE RUB AND STRUCTURE PLANS AS PLANNING TOOLS

9.1 I consider, from a strategic transport planning perspective, the key benefit of the RUB as a tool in the PAUP from a transport strategy perspective is certainty of planning and investment over a 30 year period.

- 9.2 Planning over a 30 year horizon requires a level of certainty for transport planning and investment. Because transport infrastructure can have a life span of 50 years or more, decisions made about infrastructure investment in the short term need to take into account long term demand and outcomes sought. Decisions made about investment in public transport services also need to take into account long term affordability and demand.
- 9.3 The results of modelling the effects of 30 years land use and transport networks are used for investment decisions in transport infrastructure and services being provided now. Examples are the size of a road or interchange and the design of the public transport system. Understanding the long term demand for transport, i.e. location of growth, gives confidence to investment decisions.
- 9.4 Investment in transport has a flow on effect into investment decisions made for other infrastructure. Signals are also provided to developers, businesses, residents (existing and future).
- 9.5 The flow-on effects of certainty of planning and investment are more optimal transport outcomes and integration of land use and infrastructure. As discussed by Mr Munro in his evidence, tools such as a RUB, a staged release of future urban zones and structure plans help to ensure planning for the right infrastructure in the right place when it is needed at an acceptable cost.
- 9.6 In my opinion, there is potential for Auckland Council to experience some practical difficulties in committing early investment to the costs of transport infrastructure and services to significant new developments outside the metropolitan urban area 2010:
- (a) The infrastructure is required in advance of development and the capacity needs to consider anticipated demand from a full development in the area (not restricted to the first development), so there are risks in terms of timing and take-up of development.
 - (b) Under the current development contributions policy and legislation, the full costs of growth of new infrastructure are not met by the developer. Public transport service costs and ongoing costs of operating, maintaining and renewing infrastructure are not met by the developer and are usually only partially met by the occupants of the development.

- (c) Like other cities, Auckland has not yet found an enduring solution to funding increasing transport costs arising from growth and increased expectations of the transport system.
- 9.7 Auckland Council will therefore need to balance investment in transport within and outside the metropolitan area 2010, both to meet current needs and to provide for growth. With additional transport funding, Auckland Council would be able to achieve both. However, there will be timing decisions to ensure that infrastructure and services are provided when it is efficient to do so to serve growth.
- 9.8 In my opinion, a managed and staged approach to releasing land as provided for in section B2.3 is more likely to align with the timing of Auckland Council investment in transport infrastructure and services to support growth in future urban zones and trigger Auckland Council's investment in transport infrastructure and services to future urban zones.
- 9.9 Integration of transport and land use, particularly in future urban zones, can optimise the development and use of the transport system. For this reason I also support the use of Structure Plans in greenfield areas as envisaged by section B2.3. Structure Plans aim to provide integrated land use and infrastructure solutions which make best use of existing infrastructure and plan new infrastructure and services that will be economically efficient and produce good transport outcomes.
- 9.10 The TIGA work is an example of how different transport outcomes can arise from different land use scenarios. Unplanned scenarios may result in less optimal transport outcomes such as an inefficient public transport network.
- 9.11 *"An opportunistic outlook to attract private sector development might result, for example, in a lack of coherence between land use and the offer of transport services, underprovision in public space and poor aesthetic quality of many of the buildings (Brownhill, 1990)." OECD Territorial Reviews Competitive Cities: A New Entrepreneurial Paradigm in Spatial Development, page 118.*
- 9.12 For the reasons discussed above I consider that collectively the release of greenfield land within the RUB in a staged manner and the use of structure planning would provide

an integrated approach to land use and transport and is more likely to result in better transport outcomes and less long term public costs.

10. CONCLUSION

10.1 The objectives and policies relating to quality compact urban form in Sections B2.1, B2.3 and B2.5 of the RPS are important to achieving an effective transport system that contributes to the outcomes sought in the Auckland Plan. A quality compact urban form supported by multi-modal transport would result in transport outcomes that better support the purpose of the Resource Management Act 1991 than an urban form that enables low density development on the urban periphery.

10.2 A quality compact urban form, with the appropriate transport investment/system/infrastructure, can result in the following transport outcomes:

- Better access to employment and other activities by a range of transport modes
- Shorter distances to travel
- Less overall vehicle kilometres travelled
- Lower overall congestion across the network, but may be higher in certain locations
- Lower overall harmful emissions and environmental effects, but greater exposure to air pollution in centres and corridors
- Greater use of public transport, walking and cycling
- Lower average transport costs per household
- Less dependency on motor vehicle
- More efficient transport investment.

10.3 In my expert opinion, the proposed objectives and policies in section B2.1 and B2.3 to define a RUB with urbanisation focused inside that boundary are required to provide certainty for transport planning and investment. A staged release of greenfield land in the future urban zones and structure plans are important tools to support the PAUP's transition to a quality compact urban form.

Kevin Mark Wright
24 November 2014

Attachment A

Qualifications

Commerce Degree B Com (Auckland University) 1986
Law Degree LLB (Auckland University) 1986
Masters of Law with distinction LLM (Waikato University) 1996

Relevant transport experience

Auckland Council Manager Transport Strategy

2010-2014

My role has been to advise Auckland Council in relation to long term transport strategy development, strategic transport advice in relation to plans and programmes, and the development and evaluation of land use and transport scenarios. I have been involved in the following projects:

Auckland Plan Transport Chapter: I led the development of the Transport Chapter of the Auckland Plan and the development of strategic land use and transport scenarios and their evaluation for the Auckland Plan.

Transport Infrastructure in Greenfield Areas: I was part of a Steering Group which oversaw the identification of indicative transport infrastructure and services to support possible greenfield areas. The output of this work formed part of the section 32 analysis for the RUB.

Integrated Transport Programme: I was part of a Project Control Group which oversaw the development of the ITP 2012-2042 and a working draft ITP 2015-2045.

PAUP: I led a team which provided strategic transport contributions to the development of transport aspects of the Regional Policy Statement and produced a report on Transport Infrastructure in Greenfields Areas. I provided input to the strategic approach to parking objectives and policies.

Parking Discussion Document: I led a team which provided council's input to Auckland Transport's development of the Parking Discussion Document.

Waitakere City Council Manager Transport Strategy (and other positions)

1996-2010

My role was to advise Waitakere City Council in relation to long term transport strategy development and input into regional and local land use and transport planning. In this role I was involved in the following projects:

Waitakere City Transport Strategy – I led the development of this 30 year strategy.

Growth & Transport Integration Programme: Northern Strategic Growth Area and New Lynn – I contributed to the development and analysis of this programme.

Auckland Regional Land Transport Strategy 2010 - I was part of a technical working group and a regional executive group involved in the development of this strategy.

Future Land Use and Transport Planning - I was involved in the evaluation of land use and transport scenarios for the Auckland region.

Parking strategies and plans – I led the development of the Waitakere City Parking Strategy and town centre parking management plans and provided input to the Regional Parking Strategy.